European Environment Agency

Climate resilience in Europe, 2025 — progress and challenges

EEA report

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark

Tel.: +45 33 36 71 00
Web: eea.europa.eu
Enquiries: eea.europa.eu/en/about/contact-us

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Key messages

- Climate risk evidence is improving across Europe. To date, 24 EEA member countries have published a comprehensive climate risk assessment at least once.
- However, methodological approaches, sectoral and thematic coverage and the timeliness of climate risk assessments vary significantly. This limits the development of a coherent Europe-wide understanding of climate risks.
- Countries are strengthening the policy foundation for adaptation. All 32 EEA member countries have adopted national adaptation policies, and most have completed at least one full policy cycle. Adaptation is also increasingly anchored in national climate laws, with 18 EEA member countries having introduced legal requirements.
- At the same time, diverse policy approaches, complex coordination across sectors and governance levels, unclear risk ownership, variable institutional capacity and uncertain financing continue to challenge policy coherence. These factors also hinder effective implementation across Europe.
- Although the subnational level is central for adaptation, regional and local implementation remains constrained by limited capacity and resources. This impedes the ability to translate national priorities into targeted action and contributes to uneven preparedness across territories.
- Financial limitations restrict both the scale and continuity of adaptation action. Long-term financial planning for measures is affected by uneven national funding, the absence of dedicated adaptation budgets, weak cost-benefit evidence and limited private investment.
- The development and use of monitoring, evaluation and learning systems vary across countries. Indicators for measuring progress with policy objectives and standardised datasets remain limited. This results in partial evidence on implementation and limits understanding of Europe's preparedness and progress towards climate resilience.
- The assessment points to an opportunity for Europe to move towards a more coherent adaptation policy cycle. Better alignment would strengthen the links between climate risk identification, policy design, anticipatory action, progress monitoring and shared learning, helping to reduce climate risks and build resilience.

Executive summary

At least 95% of Europe's land area experienced above-average annual temperatures in 2025, according to the *European State of the Climate 2025* report (C3S/ECMWF and WMO, 2026). Across the continent, rising temperatures are accelerating the rate at which snow and ice cover are melting; meanwhile, heatwaves, drought, wildfires and marine heat are intensifying. Societies, ecosystems and the economy across Europe are all facing the consequences.

Since the 1980s, Europe has been warming at twice the global average (EEA, 2024); it is the fastest warming continent on Earth. Even with significant mitigation efforts, the climate impacts will continue to intensify. This means that climate resilience and preparedness are essential to protect people, the planet and prosperity.

This European Environment Agency (EEA) report provides a consolidated overview of **reported national adaptation actions** across Europe between 2021 and 2025. It covers reporting by the 27 European Union Member States (EU-27) and voluntary contribution of three additional EEA member countries (Iceland, Switzerland and Türkiye); additionally, it includes desk research from the two other EEA member countries, Liechtenstein and Norway.

Drawing on reporting under Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (referred to here as the Governance Regulation) (EU, 2018), the report assesses progress across the adaptation policy cycle: from understanding climate risks and setting policy objectives to implementing actions and monitoring, evaluation and learning (MEL). However, the data available are variable and incomplete, which limits the robustness of the assessment. As such, the report offers only partial insights into overall progress towards climate resilience.

Climate risk assessments (CRAs) — despite now being more prominent — vary in scope, methodology and timeliness. This limits a coherent Europe-wide understanding of climate risks. However, countries are increasingly building on concepts and approaches aligned with the Intergovernmental Panel on Climate Change (IPCC), International Organization for Standardization (ISO) standards and the European Climate Risk Assessment (EUCRA) framework. Twenty-one EU Member States and three EEA member countries have published comprehensive national climate risk assessments at least once. In spite of this, there is still wide variation in assessment approaches, the use of reference warming trajectories and climate scenarios and sectoral and thematic coverage.

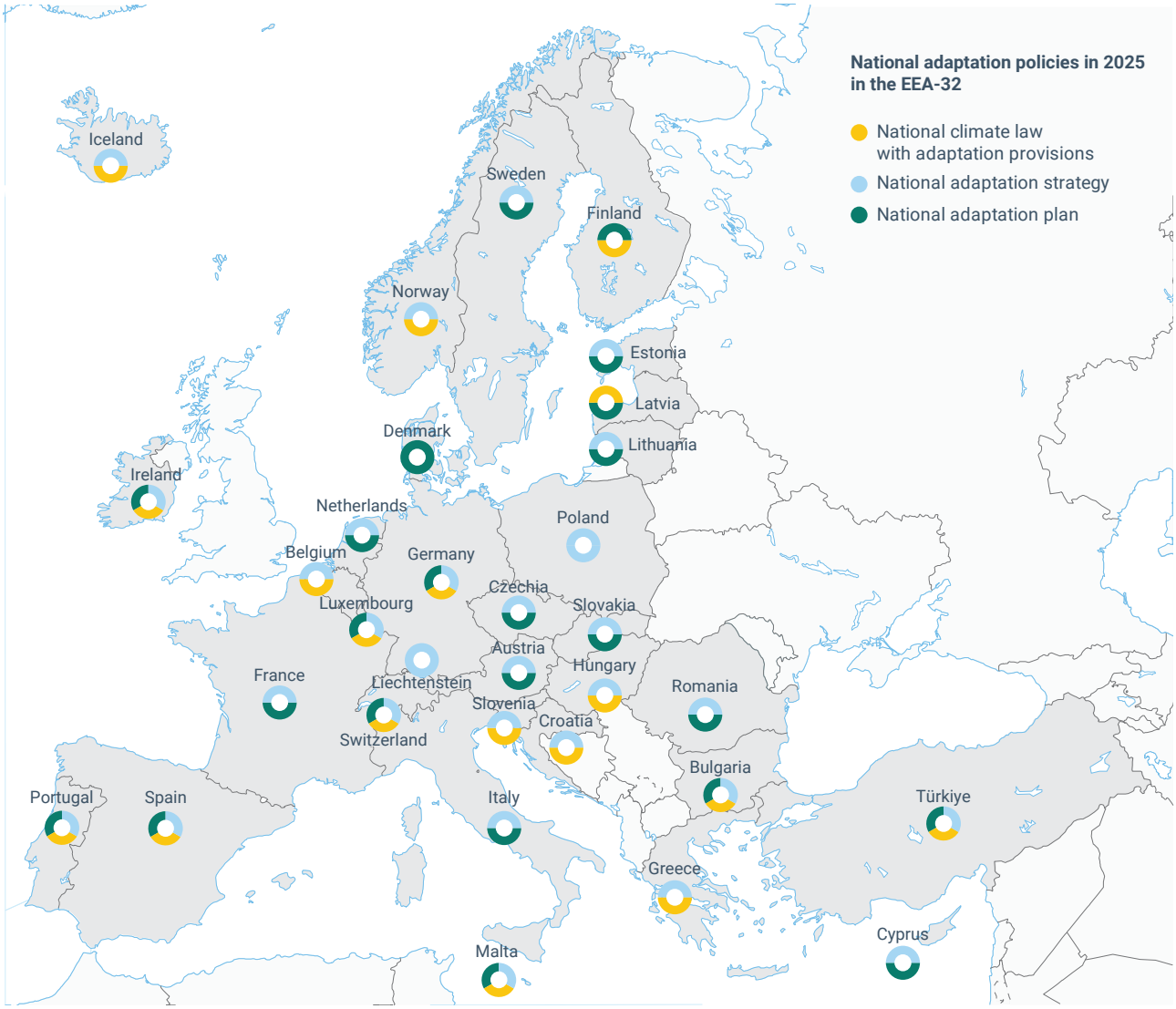
Persistent gaps in the availability of data, institutional capacity and financial resources further contribute to differences. Gaps are particularly relevant for the assessment of compound and cascading risks, which remain less systematically addressed. These limitations, in turn affect how climate risks are identified and integrated into policies. It contributes to uneven levels of risk awareness, preparedness and policy uptake across countries and sectors.

Despite growing recognition of transboundary climate risks — including risks arising from interconnected systems, as well as cascading effects that spread across sectors and countries — **cross-border assessments are still poorly aligned**. This constrains a shared understanding and leaves an incomplete picture of how best

to address the shared risks. There is limited cross-border cooperation, data sharing and dialogue on good practices that would promote learning, knowledge transfer and capacity-building across Europe.

Partial evidence about implementation limits the understanding of Europe's preparedness and progress towards climate resilience. Delivered data under the current reporting has a strong emphasis on planning and governance arrangements with far less information available on actions and outcomes. While reported information points to advances across the adaptation policy cycle over the past five years, it also indicates **persistent implementation challenges and gaps** in translating climate risk considerations into tailored action. All 32 EEA member countries have adopted national adaptation policies and most have completed at least one full adaptation policy cycle. To date, 18 countries (14 EU Member States and four EEA member countries) anchor adaptation in national climate laws (see Map ES.1).

Map ES.1 **Overview of national adaptation policies, 2025**



Note: The map shows national adaptation strategies (NASs) and national adaptation plans (NAPs) of EEA-32, reported as adopted in 2025 and national climate laws with adaptation provisions as mapped in 2024 and 2025. The map showcases the state of play in EEA-32 until 31 December 2025.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a), and complementary data through desk research and surveys.

Still, policy approaches vary due to different governance systems, legal traditions and institutional arrangements. Climate risk evidence is often not clearly linked to measurable policy objectives, corresponding indicators or climate-risk responsive actions, reducing the ability of planning systems to guide action and track progress. Diverse policy approaches and complex coordination across sectors and governance levels continue to hinder effective implementation and policy coherence across Europe, driven by **unclear risk ownership, variable institutional capacity and uncertain financing**.

Furthermore, **regional and local implementation is hindered** by the limited capacity and resources available to subnational authorities. This impedes the ability to translate national priorities into targeted action. It also contributes to differences in preparedness across territories. However, EU-level initiatives — including the Covenant of Mayors and the EU Mission on Adaptation to Climate Change — together with national programmes, are increasingly supporting regional and local adaptation action.

Financial limitations restrict both the scale and continuity of adaptation action. Long-term financial planning for measures is hampered by uneven national funding, the absence of dedicated adaptation budgets, weak cost-benefit evidence and limited private investment.

Despite increasing recognition, just resilience considerations are not yet adequately integrated into adaptation planning. Emerging examples suggest that there is a growing focus on the 'leave no one behind' principle, including the needs of vulnerable groups, social preparedness and citizens' well-being. However, considerations related to social vulnerability, equity and distributional impacts are not yet systematically integrated into adaptation planning.

Monitoring, evaluation and learning systems remain incomplete in many countries. As a result, effectiveness of actions and progress cannot be reliably showcased. This hinders understanding of whether adaptation policies are delivering intended outcomes. It also weakens the available evidence to inform future climate risk assessments and policy design.

Reporting also suggests considerable variability in how countries frame adaptation objectives and whether they define measurable targets and corresponding indicators. **Weak or missing links between policy objectives and indicators constrain the capacity to track progress and assess outcomes**. This underscores the need for stronger, outcome-oriented metrics to support effective climate adaptation policy — assessment approaches for measuring progress towards climate resilience across Europe, following the logic of risk-response-results (EEA, 2025b).

These findings come at a pivotal moment for European climate resilience and adaptation policy. The 2021 EU Adaptation Strategy (EC, 2021a) set out a vision for a climate-resilient Europe, while the first European Climate Risk Assessment (EUCRA) in 2024 evidenced the need for urgent and decisive action on many major climate risks.

The European Commission (EC) is now developing a **European Integrated Framework for Climate Resilience**. Expected by the end of 2026, it will establish a more comprehensive and coherent approach to climate resilience and preparedness, facilitating action by Member States and the EU as a whole.

In parallel with Union-level action, sustained exchange between countries is important to strengthen mutual learning, knowledge transfer and the wider uptake of good practices across Europe.

The insights in this assessment underline **the need for a robust, outcome-oriented evidence base on preparedness and progress towards climate resilience**. The ongoing review of the Governance Regulation will likely offer an opportunity to improve how progress on climate resilience and preparedness is tracked. Future reporting would benefit from clearer information on policy objectives, implementation, financing and outcomes. Strengthened reporting — and informing progress assessments under the European Climate Law — would support the European overview needed to address climate risks coherently, inform policy design and guide decision-making. Strengthening reporting is essential for accountability, transparency and learning. It also ensures the availability of robust evidence that informs the development and implementation of more comprehensive climate resilience and adaptation policies and actions. This helps advancing progress in reducing climate risks and safeguarding Europe's climate-resilient future.

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1 Introduction

1.1 Policy context

European policy on climate resilience and adaptation is evolving to meet the challenges of a warming world. At the international level, Article 7 of the Paris Agreement has established a global goal on adaptation. This is supported by targets set out as part of the 'iterative adaptation policy cycle' under the United Arab Emirates (UAE) Framework for Global Climate Resilience (UNFCCC, 2023).

Within Europe, commitments under the Paris Agreement are anchored in the European Climate Law (EU, 2021). This mandates continuous progress to enhance adaptive capacity and reduce vulnerability.

Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action (referred to here as the Governance Regulation) (EU, 2018) has introduced integrated planning and reporting cycles on climate and energy policies. It includes an obligation for Member States to include adaptation goals in their national energy and climate plans and report every two years on their national adaptation actions. This enables a data-driven view of the adaptation policy cycle.

Furthermore, in 2026 the European Commission (EC) is developing a European Integrated Framework for Climate Resilience. This will establish a more comprehensive and coherent approach to climate resilience and preparedness. It will facilitate action by Member States and the EU as a whole.

1.2 Aim and scope

The objective of this report is to present an analysis of European progress towards climate resilience since 2021, with an emphasis on the state of play in 2025. The report will focus on recent policy developments, emerging challenges and lessons learned to give an overview of how policy and implementation are evolving.

The assessment primarily covers the 27 European Union Member States (EU-27) but extends to all 32 European Environment Agency (EEA) member countries. It incorporates voluntary reporting by Iceland (2023 and 2025), Switzerland (2023 and 2025) and Türkiye (2021 and 2025), alongside desk research for Liechtenstein and Norway.

The 2025 reporting cycle is the third mandatory cycle under Article 19 of the Governance Regulation, and it serves as the evidence base for this report. It builds on previous submissions from 2021 and 2023 [1].

(1) Data reported under Article 17 of the Governance Regulation was analysed in the context of the 2025 EEA briefing *From adaptation planning to action: Insights into progress and challenges across Europe* (EEA, 2025a); however, it is not included in the present report due to data heterogeneity. The overall findings are presented in the Commission's Climate Action Progress Report 2025 (EC, 2025a).

The report also draws on other published sources where relevant. The analysis is further informed by findings from previous EEA reports and briefings, as well as technical papers by the European Topic Centre on Climate Change Adaptation and Land Use, Land-use Change and Forestry (LULUCF) (ETC CA). This supports a more in-depth understanding of reported adaptation policies and actions [2].

The reported information is available on the EEA's Reportnet 3 portal (EEA, 2026a) and in a structured format as country profiles via Climate-ADAPT (EEA, 2016). Countries may voluntarily update their reported information at any time to better reflect recent policies and actions.

The cut-off date for data used for the analysis was 31 August 2025 [3]. The report provides a snapshot of recent adaptation policies and actions, primarily based on 2025 submissions. There is some comparison with 2021 and 2023 data, but the report does not aim to provide a comprehensive historical overview of all adaptation efforts.

1.3 Report structure

This report assesses information submitted under the Governance Regulation and aims to describe collective progress along the path set out by the iterative adaptation cycle, as formalised by the UAE Framework for Global Climate Resilience (see Figure 1.1). It does not undertake a compliance check.

Chapters 2 to 5 analyse the reported information for each of the four stages of the cycle:

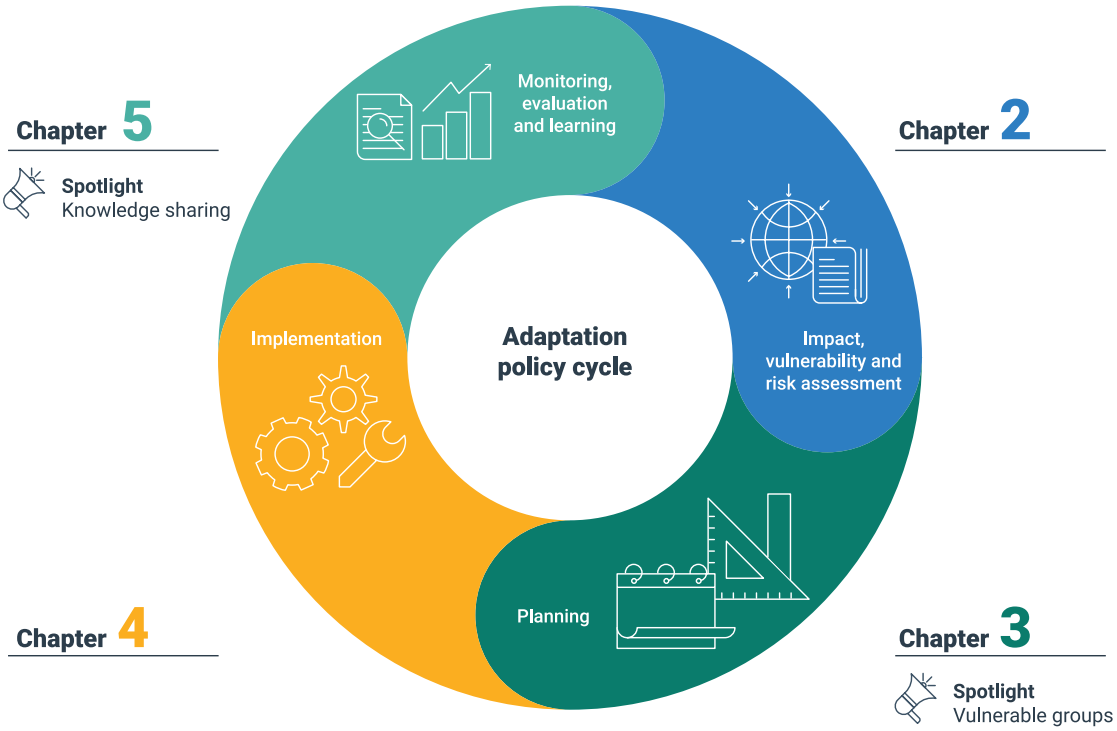
- impact, vulnerability and risk assessment;
- planning;
- implementation;
- monitoring, evaluation and learning.

Two 'spotlights' provide more detailed insights into specific policy challenges: in relation to vulnerable groups and knowledge sharing. Chapter 6 synthesises the challenges and opportunities across the entire cycle. Country examples are provided throughout the report to highlight country-specific experiences and learning.

(2) This complements findings from the 2025 EEA briefing From adaptation planning to action: Insights into progress and challenges across Europe, the 2023 EEA briefing Is Europe on track towards climate resilience? Status of reported national adaptation actions in 2023 (EEA, 2023) and the 2022 EEA report Advancing towards climate resilience in Europe: status of reported national adaptation actions in 2021 (EEA, 2022). This report also draws on several technical analyses by Eionet, in particular the ETC CA 2024/2 technical report Characteristics and conditions of adaptation policy in European Environment Agency member and cooperating countries (Leitner et al., 2024).

(3) The report does not reflect developments that occurred after 31 August 2025. This may mean that recently adopted or updated legislation, strategies or action plans have been omitted here. However, information provided by countries during the European Environment Information and Observation Network (Eionet) consultation process conducted in March-April 2026 has been taken into account where relevant.

Figure 1.1 **The iterative adaptation cycle and corresponding report structure**



Note: Chapters 3 and 5 include dedicated 'spotlights' on vulnerable groups and knowledge sharing, respectively.

1.4 Methodology and data limitations

This assessment offers an extensive overview of adaptation policies and actions. However, it is bound by the constraints of the reporting structure of the current Governance Regulation.

The EC's 2024 evaluation of the Governance Regulation concluded that while it is the main instrument that sets out how Member States report on national adaptation actions, it currently lacks the indicators required to track adaptation progress effectively (EC, 2024b).

The EC has acknowledged that 'the Regulation has improved the quality of information reported by Member States to some extent. However, there are still gaps and inconsistencies in the information reported in the progress reports. This also applies to the scope and quality of reported information on climate change adaptation measures (Article 19(1))'. It is essential to be transparent about these limitations to interpret the findings of the report accurately.

The main issue relates to the structure of reporting defined in Implementing Regulation (EU) 2020/1208 (EU, 2020). While Annex I of this regulation sets out a reporting structure aligned with the Paris Agreement 'Modalities, Procedures and Guidelines' for biennial transparency reports, the requirements are not accompanied by mandatory guidance or indicators; in addition, the systematic collection of information on adaptation measures remains voluntary.

This leaves scope for Member States to interpret and address the requirements in different ways, resulting in heterogeneous data. Even where a country reports data thoroughly, the current structure does not fully support comprehensive assessments.

Country submissions tend to focus on planning and governance and coordination mechanisms. Less detail is given about planned or implemented actions and outcomes. This makes it more difficult to assess real preparedness and progress towards climate resilience and fully understand implementation of actions and measures.

2 Impact, vulnerability and risk assessment

Key messages

- As of 2025, all countries assess climate risks in some form. To date, 21 European Union (EU) Member States and three European Environment Agency (EEA) member countries have published comprehensive national climate risk assessments (CRAs) at least once.
- Despite overall progress, the methodological approach, coverage and timeliness of national CRAs vary significantly. Six EU Member States and two EEA member countries still lack a comprehensive national CRA, while others are still operating on the basis of national assessments that are more than 8 years old.
- A total of eight EU Member States and two EEA member countries have introduced national climate laws with legal requirements to carry out CRAs. This supports regular updates to climate risk knowledge and its use in iterative adaptation planning.
- Despite growing recognition of transboundary climate risks, CRAs across borders are not well aligned, constraining a shared understanding of these risks.
- Links between CRAs, measurable adaptation targets and monitoring, evaluation and learning (MEL) systems remain weak. This indicates a disconnect between climate risk evidence, the verification of adaptation outcomes and policy learning.

Assessments of climate hazards, impacts, vulnerabilities and risks are providing the knowledge base required to support adaptation policies and actions. This report uses the term climate risk assessments (CRAs) to describe the diverse forms of systematic evidence-gathering activities that seek to assess and understand climate impacts, vulnerabilities and/or risks (EEA, 2018).

The main purpose of CRAs is to provide up-to-date knowledge enabling a robust understanding of current and future climate-related risks to inform evidence-based adaptation planning and implementation (EEA, 2022; Leitner et al., 2024). Aligning CRAs with the adaptation policy cycle — both in terms of how they are reported on and the substance of what is reported — ensures that the next generation of policies responds adequately to evolving climate risks.

This chapter provides an overview of how CRAs have developed across EU Member States and EEA member countries. It analyses the different types of CRAs according to:

- their purpose, scope, scale and delivery format;
- their roles across the iterative adaptation cycle;
- how they are embedded in policy frameworks, governance structures and legislation.

It also highlights methodological advancements and identifies common gaps and opportunities.

2.1 Climate risk assessments — a knowledge base for informing adaptation planning

The European Climate Law requires EU Member States to develop their national adaptation strategies (NASs) and national adaptation plans (NAPs) based on 'robust climate change and vulnerability analyses … guided by the best available and most recent scientific evidence' ((EU, 2021) Art. 5(4)). CRAs can support adaptation policy processes in multiple ways:

- by raising awareness among stakeholders and risk owners about climate risks and the need for action;
- by identifying major climate risks that urgently demand action;
- by guiding prioritization of sectors, themes and regions where adaptation is most needed or where more detailed assessments are required;
- by helping to define adaptation goals, objectives and targets;
- by evaluating policy readiness and identifying adaptation policy options;
- by informing the analysis and selection of the most effective adaptation actions;
- by identifying maladaptive practices (Leitner et al., 2024; EEA, 2020; IPCC, 2023; ISO, 2019).

By revealing sectoral policy gaps and regional adaptation needs, CRAs help to mainstream adaptation across multiple sectors; they also facilitate coordination across governance levels and the allocation of risk ownership. As such, they strengthen the governance, legitimation and accountability of adaptation policies.

National CRAs are relevant at multiple stages and in all iterations of the adaptation cycle (EEA, 2020, 2022). As countries progress through this cycle, it becomes necessary to update and expand the CRA-related knowledge base recurrently and continually (EEA, 2022).

This underlines that CRAs are becoming an integral tool for adaptation and can also provide significant inputs for upcoming cycles of policy development (EEA, 2020).

For example, CRAs can:

- serve as a baseline to measure whether adaptation actions are reducing exposure, vulnerability and impacts over time (OECD, 2024);

- help in identifying additional measures that are needed when adaptation policies are revised;

- guide future research funding in response to knowledge gaps.

Over the last five years, progress on CRAs has been visible across Europe. As of 2025, some form of relevant climate risk information is available to support evidence-based policymaking on adaptation in all EU Member States and EEA member countries.

In the two-year period covered by the last reporting cycle under the Governance Regulation (2023-2025), 16 EU Member States (Austria, Bulgaria, Croatia, Cyprus, Denmark, Finland, France, Greece, Hungary, Ireland, Luxembourg, Netherlands, Portugal, Romania, Slovakia and Spain) and four EEA member countries (Iceland, Lichtenstein, Norway and Switzerland) have delivered new reports and studies related to CRAs and relevant to policymaking.

2.2 Comprehensive national climate risk assessments

Across the three reporting cycles [4] under the Governance Regulation, a continuing trend towards integrated national CRAs has emerged. These integrated CRAs usually combine quantitative and qualitative methods to analyse complex climate-related risks across a broad range of systems, sectors and scales using interdisciplinary approaches.

Supported most recently by the first European Climate Risk Assessment (EUCRA), countries are increasingly conducting CRAs that have a country-wide scope, covering multiple hazards, risks and sectors and their interactions; they often address compound impacts, cascading risks and transnational dimensions.

In comparison with partial or sectoral assessments, these **comprehensive national CRAs** [5] support systemic understanding of climate risks by allowing countries to address cross-sectoral interdependencies and complex impact chains, and how climate hazards (see Box 2.2), exposure and vulnerability interact to produce climate-related risks. They inform an understanding of how the risks may unfold over different time scales and under different warming trajectories. In turn, this kind of analysis supports more systemic adaptation responses with coherent integration of preparedness measures and adaptation policies across sectors and multiple levels.

To date, 21 EU Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Malta, Poland, Portugal, Slovakia, Spain and Sweden) have comprehensive national CRAs in place. Between 2021 and 2025, 10 Member States (Austria, Belgium, Cyprus, Finland, Germany, Ireland, Malta, Portugal, Slovakia and Spain) prepared new or updated national CRAs.

(4) 2025, 2023, 2021

(5) Following the approach introduced in Leitner et al., 2024, a CRA needs to fulfil the following minimum requirements to be considered 'national and comprehensive': a national and comprehensive CRA 'includes (i) knowledge resources on climate change-induced hazards, impacts, vulnerabilities and risks that (ii) address multiple potential effects of climate change, (iii) have a multi- or cross-sectoral scope, (iv) cover the entire national territory or even stretch beyond (e.g. including cross-boundary and transnational risks) and (v) is finalized, published and publicly available. Moreover, the assessments of climate risks (vi) need to be policy-relevant in that they have a role in informing national adaptation policies, regardless of being delivered as a standalone product (e.g. separate assessment report) or an integrated part of NAS or NAP documents. The underlying concept of "comprehensive national CRAs" used is impartial to specific assessment methodologies.'

For example, Ireland produced its first national climate change and risk assessment, presented in four volumes alongside a synthesis report. Cyprus and Slovakia have completed their first national CRA as the outcome of an EU-funded project. The Portuguese National Roadmap for Adaptation 2100 incorporates country-wide CRAs at territorial NUTS 2 [6] level. Meanwhile, the Spanish CRA includes an assessment of the urgency to act upon identified key risks; it also analyses the interrelationships of risks across sectors.

In the same period, from 2021 to 2025, the overall number of comprehensive national CRAs across all Member States increased to 39 published reports. This indicates that many countries have revised their national CRAs and are updating and expanding their knowledge to keep up with evolving climate risks, policy demands and advancements in methodologies, climate projections and data availability.

Out of the 21 Member States with national comprehensive CRAs, 11 countries have completed a single assessment, five countries have delivered two assessments, and five countries have published three or more assessments.

Comprehensive national CRAs are also available in Norway, Switzerland and Türkiye. In preparation for its next NAS and NAP, Switzerland published its second national CRA in 2025. Türkiye completed its first national multi-sectoral risk assessment in 2021.

In contrast, based on the criteria used in this report, six EU Member States and two EEA member countries do not have a comprehensive national CRA in place yet (Estonia, France, Iceland, Liechtenstein, Luxembourg, the Netherlands, Romania and Slovenia). The Netherlands and Slovenia report that they are currently preparing one.

If a comprehensive national CRA report is not available, it does not necessarily imply that a country is lacking a robust knowledge base for adaptation policymaking; sometimes it reflects a national preference for relying on sector-based or thematic assessments. For example, Estonia has conducted and is planning to update several in-depth climate impact assessments on sector-related key areas to inform the development of its NAP. Likewise, in France a range of thematic and regional assessments are available.

Factors hindering comprehensive national CRAs may relate to the capacity gaps and challenges reported by countries and described in Section 6.1 of this report. Currently, over half of all published national CRAs are more than five years old, with some dating back as far as 2006. Six countries with CRAs that may be considered outdated have not announced any intention to update their assessments.

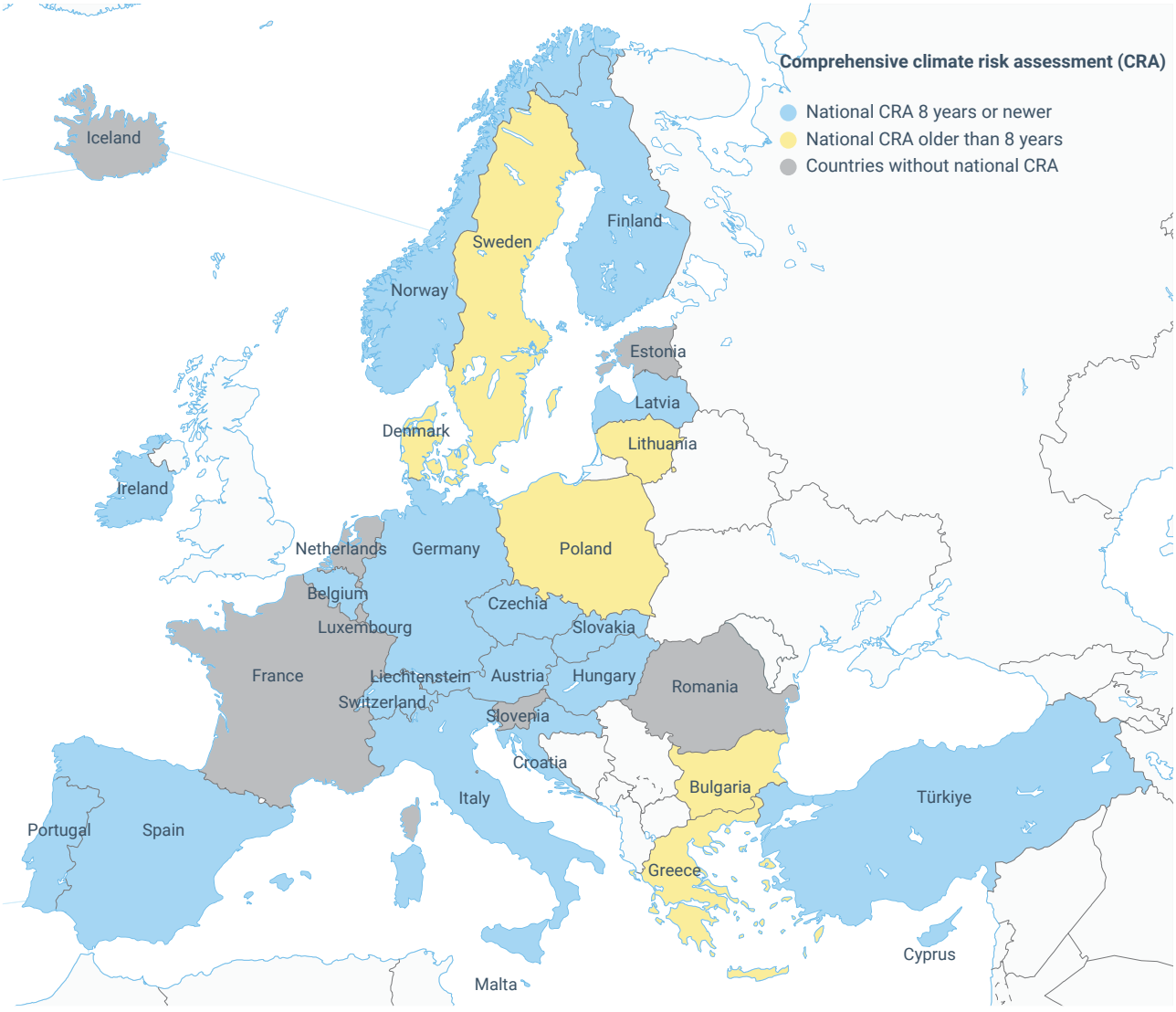
Based on the information reported in 2025, 11 EU Member States (Bulgaria, Czechia, Greece, Ireland, Latvia, Malta, the Netherlands, Poland, Slovenia, Spain and Sweden) are planning or moving forward with their first comprehensive CRAs or revisions of existing national assessments.

The Netherlands is currently preparing a national analysis of future climate risks. Together with the available analysis of current climate risks, this will form the first comprehensive Dutch CRA. EEA member countries Iceland, Norway and Türkiye are currently also working on advanced future CRAs with comprehensive scopes.

(6) Nomenclature of territorial units for statistics (NUTS) refers to a hierarchical system for unambiguously identifying and classifying the spatial reference units of official statistics in the EU Member States. NUTS 2 units refer to larger regions with a population of between 800,000 and 3,000,000 inhabitants.

Overall, this confirms the earlier assessment that countries are moving forward at different speeds (EEA, 2023). This risks a gap between a minority that are still without a first national CRA or up-to-date knowledge base and an increasing number of countries that are showing high levels of ambition and regularly updating their evidence base.

Map 2.1 Status of comprehensive climate risk assessments



Note: This map shows the status of comprehensive national CRAs of EEA-32, as reported in 2025. Countries are grouped into three categories: those without a national CRA, those with a CRA that is 8 years old or newer, and those with a CRA older than 8 years. The map showcases the state of play in EEA-32 until 31 December 2025.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a), and complementary data through desk research and surveys.

2.3 Thematic and subnational climate risk assessments

Further to national CRAs, most countries have published sectoral and/or thematic CRAs — often several — and many continue to produce these kinds of issue-specific studies, frequently driven by sectoral policy demands and/or legal obligations.

Partial or single-issue assessments alone may not suffice as a substitute for a comprehensive national knowledge base on climate risks and might compromise the coherence of adaptation efforts across policies. However, they can feed into comprehensive national CRAs, fill knowledge gaps in areas of key risk and inform the mainstreaming of adaptation into sector policies.

Since 2021, the number of EU Member States with sector-specific or thematic climate risk analyses has increased from 13 to 23 countries.

From 2023 to 2025, new thematic or sectoral assessments were produced by 11 EU Member States (Austria, Croatia, Cyprus, Denmark, Greece, Hungary, Ireland, the Netherlands, Romania, Slovakia and Spain). These studies include national disaster risk assessments that deliberately consider future climate change (Croatia, Cyprus and Greece) and an updated national flood risk assessment for coastal and fluvial flooding (Denmark); they address wildfire risk (Greece), critical energy infrastructure (Hungary), water management issues (new Delta scenarios, which are long term planning tools with risk analyses in the Netherlands) and vulnerable social groups (Spain). Greece has produced climate risk studies for seven sectors, which will feed into the planned update of its national CRA.

Countries using sectoral adaptation plans (SAPs) as policy instruments (see Chapter 3) have the highest number of sectoral CRAs (e.g. Finland, Ireland, Spain and Sweden). For example, 32 sectoral CRAs prepared by national sector authorities are available in Sweden; meanwhile, Ireland is currently updating its sectoral CRAs as part of the second policy cycle for Irish SAPs.

Within countries, sectoral and comprehensive CRAs may be used either separately or together. While most countries with established SAPs combine both approaches — linking their sector-based CRAs with integrated national assessments — there are also countries that rely mainly on sector-related assessments without integrating them into a single, comprehensive national CRA. For example, the development of the NAS and NAP in Estonia is based on several extensive assessments of climate impacts on key sectors.

While the reported information does not provide a complete picture about subnational assessments of climate impacts, vulnerabilities and risks (see Section 3.3), it can shed some light on the role of subnational CRAs that are mandated, driven forward and/or financed at the national government level. A total of 10 EU Member States (Belgium, Finland, France, Greece, Italy, Lithuania, Luxembourg, Poland, Slovenia and Sweden), as well as Switzerland and Norway, have subnational assessments that are closely embedded in national governance systems or reflect the specificities of federal state systems (e.g. in Belgium).

Greece produces regional adaptation action plans that must include assessments of climate risks. A total of nine of these have been endorsed and a further four were under preparation as of February 2025.

In France, a series of territorial vulnerability analyses has been conducted; these are mandatory as part of territorial climate-air-energy plans (PCAETs) prepared by public inter-municipal authorities covering more than 20,000 inhabitants.

Hungary has recently started the Danube-ADAPT project, which aims to provide CRA-related information at local and regional levels. Meanwhile, Türkiye has started its EU Partnership for Local Climate Action project. The aim of this is to provide sectoral CRAs for all NUTS 1 regions up to 2028.

Slovenia has also carried out national and regional climate risk and vulnerability assessments, including sector-specific studies. Projects such as LIFE ViVaCCAdapt and DriDanube have further integrated these assessments into local planning and improved drought risk monitoring.

2.4 Aligning climate risk knowledge updates with policy processes

Systematically integrating national CRAs into the iterative adaptation cycle and using them to inform the development or revision of adaptation policies helps ensure that the next generation of policies is informed by the latest available climate risk information.

As of 2025, 13 EU Member States of the 21 with available comprehensive national CRAs have delivered stand-alone CRA reports as substantial input for subsequent policy development. The remaining countries have analysed climate risks as part of the process of drafting or updating their NAS/NAP and incorporated the results directly into these policy documents.

Some countries also take a dual approach. For example, Austria incorporates independent scientific assessment reports, compiled by the domestic research community, into policy-driven reassessment of the climate risk-related knowledge base; this contributes to the country's regular NAS/NAP revisions.

In line with the observed trend towards integrated national CRAs, EU Member States are revising their assessments at periodic intervals ranging from every five years — the most common — (e.g. Austria, Croatia, Bulgaria, Ireland and Spain) to every eight years (Germany and Finland).

Provisions for institutionalising regular renewal of CRAs can result from legal obligations or political commitments set out in NAS and NAP documents, or as part of established routines (Eionet, 2024). Almost all the countries reporting in 2025 that they are currently planning or working on national CRAs demonstrate a preference for stand-alone assessments with regular revision cycles. This indicates the increasing significance of CRA processes for evidence-based policy on adaptation.

In contrast, CRA and monitoring, evaluation and learning (MEL) systems appear to be largely separate and parallel processes in most countries, typically involving different bodies and actors. This suggests that systematic coupling between the two remains limited, pointing to an underdeveloped science-policy interface.

When effectively connected, CRAs and MEL processes can be mutually reinforcing. For example, MEL can generate new climate risk data and reveal knowledge gaps through evaluation, while CRAs can provide baselines for assessing adaptation progress and identifying new or increasing adaptation needs. Strengthening these kinds of systematic linkages between CRAs and other steps in the iterative adaptation cycle would clearly enhance the overall efficiency and effectiveness of adaptation policies.

2.5 Embedding national climate risk assessments into governance frameworks

Each country has its own way of embedding CRAs into national adaptation governance systems. National CRAs are usually required and initiated by government authorities that retain overall political ownership of national adaptation policymaking. However, some countries also undertake independent bottom-up assessments of the domestic scientific community (e.g. Austria) or project-based assessments (e.g. Czechia, Greece, Poland, Portugal and Türkiye) supported by EU funding programmes.

These can be coordinated and supported by diverse actors, such as:

- government-affiliated agencies like an environment agency, national meteorological service or hydro-meteorological institute;
- high-level inter-ministerial coordination bodies such as commissions or committees;
- NAS-associated working groups;
- newly established, specialist institutions like the Climate Risk Assessment Centre in Belgium or the National Expert Council in Sweden.

Most countries centrally coordinate their national CRAs, while some decentralise the responsibilities to sectoral authorities (e.g. Ireland or Romania). Slovenia offers an example of this. It is investing in building the capacity of its sectoral authorities, enabling them to prepare their own sectoral climate vulnerability and risk assessments. Assessments are mostly carried out on behalf of the responsible government authorities by universities, research institutes, government agencies, international project consortia and, in a few cases, private consultants.

In recent years, governments have increasingly tasked dedicated scientific advisory bodies (e.g. in Norway and Spain) with supporting national assessments and/or integrating new knowledge into policy development (EEA, 2022). Usually, national CRAs involve a large variety of external stakeholders, including public administrations at different levels and non-governmental stakeholders. Engaging with different authorities and other stakeholders in a collaborative process can strengthen risk co-ownership and policy coherence. Additionally, it can support the acceptance and implementation of adaptation measures.

2.6 Evolving climate risk assessment methodologies

A large variety of concepts, assessment designs, methodological frameworks and data sources continue to be employed by national CRAs (EEA, 2020); there is considerable heterogeneity across countries. Countries are applying portfolios of mixed methods to their multi-sectoral, comprehensive CRAs; these often combine: qualitative data, tools and methods (e.g. empirical analysis, literature reviews, meta-analysis of existing studies, expert consultations, stakeholder workshops); indicator systems; composite indices; impact chains; vulnerability and risk metrics; quantitative impact modelling.

Feedback from stakeholders is used to examine how plausible assessment results are and to prioritise climate risks for policy development or for more detailed analysis. More recent comprehensive CRAs reflect growing uptake of the concept of climate risk set out by the Intergovernmental Panel on Climate Change (IPCC, 2020). Equally, certain countries are taking inspiration from the International Organization

for Standardization (ISO) standards or the analytical approaches used in the EUCRA framework (EEA, 2024). For example, Belgium, Ireland and Spain are drawing on this framework as a methodological reference.

Only a few apply more systemic approaches such as:

- high-resolution climate projections and socio-economic scenarios;
- more frequent consideration of interacting multiple risks;
- analysis of compound impacts;
- modelling of cascading effects;
- precautionary high-emission trajectories.

Countries are also building on updated high-resolution climate projections, which increasingly include shared socio-economic pathway (SSP) scenarios [7] to better capture non-climatic risk drivers. As such, assessments are moving towards more systemic consideration of multiple interacting risks, cascading effects and cross-border or international dimensions.

For example, in its 2024 climate risk and vulnerability assessment, Cyprus applied high-resolution regional climate models and used downscaled projections based on representative concentration pathways (RCPs) under RCP4.5 and RCP8.5 [8]; impact chains and geospatial tools enhanced the risk visualisation and stakeholder relevance. This strengthened the capacity of the national modelling and aligned it with the EUCRA and IPCC's sixth assessment report (AR6) frameworks (IPCC, 2023; EEA, 2024).

Türkiye is currently updating its climate projections in line with the SSP scenarios; additionally, sectoral vulnerability and risk assessments will be carried out regionally for Türkiye's 12 NUTS 1 regions. Türkiye has reported that the results of this study will pinpoint differences in impacts, vulnerabilities, adaptive capacities and risks when compared with the current vulnerability and risk assessments.

Recently, preferences for and statutory provisions based on high-emission scenarios have emerged; they represent an innovative precautionary approach to adaptation planning. The national reference warming scenario for climate adaptation in France is now based on a global warming level of +3°C until 2100 (corresponding to +4°C in mainland France) (see Box 2.1).

(7) SSPs have been developed to complement RCPs. SSPs are scenarios (narratives) of alternative socio-economic global development that are associated with certain levels of emissions and climate change under different climate policy regimes.

(8) RCPs are scenarios that include time series of emissions and concentrations of the full suite of greenhouse gases (GHGs), aerosols and chemically active gases, as well as land use/land cover. The word 'representative' signifies that each RCP provides only one of many possible scenarios that would lead to specific 'radiative forcing' characteristics. RCPs usually refer to the portion of the concentration pathway extending up to 2100, for which 'integrated assessment models' produce corresponding emission scenarios (IPCC AR6 glossary). RCP4.5 is defined as an intermediate stabilisation pathway leading to global warming of about +2.6°C up to 2100; RCP8.5 refers to a high emission pathway ('business-as-usual') leading to global warming of about +4.8°C up to 2100.

Box 2.1

Reference warming trajectories using high-emission scenarios to support precautionary resilience levels

To account for future uncertainties and to adequately project plausible future development pathways, CRAs use a range of different climate and socio-economic development scenarios. The outcomes of a CRA are significantly influenced by the choice of GHG emission trajectory and related global warming levels; these choices may reflect underlying assumptions or policy contexts. At present, there is no synchronised European approach specifying which emission trajectories, warming levels or socio-economic scenarios should be covered in CRAs; countries define their own trajectory and scenario choices, and assessment approach.

At times, earlier assessments have relied on scenarios that did not fully capture the upper range of possible emission pathways. In some cases, this has contributed to underestimates of future climate-related risk.

More recent scenario frameworks — including those used in EUCRA (e.g. SSP1-2.6 and SSP3-7.0) and the upcoming Coupled Model Intercomparison Project (CMIP7) scenarios — aim to better represent the full range of plausible futures, including both lower- and higher-emission pathways.

For example, the national reference warming scenario for adaptation in France has recently been changed to a global warming level of +3°C up to 2100, corresponding to +4°C in mainland France. Based on that government decision, France is currently updating its climate projections and services, developing corresponding adaptation trajectories and studying the physical limits of adaptation. A decree adopted in January 2026 defines the objectives of the trajectory for climate adaptation. The national adaptation policy is to be based on this with the aim of gradually updating risk assessments and adaptation plans for all sectoral, regional and corporate policies.

More precautionary adaptation and resilience planning is supported by the use of high-emission scenarios — corresponding to higher global warming levels — as well as low-probability, high-impact events. This helps to avoid maladaptive long-term infrastructure development and investment decisions. Additionally, it supports the identification of both soft and hard [9] limits of adaptation. Recognising these limits is also important for pinpointing where adaptation alone may be inefficient, thereby underscoring the importance of both mitigation efforts and, where necessary, more transformative approaches to adaptation.

2.7 Legal requirements for climate risk assessments

A total of 10 EEA member countries have introduced legal obligations relating to the governance of key elements of national CRAs in their national climate laws. These include requirements around update cycles, institutional responsibilities, adaptation policy revisions and the involvement of advisory bodies and stakeholders (Leitner et al., 2024; Johnson et al., 2026). Eight EU Member States (Croatia, Finland, Germany, Greece, Hungary, Malta, Portugal and Spain) along with Iceland and Switzerland have now embedded legal mandates to conduct CRAs within their national climate laws (in the case of Germany, in the Federal Climate Adaptation Act).

(9) IPCC AR6 definitions:
- Hard adaptation limit: no adaptive actions are possible to avoid intolerable risks.
- Soft adaptation limit: options may exist but are currently not available (e.g. due to a lack of finance or human capacity) to avoid intolerable risks through adaptive action.

Meanwhile, France and the Netherlands have anchored obligatory requirements for CRAs in specific contexts to other pieces of legislation (e.g. in water management, land-use or public health).

Legal mandates relating to CRAs in climate laws mostly define institutionalised review and revision cycles — ranging from every four to every eight years — and the alignment of CRAs with the development of adaptation policies. There are two models for these mandates:

- the climate laws require separate assessment processes and stand-alone, dedicated CRA reports must be delivered;
- the climate laws require assessment processes within the development and revision of NASs and NAPs, with CRA results delivered in the corresponding strategies and plans (Leitner et al., 2024).

Laws in Germany and Greece explicitly require subnational CRAs as part of regional and/or municipal adaptation plans.

In the 2025 reporting cycle, more countries announced that they are planning new legal requirements. For example, Latvia [10] and Estonia are currently developing legislative proposals for national climate laws; they are likely to enact binding provisions for regular national CRAs. Meanwhile, France intends to improve its mandatory strategic PCAETs and harmonise them with mandatory local risk analysis.

Box 2.2

Climate hazards reported in 2025

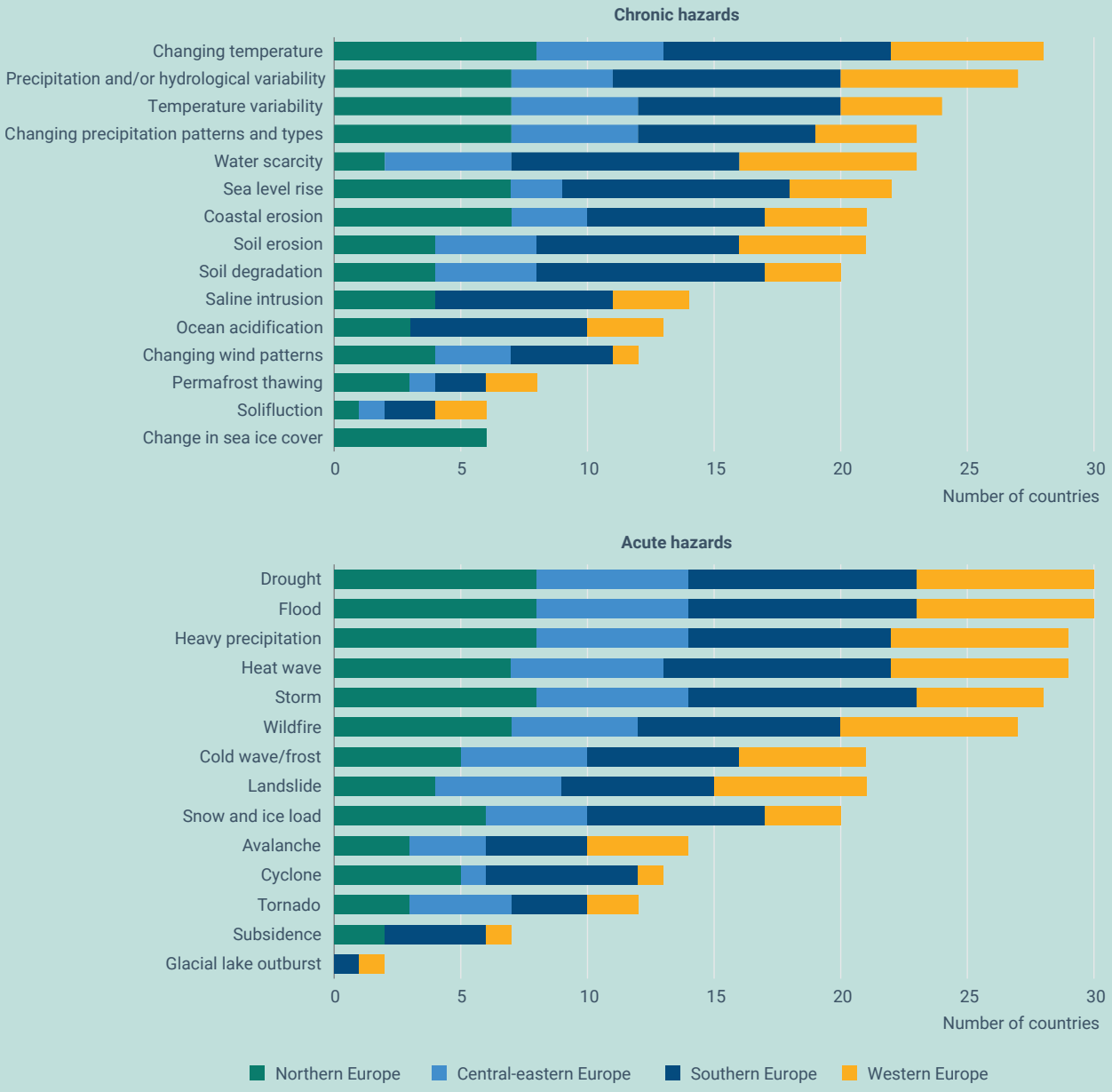
In 2025 the EU Member States, Iceland, Switzerland and Türkiye gave updated reports on observed and future climate hazards [11].

Figure 2.1 shows that observed climate hazards are mainly acute, related to water and temperature, followed by wind and solid masses — though ice-related hazards are only relevant to a limited number of countries. The ranking of most observed hazards has remained stable over the past five years.

The most notable change in observed acute hazards is linked to wind-related hazards (storms, cyclones and tornadoes); water scarcity has also become increasingly relevant. No clear differences emerge in the geographical distribution of the most frequently observed hazards. However, some hazards are specific to certain geographical regions. For instance, changes in sea ice cover primarily affect northern countries. Meanwhile, cyclones mainly impact both northern and southern regions) — a pattern explained by the influence of the Atlantic Ocean on the formation of large low-pressure systems.

(10) The Latvian climate law was adopted in late 2025; however, in this report, this development is only reflected in the policy table. The information given in the body of the report only covers actions reported through Reportnet 3 and complementary desk research up to 31 August 2025.
(11) For reporting requirements refer to Annex I of the Implementing Regulation (EU, 2020).

Figure 2.1 **Observed chronic and acute hazards reported in 2025**



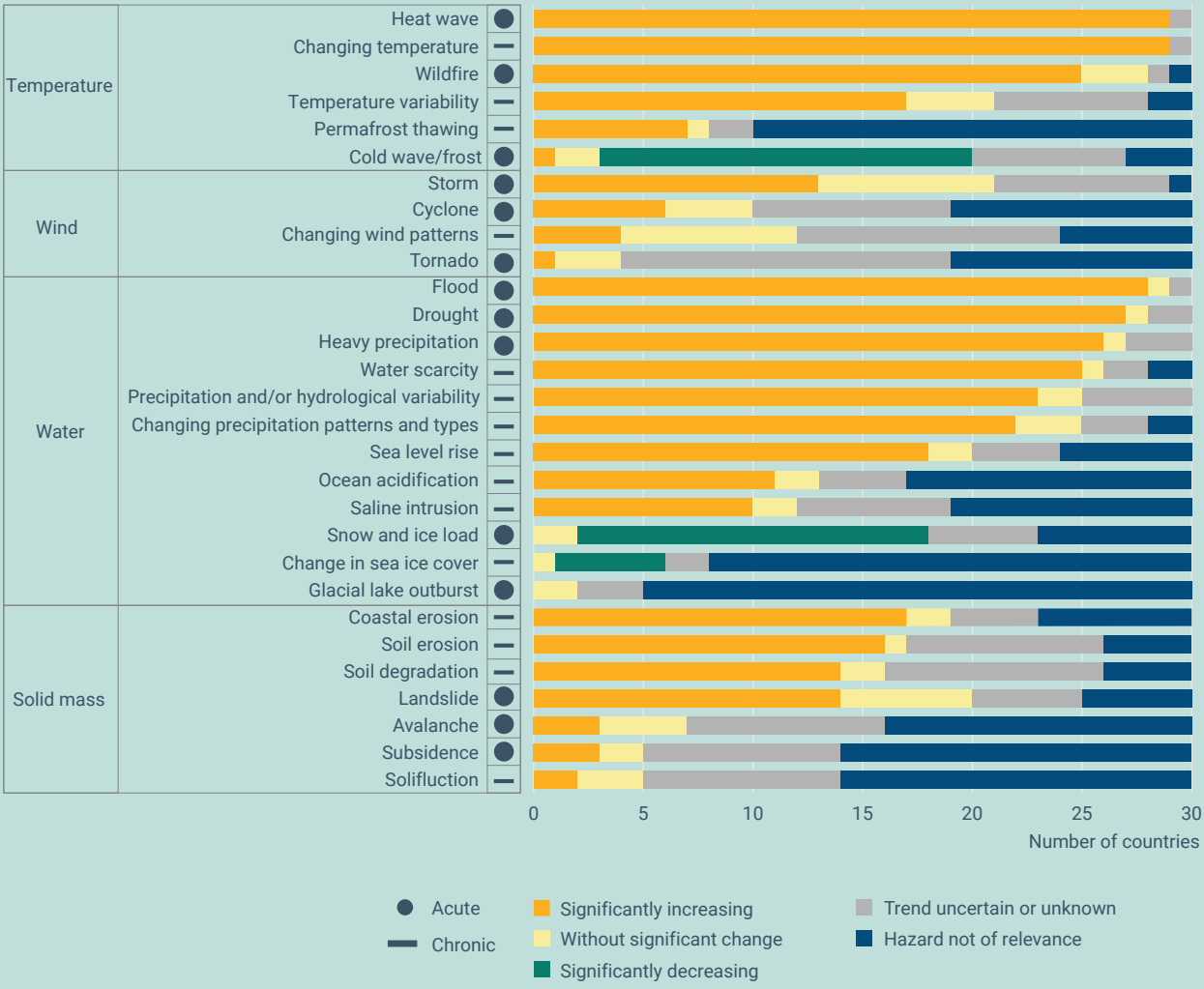
Notes: This figure is based on the reporting from all EU Member States, Iceland, Switzerland and Türkiye — 30 countries in total. The results are based on 551 data points (283 acute hazards and 268 chronic hazards).
The geographical classification of countries follows EUCRA's regionalisation adapted from the United Nations geo-scheme for Europe (UNSD, 2022; EEA, 2024); the nomenclature is similar to that frequently used in EEA and EC climate-related assessments — northern (8 countries): Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania and Sweden; central-eastern (6): Bulgaria, Czechia, Hungary, Poland, Romania and Slovakia; southern (9): Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia, Spain and Türkiye; and western (7): Austria, Belgium, France, Germany, Luxembourg, Netherlands and Switzerland.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a).

Countries largely agreed in their reporting of future hazards (Figure 2.2), identifying water- and temperature-related hazards as their main concerns with a significant increase across both the acute and chronic categories. These concerns relate especially to heat waves, changing temperature, floods and droughts.

In contrast, acute cold wave and/or frost, acute snow/ice load and are expected to significantly decrease in the future. Although countries clearly reported expected increases in future water- and temperature-related hazards, there is still uncertainty about the future development of wind-related hazards and soil-mass-related hazards.

Figure 2.2 Key future hazards reported in 2025



Note: The evaluation process is carried out by the countries individually. Results can differ due to national methodologies or expert judgement, reducing the overall robustness of the reported data. In addition, the geographical categories do not contain an equal number of countries. As a result, comparisons based on bar lengths should be approached with caution when identifying geographical differences.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a).

2.8 Limitations of the data and assessment

There may be limitations in the analysis presented in Chapter 2 for several reasons.

First, countries reported information with varying levels of detail and clarity; information on CRAs had to be interpolated from several reporting elements and this complicated the analysis and opened room for interpretation.

Second, the reported information was incomplete; as such, it is likely that not all CRAs across countries have been included to the assessment.

Third, there were unclarities in the reported data on which this publication is based; many could be resolved — by screening relevant websites and original CRA reports and using machine translation to overcome language barriers — but it was not possible to fully review all the reports for the present publication.

Fourth, this publication also draws on the criteria defined in Leitner et al. (2024) for categorising CRAs. Categories such as 'national and comprehensive' and 'thematic or sectoral' are introduced and applied in the analysis. However, the categorisation of CRAs is not always clear-cut and, in some cases, requires expert judgement and a degree of discretion. During the Eionet consultation process, some countries requested changes to the categories assigned to their CRAs, and these requests have been reflected in the final categorisation.

3 Planning

Key messages

- As of 2025, all European Environment Agency (EEA) member countries have adopted national adaptation policies; most have completed at least one full adaptation policy cycle and have revised their policies.
- Adaptation is increasingly institutionalised, with 14 European Union (EU) Member States and an additional four EEA member countries embedding it in national or federal climate laws; 14 countries have also introduced legal requirements for subnational adaptation planning.
- Despite this progress, diverse policy approaches and governance systems and coordination challenges continue to limit effective implementation and strategic coherence of policies across Europe.
- While subnational efforts are advancing, limited capacity and resources at the regional and local level remain a key barrier to implementation.
- Although there is a growing recognition of the importance of just resilience, it is not yet systematically integrated into adaptation planning.

As part of the iterative adaptation cycle, adaptation planning translates the results of climate risk assessments (CRAs) into strategic goals and policy priorities. It provides the policy frameworks that allow countries to define national objectives, allocate responsibilities, prioritise actions and adjust their course based on monitoring and evaluation.

Across Member States, national adaptation strategies (NASs) or NAPs are required under the European Climate Law (EU, 2021b, Art. 5(4)). Along with other formal, government-adopted principles and guidelines, the intention is for these to serve as coordinating frameworks. They are designed to guide cross-sectoral and multi-level adaptation actions by setting a direction, clarifying roles and functioning as a 'compass' for implementation. The aim is to help ensure that responses to climate risks are coherent, forward-looking and aligned with evolving evidence.

However, even in the context of the European Climate Law, the exact design of adaptation governance approaches differs widely between countries. This reflects national legal traditions and governance arrangements.

This chapter examines how adaptation planning is evolving across EU Member States and EEA member countries. It assesses legal and policy frameworks,

including the scope and priorities of NASs/NAPs and recent progress. It also highlights reported challenges that may constrain effective planning; these include coordination gaps, limited integration across administrative levels and difficulties in mainstreaming adaptation into sectoral policies.

3.1 Legal and policy frameworks

3.1.1 National and federal climate laws and other legal instruments

As of 2025, 14 EU Member States (Belgium, Bulgaria, Croatia, Finland, Germany, Greece, Hungary, Ireland, Latvia, Luxembourg, Malta, Portugal, Slovenia and Spain) have reported national climate laws that explicitly address adaptation — five more than had national climate laws in force in 2023. In addition, four EEA member countries (Iceland, Norway, Switzerland and Türkiye) also have national climate laws that include adaptation.

In many cases, these laws provide a statutory backbone for the adoption of NASs and NAPs as well as for regular revisions and sectoral and regional adaptation plans (SAPs/RAPs) (Johnson et al., 2026). For example, Finland's Climate Act (2022) sets out legal requirements for the periodic revision of its NAP and mandates a relevance check midway through parliamentary terms. It also requires SAPs to be prepared in priority sectors and local climate action plans to be developed.

Luxembourg's climate law sets revision cycles for its NAS and NAP, with strategic foresight extending 50 years, meaning it uses long-term scenario-based planning to anticipate climate risks while regularly updating concrete adaptation measures in shorter policy cycles. Meanwhile, Germany's Federal Climate Adaptation Act is the most comprehensive example of legally binding adaptation governance in Europe (see Box 3.1).

In Belgium, the national climate law foresees that revenues from auctioning emission allowances will be allocated to federal climate policy for existing and new federal climate policies and measures — including adaptation, among other climate-relevant expenditure. Bulgaria and Greece also envisage in their national climate laws that budgetary allocations for adaptation will be supplemented with revenues from emissions trading.

Box 3.1

Germany's Federal Climate Adaptation Act

Germany's Federal Climate Adaptation Act, adopted in 2023 and in force since 2024, provides a binding governance framework for climate adaptation at the national, *Länder* (federal state) and local levels. It institutionalises adaptation as a cross-sectoral policy objective and defines key adaptation planning obligations.

Core provisions require a federal-level national climate risk assessment to be published every eight years based on the current state of science. They also mandate the adoption of a precautionary climate adaptation strategy with quantifiable and measurable goals subject to regular monitoring and updates.

In addition, the act also requires the federal government to collect data on any damage caused by extreme weather (loss/costs) and on federal expenditure on climate adaptation.

At the subnational level, the act mandates *Länder* and municipal authorities to develop their respective adaptation strategies along with local adaptation concepts [12] that include actions for implementation. In addition, each *Länder* must provide the federal government with status updates on these local adaptation concepts and develop and revise adaptation actions and monitor progress through sector-specific targets outlined in Germany's 2024 NAS.

In spite of these requirements, the act does not include any mechanisms for sanctioning bodies that do not comply. However, the federal government does provide support for implementing the law, for example through the 'Measures to adapt to the consequences of climate change' funding programme. It also offers opportunities for training and knowledge transfer and provides advisory services through institutions such as the Centre for Climate Adaptation.

National adaptation strategies

NASs continue to serve as a cornerstone of adaptation planning in most countries across Europe, providing long-term visions, sectoral priorities and guiding principles. Often, they also serve to foster coherence across ministries and alignment with EU and global climate agendas, outlining mechanisms for coordination.

In 2025, 24 EU Member States (Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Estonia, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden) as well as Iceland, Norway, Switzerland and Türkiye reported a NAS. The only countries that have not reported a NAS are:

- Denmark, which reported adaptation primarily based in a NAP and initiatives at the local level;
- Finland, which has a climate law and updates its NAP every two years;
- Latvia, where adaptation is based on an NAP and mainstreamed in sectoral planning instruments, including the national plan of civil protection and the climate neutrality strategy.

(12) The aim of the climate adaptation concept is to establish a systematic approach for the relevant local authority, building on existing processes and activities, resulting in a set of adaptation measures tailored to local.

In some countries — Austria, Romania, Sweden and Türkiye — strategies and plans are adopted as an integrated NAS/NAP (combined policy document that provides guidance on both strategic direction and implementation planning).

Six EU Member States (Austria, Cyprus, Germany, Ireland, Romania and Sweden) alongside Norway and Türkiye reported having revised or replaced their NAS since 2023:

- Austria adopted its third NAS/NAP in 2024.
- Cyprus fully revised its NAS in 2025.
- Germany adopted a new NAS in 2024, introducing measurable targets for adaptation in accordance with the Federal Climate Adaptation Act.
- Ireland adopted its second NAS in 2024 following public consultation in early 2024.
- Romania approved a new NAS/NAP in 2024.
- Sweden also approved a new NAS/NAP in 2024.

Furthermore, Luxembourg reported that it has been updating its NAS and NAP since 2023, in accordance with its climate law; meanwhile, the existing NAS and NAP remain in force, despite that fact that they were only originally adopted up to 2023.

In addition, Norway adopted a new NAS in 2023 and Türkiye adopted a new NAS/NAP in 2024. Portugal and the Netherlands reported that they are revising their NASs at the moment. In Portugal, the work on revising the NAS was due to start in 2025, building on its National Roadmap for Adaptation 2100. In the Netherlands, work on a new NAS has been underway since 2024, with publication expected in 2026.

With these ongoing and recent revisions — including those reported in the last reporting cycle by Czechia, Estonia, Finland, Ireland, Lithuania, Romania, Slovakia and Spain — the majority of countries have now completed at least one full policy cycle, including reviewing and updating their adaptation strategies.

National adaptation plans

NAPs serve to operationalise NASs, translating high-level goals into more actionable sector-specific adaptation actions; many of them include defined objectives and implementation timelines. In 2025, 21 EU Member States, along with Switzerland and Türkiye, reported having a NAP (or integrated NAS/NAP) in place (Austria, Bulgaria, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Romania, Slovakia, Spain and Sweden).

Over the past two and a half years, 12 EU Member States (Austria, Belgium, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Romania and Sweden) have adopted or revised their NAPs or integrated NASs/NAPs. Meanwhile, Luxembourg is currently in the process of doing so and Malta is just launching the development of a new NAP through its newly established Climate Action Authority. In addition, Türkiye published a new NAS/NAP and Iceland is currently in the process of developing a country-wide NAP.

The growing adoption of NAPs — and particularly the revisions since 2023 — indicates the need to keep adaptation policies up to date with evolving requirements and to complement the general principles of NASs with more specific tools and instruments.

Sectoral adaptation plans

While most countries focus on horizontal or cross-sectoral plans that include sector-specific objectives within their NAS/NAP, countries like Finland, Ireland, Spain and Sweden are also developing dedicated SAPs; these are designed to address vulnerabilities for selected sectors such as:

- agriculture;
- biodiversity;
- coastal zones;
- flood risk management;
- forestry;
- health;
- infrastructure.

In addition, the Netherlands reported on its Delta Programme — a SAP that contributes to operationalising the NAS in the areas of water safety, freshwater supply and spatial adaptation. It has also launched several other programmes for sectoral adaptation in recent years.

Revision cycles and mainstreaming

Adaptation planning cycles are becoming iterative across Europe. Countries like Austria, France, Ireland and Spain have adopted routine schedules for updating their plans every four to five years. These are often tied to strategy-specific triggers such as new vulnerability assessments, monitoring reports or evolving EU climate requirements.

Germany mandates revision through its Federal Climate Adaptation Act and Belgium through its law on the governance of federal climate policy. Meanwhile, Finland and Luxembourg rely on broader climate legislation to guide their adaptation strategy updates. Germany and Finland also incorporate mid-cycle relevance checks.

This allows governments to respond to shifting climate trends, updated science and lessons from monitoring, evaluation and learning (MEL). Scientific advances, stakeholder feedback and new CRAs were also noted as catalysts for updates. For example, countries like Lithuania and Cyprus revised their NAPs in response to recent risk-mapping initiatives.

Adaptation planning is also being mainstreamed within broader policy frameworks though it remains uneven across sectors. Integration is evident across spatial planning, infrastructure development and environmental permitting systems.

For example, Poland and Hungary reported that climate priorities are reflected in their sectoral strategies relating to water and forestry. Portugal's climate law goes a step further by embedding climate risk screening in legal assessments for public decisions. This ensures that resilience considerations are not sidelined. Countries such as Slovenia and Ireland reported that they strategically align their adaptation planning with development goals and disaster risk reduction frameworks to bolster policy coherence.

Furthermore, several countries are integrating the private sector in the process of developing or updating their NAS or NAP through formal working groups, consultation in the drafting process and participation in policy evaluation and review. For example, in Bulgaria, representatives of business associations, labour unions and academia are engaged in developing adaptation measures via the National Expert Council on Climate Change. Spain also reported that the private sector is actively involved in multistakeholder seminars developed to evaluate its first NAP.

3.2 From planning to action — setting adaptation priorities, goals and objectives

The 2025 reporting cycle shows that all 30 reporting countries are now combining cross-cutting or systemic measures — supported by governance, institutional capacity, research, monitoring and evaluation — with sector-specific priorities such as agriculture, biodiversity, health, infrastructure and water.

Three methods of setting adaptation priorities are apparent from the reporting. Several countries, for example Austria and Luxembourg, take a process-oriented or principle-based approach; they define how to prioritise — through governance arrangements — criteria such as 'win-win' or 'no-regret' measures (Austria) and giving priority to nature-based approaches throughout all policy areas (Luxembourg).

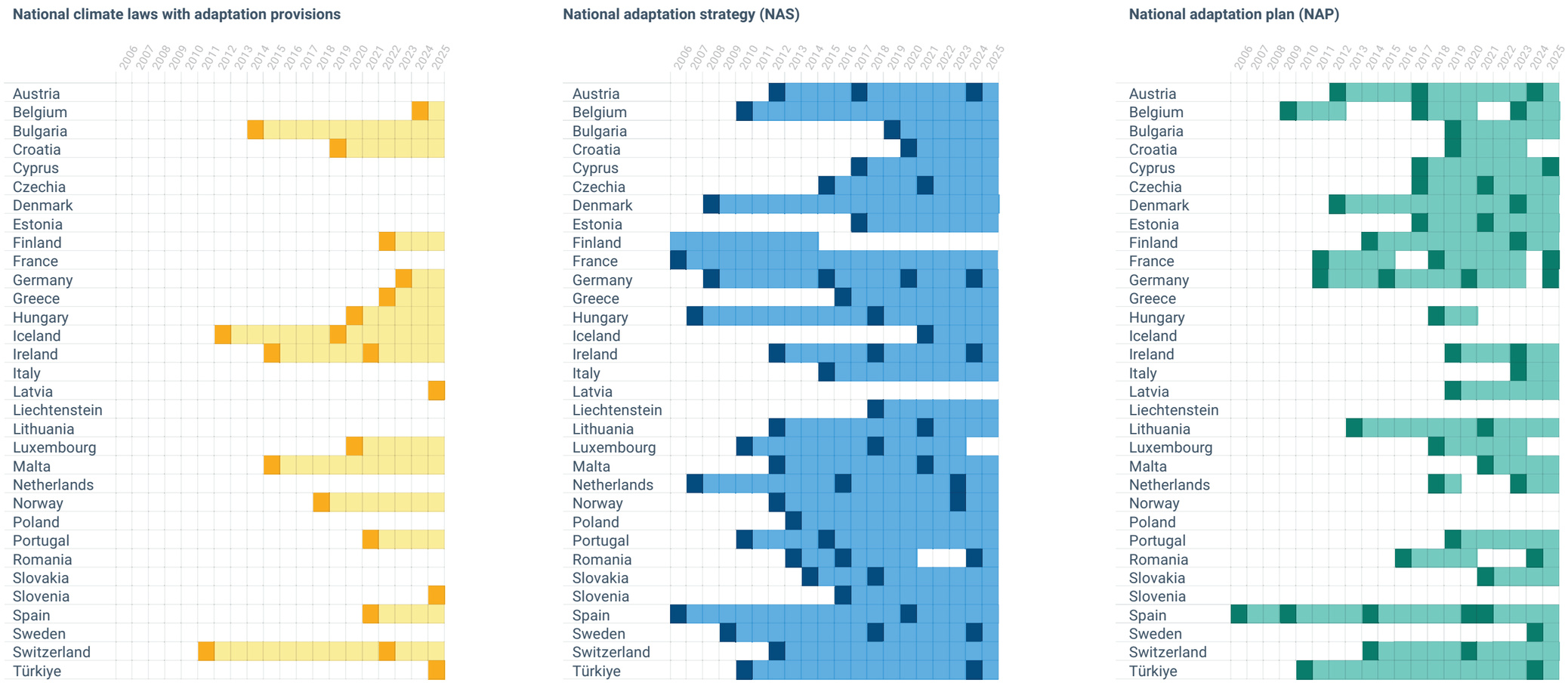
Others, such as Croatia, Latvia and Poland, set out adaptation priorities for key sectors and vulnerable geographic regions. Latvia, for example, has defined more than 80 measures under five strategic themes. Meanwhile, Croatia and Poland have structured their priorities around rural, coastal and energy systems.

A smaller group, including Germany and France, prioritise measures according to urgent risks, supported by indicators and linked to national risk assessments. Notably, the NAP in France is now based on a concerted warming trajectory [13] that can be applied across all public policies by 2100; it is based on a warming scenario of 4°C by 2100 (see Box 2.1).

The 2023 and 2021 reporting cycles were notable in that the priorities had changed little and most countries either maintained their existing focus areas or had made only minor adjustments. However, a comparison between the 2025 and 2023 cycles demonstrates that priorities are now focusing more on implementation.

(13) Based on IPCC AR6 findings, observed warming over recent decades is spatially coherent and sustained across regions, consistent with a dominant anthropogenic forcing signal rather than internal variability (IPCC, 2021).

Table 3.1 **Overview of national adaptation policies**



Note: The figure shows NASs and NAPs of EEA-32, reported as adopted in 2025 and national climate laws with adaptation provisions as mapped in 2024 and 2025. The map showcases the state of play in EEA-32 until 31 December 2025. Dark blocks indicate year of adoption and policy revision; light blocks indicate period of applicability.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a), and complementary data through desk research and surveys.

3.3 Subnational adaptation planning

Across Europe, subnational adaptation planning varies; the form it takes depends on the details of national adaptation planning frameworks, institutional arrangements and multi-level governance structures. In some countries, top-down regulatory frameworks establish how subnational governments must develop and implement adaptation plans and actions. In other countries, regional and local governments engage in planning climate adaptation through bottom-up initiatives.

Recent evidence from the EU Covenant of Mayors (JRC, 2024) and the Global Covenant of Mayors (JRC, 2025) further highlights the variation in subnational adaptation planning across Europe. This reflects both enabling governance frameworks and local planning capacities.

3.3.1 Legal requirements for subnational climate adaptation

In 2025, 12 EU Member States (Bulgaria, Croatia, Finland, France, Germany, Greece, Ireland, Latvia, the Netherlands, Poland, Portugal and Sweden) as well as Switzerland and Türkiye reported on their dedicated legal requirements for planning subnational adaptation. There were two main models:

- binding legal requirements, where national or federal laws mandate subnational adaptation planning;
- framework-based integration, where adaptation is embedded in broader sectoral or planning policies without dedicated legal obligations.

In the first model, national legislation establishes clear requirements for subnational authorities to develop adaptation plans and implement measures. Croatia, Germany, Greece, Ireland, Portugal and Switzerland are examples of countries that follow this approach.

- In Croatia, the Environmental Protection Act and the Climate Change and Ozone Layer Protection Act mandate the integration of adaptation actions in subnational strategic documents and periodic implementation reports.
- In Germany, the Federal Climate Adaptation Act requires *Länder* (federal states) and local authorities to develop and implement adaptation strategies and concepts; by 2025, 12 out of Germany's 16 *Länder* had achieved this.
- In Greece, all regions have developed regional adaptation plans (RAPs) as required by Greek National Climate Law 4936/2022; they are now establishing the regional governance mechanisms to support implementation (see Box 3.2).
- In Ireland, all local authorities have adopted a local authority climate action plan as required by the Climate Action and Low Carbon Development (Amendment) Act of 2021; these are supported and coordinated by regional climate action offices.
- Portugal's climate law mandates the development of climate action plans (addressing both mitigation and adaptation) for all municipalities, intermunicipal communities and regional development and coordination commissions; this approach is extended by integrating climate risk screening into legal assessments for public decisions, ensuring that resilience is consistently taken into account.

- In Switzerland, the new Climate and Innovation Act (2025) has strengthened the legal mandate for subnational adaptation; it requires both the federal government and cantons to implement concrete climate adaptation actions and provides funding for their implementation.

In the second model, subnational adaptation is primarily embedded within broader policy frameworks, such as spatial planning, water management or environmental policy. Bulgaria, Finland, France, Latvia, the Netherlands, Norway, Poland and Sweden are examples of countries which follow this approach. Examples include the following:

- In Bulgaria, adaptation and disaster risk reduction as mandated under the Regional Development Act is addressed by integrated spatial development strategies for the six national spatial planning regions (NUTS 2) and integrated municipal development plans for all 265 municipalities.

- Finland reported that three regions have a regional adaptation plan and that 8 out of 18 regions are preparing or updating plans.

- In France, as mandated by the national law on the energy transition for green growth, 60% of the 750 public inter-municipal cooperation establishments (EPCI) with at least 20,000 inhabitants have adopted a territorial climate-air-energy plan (PCAET). A further 130 EPCI with fewer than 20,000 inhabitants have also launched the development of these plans voluntarily. Earlier generations of these plans were often quite limited in their inclusion of adaptation; more recent revisions have strengthened the integration of adaptation components, including risk and vulnerability assessments and more explicit adaptation actions.

- In Poland, under the amended Environmental Protection Law (2025), municipalities with more than 20,000 inhabitants are obliged to develop adaptation action plans and report on their implementation every two years. Furthermore, they are required to integrate climate change adaptation into spatial planning and align regional policies with the NAS.

- In Sweden, the Ordinance on Climate Adaptation requires county administrative boards to integrate adaptation actions into their operations and to support municipalities in developing action plans and monitoring adaptation. Furthermore, the Swedish Planning and Building Act requires municipalities to consider climate change-related risks — such as flooding, landslides and erosion — in their planning processes. The municipalities are required to analyse the risks and state how they can be minimised or eliminated.

Regional adaptation plans

Austria, Belgium, Finland, Germany, Greece, Ireland, Portugal and Sweden reported the use of RAPs to foster adaptation action tailored to specific geographic and socio-economic contexts. For example, since 2024, Ireland's NAS is complemented by local climate action plans as required by its national climate law. Meanwhile, Greece mandates RAPs (see Box 3.2). In Germany, *Länder* and local authorities are required to develop, implement and update regional adaptation plans.

Box 3.2

RAPs for climate change in Greece

RAPs are a key implementation instrument of the NAS in Greece. They have been developed for each of the country's 13 regions. The RAPs translate national adaptation priorities into region-specific frameworks by assessing climate vulnerabilities, identifying sectoral risks and defining appropriate adaptation actions and measures. They were originally introduced under Law 4414/2016, but the requirement to develop RAPs has been retained and integrated into the National Climate Law 4936/2022. This reinforces their role within broader climate governance architecture in Greece.

Locally led subnational adaptation

The number of locally led subnational efforts is also increasing in EU Member States and EEA member countries where explicit national or federal legal requirements do not exist to support subnational adaptation (Austria, Belgium, Czechia, Cyprus, Denmark, Estonia, Hungary, Italy, Lithuania, Norway, Romania, Slovakia, Slovenia and Spain, as well as Iceland).

In these countries, subnational adaptation is often shaped by policy-based frameworks like NASs or NAPs. In the absence of binding national legal frameworks, the uptake and consistency of locally led planning often depend on local capacity, resources and priorities.

An example of this can be seen in Austria, where the city and federal province of Vienna has passed its own climate law, the Vienna Climate Act; this has established a binding subnational framework that anchors climate adaptation planning to long-term targets and regular updates of a city-wide climate roadmap.

Beyond Vienna, locally driven adaptation planning in Austria is supported through the KLAR! programme under the national Climate and Energy Fund. In 2025, this was facilitating the development of regional adaptation concepts for 93 regions, 743 (out of 2,092) municipalities and around 2.2 million (out of 9.2 million) inhabitants.

In Belgium, the Brussels-Capital Region is supporting its municipalities to develop and adopt climate action plans. In Denmark, 96 out of 98 municipalities participating in the DK2020 partnership (founded in 2019) have adopted local adaptation plans aligned with the NAP.

In Estonia, 61 out of 79 local governments have adopted local energy and climate plans; these are based on the National Energy and Climate Plan (NECP) and NAS policy frameworks and benefit from multi-level cooperation between the Ministry of Environment and the Association of Estonian Cities and Municipalities.

Romania reported a formalised multi-level governance structure for climate adaptation, involving ministries, regional authorities, local governments, research institutions and the private sector. This means that there are standardised adaptation planning requirements at all administrative levels.

European initiatives — such as the EU Mission on Adaptation to Climate Change, the Covenant of Mayors for Climate and Energy, and funding programmes like LIFE, Interreg and Horizon Europe — can provide support for subnational adaptation efforts. These initiatives can strengthen planning capacity and enable place-based assessments of climate risks and vulnerabilities, as well as facilitate knowledge exchange and peer learning.

In particular, the Covenant of Mayors for Climate and Energy was referenced by 15 EU Member States (Bulgaria, Croatia, Cyprus, Czechia, Estonia, Finland, France, Greece, Hungary, Italy, Latvia, Poland, Slovakia, Slovenia and Spain), as well as Iceland and Norway, as a structured framework supporting local adaptation planning. Where it has been taken up, the initiative has helped align local strategies and action plans with national strategies and plans.

Available data from the EU Covenant of Mayors (JRC, 2024) and the Global Covenant of Mayors (JRC, 2025) suggest that European municipalities show relatively high engagement in structured adaptation planning, supported by national and regional frameworks; yet it remains challenging to ensure that identified climate risks are systematically translated into actionable adaptation strategies at the subnational level.

Similarly, 18 EU Member States (Austria, Bulgaria, Czechia, Denmark, Finland, France, Germany, Greece, Italy, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden), as well as Iceland, Norway and Türkiye, reported that their subnational authorities were actively involved in the EU Mission on Adaptation to Climate Change; as such, they benefit from peer learning and funding opportunities to accelerate adaptation efforts.

Together, these initiatives can support participating subnational authorities to adapt, particularly where formal and nationally driven planning frameworks and legal requirements are limited or less developed. However, the initiatives vary in their reach and coverage and, as such, they cannot be considered a substitute for national coordination frameworks.

3.4 Institutional arrangements, governance and coordination within and across governance levels

The 2025 reporting confirms the continued trend towards institutionalising adaptation planning through formal governance arrangements at the national level, building on developments already observed in 2023. In most countries, national adaptation planning is coordinated by environment ministries or specialised climate units; these are often supported by inter-ministerial coordination and other bodies.

National authorities set the enabling conditions by preparing, coordinating and revising legislation, strategies, sectoral integration, institutions and guidance. Stakeholder engagement — including with representatives of vulnerable groups (see Box 3.3 Spotlight) — is a central element of the governance framework, in addition to regular revisions of adaptation policies.

Subnational authorities translate these frameworks into action. Effective adaptation then depends on how well the different operational levels are aligned in practice. It is the case that the existence of coordination mechanisms does not necessarily ensure effective coordination in practice. Their functioning depends on how many resources are available and the extent to which the mechanisms are embedded in decision-making processes. In some cases, coordination is only project-based or advisory, which points to varied capacity to support alignment across governance levels.

Countries use a range of coordination mechanisms that can be broadly grouped into horizontal coordination (across sectors or actors at the same level) and vertical coordination (across governance levels).

Horizontal coordination is typically organised through interministerial structures, thematic working groups or knowledge exchange platforms. These mechanisms support policy coherence across sectors and facilitate the integration of scientific and technical expertise. Examples include the following:

- In Belgium, domestic climate issues are coordinated through the National Climate Commission (NCC); international environmental affairs are coordinated via the Coordination Committee for International Environmental Policy. Adaptation is supported by a joint working group that operates across both bodies, with the NCC responsible for the development, adoption and implementation of the NAS and NAP.

- In Austria, the KLAR! programme fosters cooperation and mutual learning across participating regions through regular knowledge exchange workshops.

- In Spain, the Red Española de Ciudades por el Clima provides a platform for exchanging knowledge and disseminating local climate practices.

- In Germany, horizontal coordination and knowledge exchange are supported through national-level initiatives such as ZUG; this facilitates cooperation and supports the development of adaptation actions, as well as formats such as 'adaptation week', which promotes peer learning and exchange among adaptation stakeholders.

Vertical coordination refers to mechanisms linking the national, regional and local levels and supporting the implementation of adaptation policies across governance tiers. Approaches vary considerably; they range from institutionalised structures to more project-based arrangements. Examples include the following:

- In Denmark, the DK2020 collaborative project has established a bottom-up, multi-level governance structure, steered by the national level; this has supported all Danish municipalities to develop a climate action plan. While they work closely together across regions.

- Slovakia has a national mechanism which currently engages 40 signatory towns; it is supported by the Union of Towns of the Slovak Republic.

However, only seven EU Member States (Czechia, Denmark, Finland, Ireland, Portugal, Slovakia and Spain) reported dedicated coordination mechanisms at the subnational level, such as regional coordination platforms, thematic or sectoral working groups and stakeholder engagement spaces. While primarily operating at regional or local level, these mechanisms also support vertical coordination by linking subnational actors with national authorities through information exchange, priority alignment and implementation support. Their limited prevalence across the EU may point to a broader gap in vertical coordination.

European-level frameworks and networks, including the EU Mission on Adaptation to Climate Change, the Covenant of Mayors for Climate and Energy and the Interreg programmes, can help address this gap by providing structured formats for peer learning and cross-regional coordination.

3.5 International frameworks, cooperation and knowledge exchange

Adaptation planning across Europe is informed by various international frameworks and conventions. These provide reference points for NASs and NAPs. They also support consistency with global commitments such as the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement.

International frameworks and conventions, including the Sendai Framework for Disaster Risk Reduction and the United Nations (UN) sustainable development goals, shape the broader context for adaptation planning. Six countries (Cyprus, Norway, Poland, Spain, Sweden and Switzerland) reported that they also draw on other international agreements, such as the Convention on Biological Diversity and the UN Convention to Combat Desertification (UNCCD).

Adaptation planning further benefits from cooperation and experience-sharing at the supranational level. This is provided by EU-level initiatives — such as the EU Mission on Adaptation to Climate Change, Horizon Europe and Interreg.

It is also supported by transboundary and regional cooperation initiatives like the EU macro-regional strategies and conventions with a specific focus on rivers or mountains. Examples include collaboration through the Alpine Convention, the Carpathian Convention, the Danube River Protection Convention, the Sava river basin initiative and the adaptation strategy for the Rhine river basin.

There are also bilateral programmes, for example between Italy and Croatia, and the United Kingdom and Ireland, as well as regional cooperation within the Nordic Council and partnerships between Iceland, Denmark and Norway to produce open-source climate atlases. These initiatives illustrate how adaptation is increasingly framed as a shared territorial challenge by transnational regions, requiring joint approaches to manage transboundary and cross-border climate risks.

Knowledge exchange and capacity building remain recurring objectives across all levels of cooperation — whether through EU platforms, bilateral support or city-to-city partnerships. Three countries (Spain, Iceland and the Netherlands) also reported outward-facing cooperation [14] with developing countries. This indicates engagement in global adaptation efforts, though only a few countries reported on it compared with intra-EU collaboration [15].

(14) Outward-facing cooperation refers to international development and cooperation activities undertaken by EU Member States and EEA member countries with partner countries outside the EU or Europe. This may include financial assistance, technical support and capacity building.
(15) Please note that countries were not required to report on this under the Governance Regulation.

Box 3.3

SPOTLIGHT

Adaptation actions strengthening societal well-being and preparedness

Effective adaptation planning involves more than simply protecting physical assets and economic systems. It must also protect people, particularly those most at risk. Recent communications — including the *European Climate Risk Assessment (EUCRA)* (EEA, 2024) and the EU Preparedness Union Strategy (EC, 2025c) — are aligned with the European Green Deal and the EU climate adaptation strategy. They emphasise the need for adaptation explicitly to prioritise vulnerable populations to avoid reinforcing existing inequalities.

This commitment mirrors the global promise to 'leave no one behind' as set out in the UN 2030 Agenda for Sustainable Development and the United Arab Emirates (UAE) Framework for Global Climate Resilience adopted at the UN Conference of the Parties (COP28). The UAE framework states that adaptation targets must include cross-cutting considerations — such as human rights, gender responsiveness, intergenerational equity and social justice — and that they must be guided by local and indigenous knowledge systems.

The dimensions of just resilience

The dimensions of just resilience are increasingly reflected in how European adaptation policy operationalises these commitments. They are not isolated but overlapping requirements that should be applied to both policy implementation and the foundational climate risk assessments that precede them.

- **Procedural justice:** the 'how' — this ensures that the processes used to develop and implement adaptation policies are inclusive, fair and transparent. Procedural justice is now established as a core requirement in adaptation policy in Finland and Germany. Implementing procedural justice involves formal mechanisms such as comprehensive stakeholder consultation, as in Cyprus, Finland and Lithuania, and citizen assemblies, as in Estonia and Ireland, to ensure that vulnerable groups have a voice in policy development.

- **Distributional justice:** the 'what' — this focuses on the fair and equitable allocation of burdens and benefits from climate impacts and adaptation. It aims to ensure that adaptation does not worsen existing inequalities. This concept is explicitly recognised as a fundamental component of equitable adaptation policy by Cyprus, Finland and Germany. Austria, Finland and Germany have established mandates to ensure that adaptation does not worsen existing social disparities.
  Practical examples are emerging that illustrate the fair allocation of costs, benefits and resources across society. Bulgaria, Cyprus, Slovenia and Romania allocate finances and resources in a targeted way; meanwhile, Austria, Cyprus, Germany, Malta, the Netherlands and Romania take into consideration differences in vulnerability and cost impacts in adaptation actions. Other examples demonstrate efforts to integrate distributional justice principles into adaptation practice.
  Belgium evaluates specific measures before and after they are implemented to assess how they impact vulnerable groups. This work is undertaken in cooperation with the Combat Poverty Service; it allows for policy adjustments to avoid locking in social struggles. Bulgaria has developed a monitoring system that tracks changes in vulnerability at the local level to ensure that adaptation actions deliver tangible results; additionally, regular monitoring reports are made available to stakeholders to keep them informed of progress and challenges.

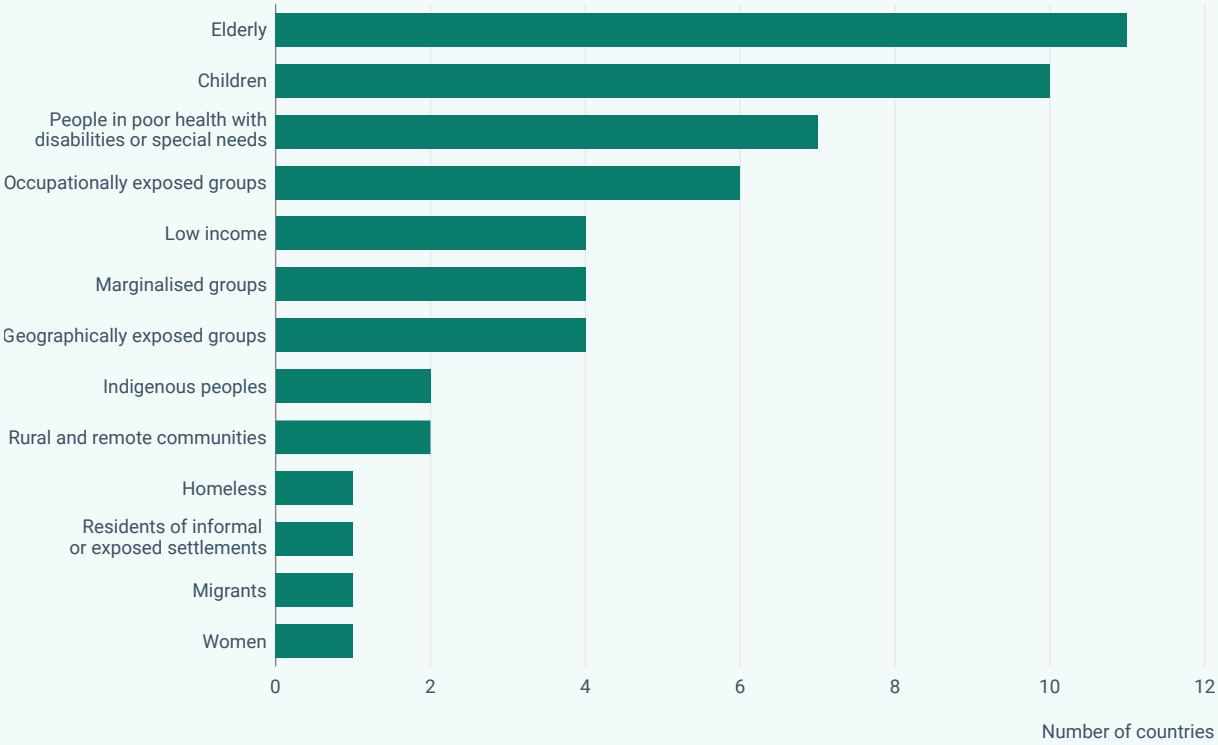
- **Recognitional justice:** the 'who' — this dimension provides the depth necessary for procedural and distributional justice to succeed. It focuses on cultural respect, affirmation of identity and validates the knowledge of different groups. Crucially, it addresses the underlying, systemic causes of inequality that produce disproportionate risk. When this dimension is respected it ensures that the perspectives and traditional knowledge of affected groups are valued in decision-making and result in adaptation that strengthens social inclusion and well-being. When ignored, adaptation actions risk reinforcing exclusion and deepening existing inequalities. Finland explicitly discusses recognitional justice in their Climate Change Panel's report on the social justice dimension of climate measures (Kivimaa et al., 2023). The concept is also reflected in several dedicated engagement and planning initiatives described in the reported information for 2025.

From 'the vulnerable' to specific identities

As a first step towards just resilience, many countries have progressed beyond using generic labels like 'the vulnerable' to naming specific groups. This increases the political visibility of these groups and acknowledges that climate impacts can be experienced differently by different groups.

Nearly all countries acknowledge vulnerability due to socio-economic or even geographic factors (see Figure 3.1); however, recognitional justice moves beyond visibility to validation. It involves bringing these groups to the table to ensure that they are not only heard, but that their unique identities, vulnerabilities and traditional knowledge are formally acknowledged as legitimate and central to the climate problem and its solutions.

Figure 3.1 Vulnerable groups specified in national adaptation reporting



Source: EEA compilation based on types of vulnerable stakeholder groups named in the 2025 Governance Regulation reporting cycle under the reporting elements 'Strategies and plans — overview of measures to engage with stakeholders particularly vulnerable to climate change impacts' (EEA, 2026a).

Recognition of diverse vulnerable groups

This recognition extends across various demographic and socio-economic layers. Cyprus, Belgium, Finland, Germany, Norway, Poland, Spain and Romania recognise diverse vulnerable groups across multiple aspects of adaptation planning.

For example, the preparation of Finland's NAP2030 and Norway's NAS included consultations with a broad range of stakeholder representatives, including vulnerable groups such as young people, the elderly, people with disabilities and the indigenous Sámi people.

In Cyprus, the Municipality of Limassol co-designed heat-related adaptation actions — like shaded rest areas and cooling spaces — following consultations with elderly associations, social welfare officers and community health representatives. This ensured that solutions were tailored to the needs of vulnerable groups when developing local climate and energy plans.

Similarly, Poland's methodology for developing urban adaptation plans for cities with more than 100,000 inhabitants assesses vulnerability and adaptive potential of groups considered particularly sensitive to climate change, including elderly, lonely, disabled, chronically ill and homeless. The methodology identifies their specific vulnerabilities and spatial distribution, while also assessing the availability of social infrastructure and services.

Romania's NAS aims to ensure efficient and equitable adaptation by placing particular emphasis on vulnerable stakeholders within the adaptation process. It specifically highlights groups such as rural communities, the elderly, children, people with disabilities and low-income groups, recognising their importance within adaptation planning.

Spain has integrated gender perspectives into climate risk studies. The studies analyse the different attitudes, perceptions and positioning of men and women on adaptation issues. Meanwhile, at the subnational level, several projects focus on children and schools because they are particularly vulnerable to climate change.

These examples illustrate that formally recognising the distinct vulnerabilities and needs of specific groups can serve as a prerequisite for procedural co-design and the equitable distribution of adaptation resources.

Valuing local and traditional knowledge

Recognition also involves validating the expertise held within local communities. This involves moving from viewing these groups solely as at-risk to recognising them as holders of adaptive solutions.

Bulgaria is working to integrate local knowledge into national data systems to enhance the comprehensiveness and relevance of climate data for local stakeholders. This effort formally recognises local and traditional knowledge as a legitimate, valuable and necessary resource for improving the relevance of climate data and for ensuring that adaptation planning is comprehensive.

In Cyprus, community workshops facilitate the transfer of traditional knowledge into adaptive land and water use practices. By recognising historical and cultural expertise as a core component of effective adaptation, these initiatives ensure that resilience strategies are grounded in the specific environmental and social realities of the community.

Indigenous knowledge and rights

The most institutionalised form of recognition reported by countries is found in the Arctic-Nordic region, where Finland, Norway and Sweden explicitly acknowledge the Sámi people and the importance of incorporating indigenous knowledge into climate adaptation policy and governance.

Sweden's NAS recognises the value of Sámi traditional knowledge and emphasises the importance of consulting with Sámi representatives when designing adaptation actions. The Act on Consultation on Matters Concerning the Sámi People requires the government, agencies, regions and municipalities to consult the Sámi people before making decisions that affect them. By formally recognising the Sámi people's unique legal and cultural status and their right to self-determination regarding their lands and practices, Sweden has institutionalised their identity directly within the governance structure.

Similarly, when Finland was preparing its latest NAP, specific meetings were held with the Sámi parliament. The Finnish climate law also established a Sámi climate council; this is a scientific panel tasked with producing information on climate change that bridges traditional knowledge and scientific research. Collaborative projects in the Arctic also focus on engaging indigenous peoples and indigenous youth in the design and practical implementation of adaptation actions; this validates their distinct political voice and identity. Furthermore, studies on the vulnerability of reindeer herding — which are partially informed by the participation of reindeer herders — acknowledge that adaptation must address climate threats to culturally specific livelihoods.

In Norway, the 2023 NAS was informed by the Sámi parliament. It emphasises developing knowledge on how climate change affects Sámi culture, livelihoods, health, traditions and way of life. It also includes indigenous knowledge in climate adaptation work. Norway's upcoming CRA, due in 2027, will also include a dedicated workstream on climate consequences specifically for the Sámi people.

The way in which Sámi rights are institutionalised in the Arctic-Nordic region provides a leading example of recognitional justice. The robust data and legal structures for the Sámi mean that they are highly visible in national adaptation reports.

However, this also highlights a reporting gap in other regions. In contrast with the consideration of the Sámi, other significantly larger marginalised groups, such as the Roma community, are notably missing from formal adaptation reporting. This gap suggests that recognitional justice in Europe may currently be most advanced where groups have established political representation. The implication is that there is a need for more proactive recognition of groups lacking similar institutional platforms.

Justice as a driver of preparedness

Integrating justice into adaptation planning is more than a matter of fairness; it is a foundational element of societal preparedness. As Europe advances its resilience pillar under the EU Preparedness Union Strategy (EC, 2025c), a critical success factor is its ability to engage diverse communities. By validating the distinct needs and knowledge of vulnerable groups, planning shifts; instead of representing a top-down protective measure, it becomes a co-created resilience strategy.

This approach ensures that adaptation measures are not only equitable but also technically robust, as they incorporate the granular, local expertise necessary for effective risk management. Translating the 'leave no one behind' principle from an ambition into an operational reality will help transform social equity into a functional driver of a resilient, secure and competitive European society.

3.6 Limitations of the data and assessment

The analysis presented in Chapter 3 is subject to some limitations due to the diverse approaches to reporting under the Governance Regulation.

First, there are varying levels of detail and depth in countries' reporting on adaptation planning. While some provide comprehensive information on their national and subnational adaptation planning, others focus their reporting mostly on listing their adopted NASs or NAPs. This results in limited insight into adaptation planning processes or decision-making dynamics.

Notably, information on subnational planning is dispersed across several reporting elements. This can lead to duplication in provided information, reduce consistency across the reporting or result in some relevant aspects being only partially addressed.

Second, adaptation planning across EEA member countries is characterised by diverse governance and planning frameworks and approaches. Some are very centralised while others are highly decentralised with adaptation responsibilities shared between national, regional and local authorities, with the latter playing a key role. While this institutional diversity reflects the specific administrative and governance structures of different countries, it also complicates an assessment of overall progress in Europe.

In some cases, relevant adaptation planning information and guidelines are then also dispersed across multiple sectoral strategies or subnational documents, in addition to national climate laws and/or NASs and/or NAPs. Moreover, legal frameworks containing adaptation provisions at the subnational level are currently not systematically reported on; this means that it is complex and resource-intensive to map them and so a comprehensive overview is currently lacking.

Additionally, even where formal legal provisions are not in place, it does not imply that relevant adaptation practices are not being implemented or functioning effectively within a country. The reporting gaps thus hinder a complete understanding of the extent of legal mandates for adaptation across Europe.

Finally, the reported information does not allow the effectiveness, ambition or adequacy of adaptation planning to be assessed. The analysis focuses on the existence and characteristics of adaptation policies and frameworks as reported under the Governance Regulation, not on their actual use when implemented.

Vulnerable groups

One constraint of the reporting on vulnerable groups under the Governance Regulation is that countries often provide examples of stakeholder engagement more broadly. This means that information specific to vulnerable groups has to be carefully filtered out in order to avoid simply analysing general trends in stakeholder engagement.

When information on vulnerable groups is provided, countries tend to report examples without an overview of their approach. Examples are useful to illustrate and inspire, but without an overview they can lead to partial, inconsistent or superficial understanding. An overview provides the structure that makes examples meaningful and usable; however, the limited information in the latest reports suggests that this type of data may not currently be available within the countries.

A further limitation relates to the definition of vulnerable groups themselves. Many countries have begun to define which groups are vulnerable and to discuss the reason for their increased vulnerability to climate risks (see Box 3.3 Spotlight). However, acknowledging their vulnerability does not necessarily translate into targeted measures to engage them in adaptation processes or address their increased vulnerability. In addition, definitions are not always explicit, creating uncertainty as to whether groups mentioned in reporting are considered vulnerable in the national context or are included primarily as part of broader stakeholder engagement processes. The ability of countries to recognise which groups are vulnerable and the factors driving that vulnerability serve as an entry point for integrating targeted elements of just and social resilience in the iterative adaptation cycle.

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4 Implementation

Key messages

- Evidence on implemented adaptation actions remains partial, limiting the understanding of Europe's preparedness and progress towards climate resilience.
- National reporting often gives greater attention to adaptation policy frameworks than to implemented actions, progress and results. This is partly shaped by reporting requirements, which emphasize policy processes.
- The collection of national data requires coordination across multiple sectors and governance levels. As responsibility for data delivery is often dispersed, reporting and data collection at national level remain complex.
- Data on allocated and spent adaptation budgets remain limited. This makes it difficult to assess whether reported efforts are supported by adequate funding.
- Private sector investment incentives remain underdeveloped. This limits opportunities to mobilise private finance and scale up adaptation action.
- Recognition of climate change as a national security concern is low but emerging. A total of 12 countries explicitly address climate risks in security and crisis management strategies; this will further strengthen the mainstreaming of adaptation going forward.

Dedicated adaptation policies provide the institutional foundation and long-term direction that enables implementation measures across Europe. Under the European Climate Law (EU, 2021b, Art.5(4)), Member States are required to implement national adaptation strategies (NASs) and national adaptation plans (NAPs) in a way that ensures continuous progress in reducing vulnerability, strengthening resilience and enhancing adaptive capacity. This is in line with Article 7 of the Paris Agreement.

Within the iterative adaptation cycle, implementation refers to translating policy commitments from NASs/NAPs into concrete adaptation action, turning planned measures into operational, on-the-ground responses. This phase is characterised by shared responsibilities across governance levels and societal actors. Line ministries, sectoral agencies, regional and local authorities, the private sector and households must all contribute to managing climate risks for actions to be effective. Successful implementation therefore depends on coordinated action and distributed risk ownership across institutional structures.

This chapter examines how implementation is evolving across European Union (EU) Member States and European Environment Agency (EEA) member countries. It should be read with this perspective in mind. Europe's climate preparedness and resilience cannot yet be reliably assessed because it is still difficult to track implementation.

Data reported under the Governance Regulation focus primarily on plans and strategies rather than on actions that have delivered and their outcomes. This prevents a credible assessment of actual preparedness and leaves significant blind spots regarding the resilience being built. The lack of systematic data on implemented measures — including information on key type of measures (KTMs) — means that there is currently no clear picture of progress, gaps or outcomes across countries.

Nevertheless, the assessment provides insights into mainstreaming in sectoral policies, disaster risk management (DRM) and environmental processes. It also analyses the roles of key actors — including the private sector — and examines enabling conditions such as institutional capacity and finance.

4.1 Mainstreaming and integrating adaptation to sectoral and thematic policies

Mainstreaming adaptation — especially into key sectoral policies such as agriculture, biodiversity, civil protection, DRM, energy, forestry, health, spatial planning and water management — aligns with the most significant affected sectors as identified in Box 4.1. Most countries identified their NAS, NAP or sectoral adaptation plan (SAP), and sometimes their regional adaptation plan (RAP), as the central instruments for mainstreaming adaptation.

In 2025, 21 countries reported advances towards meeting their adaptation priorities. They reported having achieved this:

- by mainstreaming or integrating adaptation into sectoral, regional and local policies;
- through targeted investments in priority sectors;
- through the introduction of new institutions, funding tools or prioritisation frameworks.

EU Member States are using targeted EU funds to accelerate mainstreaming initiatives. Nevertheless, the reported information indicates that adaptation across countries is currently unevenly mainstreamed or integrated.

Box 4.1

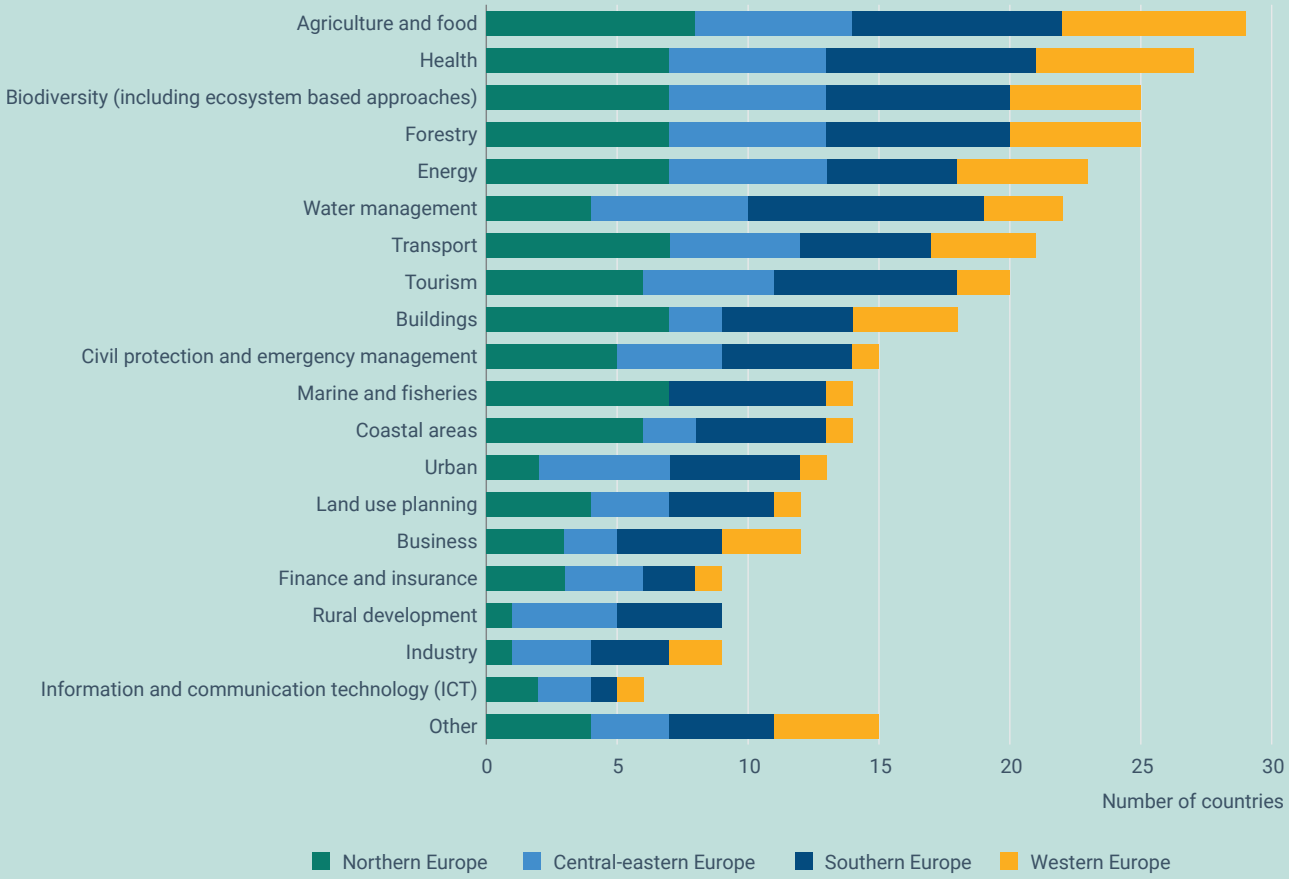
Key affected sectors — a statistical analysis

In 2025 the 27 EU Member States (EU-27), Iceland, Switzerland and Türkiye reported 376 key affected sectors across 20 categories. This represents a sharp increase from 275 in 2023 and 232 in 2021. This upward trend is not merely a reflection of worsening climate conditions; it also indicates a deepening understanding of how climate change impacts the European economy and society. The number of reported key affected sectors varied widely according to national contexts; it ranged from three in France and Luxembourg to 17 in Portugal. While agriculture and food, health, biodiversity and forestry remain the primary sectors of concern, cultural heritage has also emerged as a vulnerable asset. This signals a critical shift: countries are now moving to protect not just economic and natural capital, but also the historical and social cohesion of Europe. Figure 4.1 showcases the key affected sectors by geographical area reported in 2025.

When assessing key affected sectors, three main limitations should be noted.

- First, the list of key affected sectors defined in Annex I of the Implementing Regulation (EU, 2020) for reporting purposes does not fully correspond to how sectors and sectoral responsibilities are organised within each country. This structural mismatch can lead to overlap between sectors and, in some cases, reported information is repeated.
- Second, although the reporting guidelines provide some direction on classifying impacts as high, medium or low, there is no common or harmonised methodology for how to define impacts at either the European or the national level. As a result, countries may apply different approaches and interpretations. This introduces bias into the reported data.
- Third, countries were required to report on a minimum of three key affected sectors; it was not mandatory to report on all sectors.

Figure 4.1 Key affected sectors by geographical zone



Notes: Some countries indicated the same sector several times in the reporting section to add additional details. For the purposes of this analysis, when this situation arose, the sector was counted only once. Each key affected sector that was reported on could also be linked to more than one of the predefined lists of sectors in Footnote 4 of Annex I of the Implementing Regulation (EU, 2020). Consequently, results for 376 key affected sectors were reported in 338 data points in the graph above.
The geographical classification of countries follows the regionalisation used in the *European Climate Risk Assessment (EUCRA)* adapted from the United Nations (UN) geoscheme for Europe (UNSD, 2022; EEA, 2024). This is the same as the nomenclature frequently used in EEA and European Commission (EC) climate-related assessments: northern (8 countries): Denmark, Estonia, Finland, Iceland, Ireland, Latvia, Lithuania and Sweden; central-eastern (6): Bulgaria, Czechia, Hungary, Poland, Romania and Slovakia; southern (9): Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia, Spain and Türkiye; western (7): Austria, Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a).

Implementation via mainstreaming efforts is focused on climate-proofing critical infrastructure (EC, 2021b). Projects such as flood defences, power grids and transport networks — especially new infrastructure — are increasingly subject to climate risk assessments (CRAs) to ensure they can withstand future climate conditions, based on the climate-resilience-by-design principle. Furthermore, there is a shift towards leveraging nature-based solutions, including ecosystem restoration and the development of green urban spaces. These have proven effective in mitigating risks like extreme heat and flooding. Ireland is a good example of this approach; it strengthens mainstreaming via a 'whole-of-government and society' approach to adaptation (see Box 4.2).

Box 4.2

Ireland's 'whole-of-government and society' approach

Ireland's national adaptation framework (NAF) sets out a 'whole-of-government and society' approach to adaptation; it defines roles for government departments, local authorities and other stakeholders to ensure adaptation is part of regular governance. Climate adaptation considerations are incorporated across national and sectoral policies and planning processes to ensure that measures are mainstreamed.

Key examples of mainstreaming from Ireland's NAF include:

- updating building regulations to account for future climate risks;
- integrating adaptation into the national planning framework and capital investment plan;
- embedding adaptation into sectoral and local authority plans and guidelines.

In addition, Ireland's Climate Change Advisory Council reviews progress at the local, sectoral and national levels through an adaptation scorecard and annual review process. Ireland also encourages applications for infrastructure, climate and nature grants to take into consideration and incorporate the principles of the NAF in their business cases for funding.

4.2 Disaster risk management and climate adaptation

Between 2021 and 2025, there has been increased synergy between climate change adaptation and DRM. An increasing number of countries (Austria, Belgium, Cyprus, France, Greece, Iceland, Norway, Sweden and Türkiye) reported to have strengthened the integration of climate change components into their national DRM frameworks and sectoral planning (e.g. through national civil protection plans, national risk assessments, heatwave and flood risk management plans and drought management plans). Eight countries reported that DRM is recognised or integrated into their NAS/NAP (Austria, Cyprus, Hungary, Ireland, Italy, Latvia, Spain and Türkiye).

A total of 14 countries reported further progress in integration. Many countries are utilising national risk profiles, strategies and action plans to bridge the gap between DRM and adaptation (Bulgaria, Czechia, Denmark, Estonia, Finland, Greece, Lithuania, Malta, the Netherlands, Poland, Portugal, Slovakia, Spain and Türkiye).

Public data are now more readily available. Examples include:

- Croatia's online disaster risk assessment;
- Latvia's early warning platform;
- France's geo-risk portal.

The Netherlands' climate impact atlas and Portugal's geographic information system (GIS) portal, InfoRiscos, provide crucial data on disaster loss and damage, supporting better assessment of climate risks. At the subnational level, Bulgaria's municipal integrated development plans mandate climate risk assessment and disaster risk reduction strategies for local governments.

A distinct emerging trend is the recognition of climate change as a national security threat. At least 12 Member States (Austria, Belgium, Czechia, Finland, Germany, Italy, Lithuania, the Netherlands, Poland, Romania, Slovakia and Sweden) and Türkiye are explicitly addressing climate risks within their security and crisis management strategies.

These documents identify threats to power supply, supply chain integrity, food security, information and communication technology (ICT) networks or transport networks. Consequently, private sector operators of this critical infrastructure are increasingly required to conduct CRAs. Private households are also being encouraged to strengthen self-preparedness in case of infrastructure disruption due to extreme events; this approach is in line with the EU Preparedness Union Strategy.

Some countries also emphasised more broadly the links between climate adaptation and national security policies. For example, Germany underlined the central role of adaptation in its national security strategy (2023) and climate foreign policy strategy (2023); both of these recognise climate risks as conflict drivers with implications for security and foreign policy. These strategies aim to mitigate the exacerbation of inequalities, resource scarcity, hunger and humanitarian crises that can intensify migration and displacement.

Similarly, Poland reported on its national crisis management plan (KPZK), developed by the Government Security Centre in cooperation with ministries, central offices and regional authorities. It identifies 19 key hazards.

Meanwhile, Slovakia reported on its action plan of the national strategy for security threat risk management until 2025 (2023). Austria has also addressed climate risks in its recent security strategy and Federal Crisis Security Act (see Box 4.3).

Box 4.3

Austrian security strategy and Federal Crisis Security Act

A new Austrian security strategy, published in 2024, states that the 'effects of climate change are strongly felt at the local level and must therefore be prevented or minimised at the regional and local levels. Measures to adapt to the consequences of climate change are required in various areas to protect our livelihood'.

The strategy states that electricity generation and grid infrastructure must be geared towards future requirements to guarantee a high level of supply security. The water supply (quality and quantity) must be maintained. Preventive measures must be implemented to safeguard food supplies and security in agriculture. Measures must be taken to preserve the function of protective forests — that help to maintain ecological stability and act as a shield against natural hazards like avalanches. Transport infrastructure must be adapted for the future climate and higher risk of more frequent and intense natural hazards.

Additionally, the strategy foresees redundancies for ICT networks and the need to maintain analogue communication channels. Businesses must carry out CRAs for possible damage or supply-chain disruption. Private households must strengthen their self-preparedness. Risk awareness, risk communication, forecasting, and warning and measurement systems must also be further optimised.

The strategy states that the national crisis and disaster management system — a key pillar of which is volunteer work — must be maintained and adapted for projected climate-related extreme events. Adequate training courses with content relevant to climate change adaptation must be provided. Additionally, Austria has established an expert committee on climate and the environment in accordance with the Federal Crisis Security Act.

In parallel with these national developments, similar priorities are now emerging at the EU level. This growing attention to the climate-security nexus aligns with the EU's adoption of its joint communication on climate and security. This sets out a strengthened framework for addressing climate change and environmental degradation as threat multipliers (Whitaker et al., 2025).

The EU is building on this through:

- continued implementation of the European Green Deal;
- the EU Preparedness Union Strategy for conflict-sensitive and inclusive preparedness;
- further mainstreaming of climate and security considerations across security and DRM policies — apparent in the reporting — which are likely to become increasingly prominent in the years ahead.

4.3 Environmental assessment procedures for mainstreaming

Many countries reported progress on integrating climate risks into **environmental impact assessments** (EIAs). All EU Member States now require 'climate-proofing' projects subject to EIA, in line with the definitions provided by the EC (EC, 2021b). To facilitate this, several countries report having introduced online tools, reporting mechanisms, methodologies, checklists and guidelines (Austria, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Finland, Germany, Greece, Hungary, Ireland, Italy, Poland, Slovenia, Spain and Sweden).

Cyprus is focusing on training evaluators, authorities and consultants to ensure methodological consistency. Poland has published a handbook for investors and designers on adaptation. Meanwhile, projects in Italy must take into consideration the principle to 'do no significant harm'. EIAs in Iceland must assess natural disasters that would have potentially disastrous impacts. The EU Taxonomy is increasingly helping to ensure that even smaller projects, not subject to EIA, take future climate risks into account.

While not explicitly required by the EU Strategic Environmental Assessment (SEA) Directive (EU, 2001), countries report mainstreaming climate change within planning via SEAs (Bulgaria, Croatia, Cyprus, Czechia, Estonia, France, Ireland, Malta, the Netherlands, Portugal, Slovakia, Slovenia and Spain).

Slovenia's 2024 Spatial Planning Act requires regional spatial plans to include climate impact assessments. Meanwhile, Ireland issued new guidelines in 2023 which make SEAs mandatory for local authority climate action plans. In Luxembourg the updated NAS was subject to strategic environmental assessment. Portugal has piloted legislative impact assessment for climate action (see Box 4.4).

Box 4.4

Portugal — legislative impact assessment as a model for the evaluation of climate actions

Through the pilot model for assessing the climate impacts of legislation in Portugal, an evaluation tool was developed to measure climate impacts of new legislative proposals and sectoral policies before they are approved.

The evaluation process was incorporated into Portugal's existing legislative impact assessment system, making climate action an integral part of the standard legislative process. This pilot project's aim was to embed climate considerations into the very fabric of governance, ensuring that legislation is 'climate-proofed' from its inception.

4.4 Adaptation initiatives in the private sector

The private sector is both a vulnerable party and a vital partner in building climate resilience. It has a role to play in co-designing, co-financing and co-implementing adaptation actions. The reporting indicates that there is a strong focus on raising awareness among business actors and providing businesses with the tools to assess physical climate risks. The EU Taxonomy was reported by several Member States as a driver of this kind of change. It encourages businesses to reduce their long-term costs and increase their competitiveness by adapting to physical climate risks.

Private sector engagement is multifaceted; it includes a diverse range of approaches from national policy mandates to localised public-private partnerships. The emphasis remains on fostering collaboration, providing information and financial incentives and integrating adaptation into core business strategies and government planning.

Countries reported that they are engaging and addressing the private sector through:

- comprehensive consultation processes;
- the provision of targeted guidance and tools;
- the development of financial mechanisms;
- the establishment of formal and informal public-private partnerships across various sectors.

Initiatives include guidance and training. For example, in Cyprus awareness-raising campaigns and capacity-building workshops are often held in collaboration with vocational training centres. These are commonly designed for specific groups such as small and medium-sized enterprises (SMEs), farmers, hotel operators and engineers.

Similarly, in Germany efforts include providing the private sector with practical guidance, workshops and informational campaigns designed to help businesses assess and mitigate climate change impacts (e.g. HDE-Adapt). Meanwhile, Finland has developed and provides a training module on adaptation for SMEs.

Structured participation of the private sector — through dialogue, workshops, forums and seminars — is used to facilitate capacity building and the co-creation and implementation of adaptation solutions. Workshops and dialogue further serve as practical platforms for public and private actors to plan and implement local projects together.

4.5 Increasing and strengthening adaptive capacity

In the 2025 reporting cycle, most countries reported efforts to increase their adaptive capacity. Key activities included knowledge transfer to regional and local actors and across sectors, preparedness measures, the practical application and implementation of adaptation knowledge and awareness raising on the need of adaptation. Countries reported that they have established new networks and strengthened their links with the EU Mission on Adaptation to Climate Change. They stated that these links were useful for empowering subnational governments — through technical assistance, peer learning and funding opportunities — to accelerate their adaptation efforts. For example, this support has led to enhanced early warning and monitoring systems for climate risks such as drought.

Highlighted outcomes included projects on efficient water use, drought-resilient crops, increasing water storage and alternative tourism models. While difficult to measure directly, it was also reported that increased awareness campaigns (see Box 4.5) and networking events are examples for improved adaptive capacity.

At the national level, countries are prioritising practical adaptation measures alongside enabling approaches. Practical measures include stakeholder engagement, DRM practices in the context of climate change and the development or enhancement of early warning and monitoring systems for risks such as drought. In parallel, countries are strengthening enabling frameworks, including the integration of adaptation into sectoral policies, plans and programmes. The reporting also highlights a strong focus on established methodologies, including CRAs, modelling and DRM.

Policy and regulatory changes, monitoring, evaluation and learning (MEL) and the integration of local knowledge were reported as being less mature approaches. This suggests a need for further institutionalisation, knowledge exchange and capacity building.

There were also — less frequent — examples of reporting on monitoring and evaluation, policy and regulatory changes and the integration of local knowledge. This may not reflect a lack of activity, but rather a tendency to highlight these areas as 'good practices or lessons learned' less frequently within the reporting framework. However, it remains important for countries to continuously support knowledge exchange, capacity building and institutional arrangements in these areas; such measures strengthen existing practices and promote more coordinated adaptation and its implementation across governance levels.

Box 4.5

Poland — climate risk communication on geo-hazards

Poland is increasing residents' awareness of geohazards. It has established a thematic sub-site on geohazards on the website and Facebook page of the Polish Geological Institute – National Research Institute (PIG-PIB) Centre of Geohazards. Site administrators were trained and systematic landslide warnings are being published. Additionally, a predictive system for mass movements (e.g. landslides) in the Carpathians has been developed. An assessment of the vulnerability of groundwater in the coastal zone due to the effects of climate change has also been completed, together with an assessment of the risk to groundwater abstractions located in the same area.

4.6 Financing adaptation actions

4.6.1 Current landscape and funding challenges

Data on adaptation finance remain limited; certain Member States reported specific financial figures. Many countries, including Bulgaria, Cyprus, Estonia, Finland, Iceland, Lithuania, Portugal, Romania and Sweden, reported that securing adequate funding for actions remains a primary challenge.

Long-term planning and delivery are impeded by:

- uneven national funding;
- the absence of dedicated budgets;
- weak cost-benefit evidence;
- limited private investment.

Most Member States continue to rely on EU funds to co-finance adaptation actions, though some countries reported national allocations. For example, Spain stated that it has an estimated budget of EUR 1,548.15 million, which includes additional resources to support measures included in its 2021-2030 work programme.

Sweden has a budget of approximately EUR 47 million available annually for preventive measures against landslides, flooding and erosion, for which municipalities can apply.

Similarly, under Denmark's nature package, EUR 1.92 million was allocated to projects that enhance the natural and recreational value of open land while also improving water retention in flood-prone areas with an adaptation relevance and co-benefit.

4.6.2 National mechanisms and legal frameworks

Several countries have introduced novel mechanisms to secure or manage adaptation finance. Italy has developed indicators to justify and monitor funding for adaptation programmes based on fixed objectives. In Slovenia, the Environmental Protection Act provides the overarching legal framework for climate action and adaptation is addressed through funding mechanisms under the Climate Change Fund. Austria continues to support regional adaptation through its KLAR! funding programme.

France spends its Barnier Fund on prevention actions; this fund has an annual budget for 2025 of around EUR 300 million and supports ambitious and pioneering projects. The CO_2 Act in Switzerland provides a new legal framework to fund measures aimed at preventing climate-related damage to persons and to property of considerable value. Additionally, under the LIFE-IP AdaptInGR project, the Bank of Greece has organised dedicated events to promote best practices for adaptation-related funding within the banking sector.

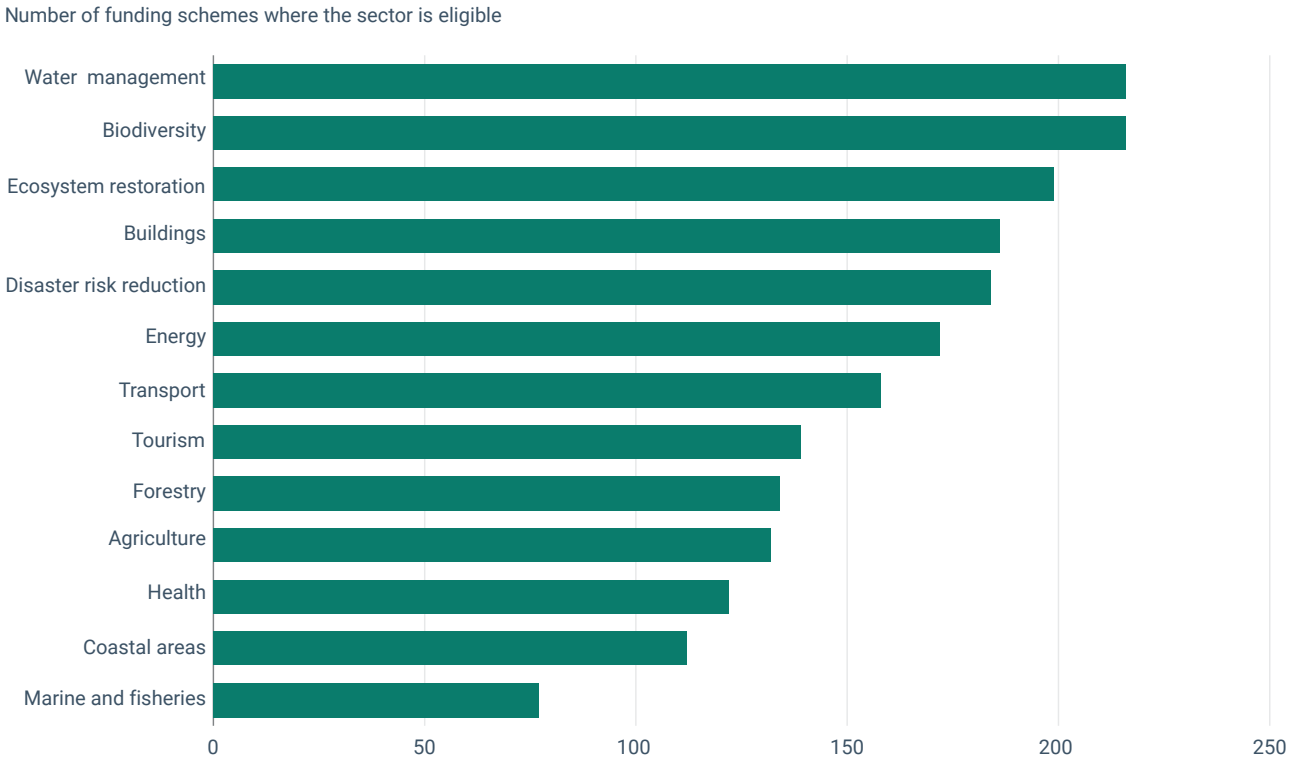
EU Mission on Adaptation to Climate Change — funding database analysis

To improve the transparency of investments, the Mission on Adaptation to Climate Change has established a funding database. This collects information on EU and national funding schemes. In total, 297 funding schemes have been identified as relevant for climate adaptation. Analysis of this database reveals that most funding is provided in the form of grants.

Primary beneficiaries include local authorities and administrative bodies (261 funding schemes) followed by companies (220 funding schemes). Funding is predominantly available for implementation (287 funding schemes), while other phases of the iterative adaptation cycle are less well funded (under 150 funding schemes).

The most common objectives for funding are renaturalisation interventions for degraded or damaged ecosystems and biodiversity protection aimed at restoring habitats such as forests and wetlands. Additional priorities include water management initiatives designed to improve water quality, flood protection and sustainable wastewater management, as well as the implementation of nature-based solutions to mitigate the effects of extreme weather events.

Figure 4.2 Sectors receiving funding



Note: This figure shows the number of funding schemes that allow support for climate adaptation across different sectors, based on the EU Mission on Adaptation to Climate Change funding database. It illustrates which sectors are eligible to receive funding, including biodiversity, water management, ecosystem restoration, disaster risk reduction, buildings and other sectors such as agriculture, energy, health and tourism.

Source: Database on funding sources from EU institutions, agencies and Member State governments to finance climate adaptation initiatives (EEA, 2026b).

4.6.3 Engaging the private sector

Governments are increasingly using financial instruments — including direct funding, financing, market alignment and fiscal incentives — to engage the private sector. Dedicated financial support for adaptation is often provided to encourage specific adaptation projects, particularly those targeting vulnerable regions and small businesses.

Tax advantages and regulatory streamlining are also employed to motivate private developers and companies to adopt climate-resilient practices. For example, Malta uses fiscal incentives to ensure that green features such as green roofs, rooftop gardens and rainwater catchment are incorporated into buildings. In Cyprus, local authorities have proposed planning incentives — including increased allowable building size (e.g. higher floor area limits) or expedited permitting — for private developers who incorporate nature-based solutions or climate-proofing elements into their buildings.

Innovative financial products are also being co-developed with the private sector to reduce the financial burden of climate risks for SMEs. The Cluj-Napoca Municipality in Romania developed a municipal green bond programme that raised EUR 20 million for climate projects with matching private-sector contributions. Additionally, the regional development agency in north-east Romania launched a climate business

incubator programme in Iași in 2023. The initiative provides technical assistance, mentoring and funding for climate-focused startups; it also fosters a regional network of over 50 SMEs and has facilitated EUR 5 million in green investments through public-private partnerships.

Malta has launched its first green bond programme, valued at EUR 25 million, specifically for the Water Services Corporation, ensuring that the funds raised are directed towards environmental objectives. These financial engagement strategies are often coupled with public investment in services that reduce the cost and risk of adaptation planning for private companies.

Box 4.6

Voluntary reporting on key type of measures (KTMs)

The KTM system was developed to help cluster adaptation actions and streamline reporting procedures for Member States. The system was introduced in 2020 and serves as a catalogue and classification tool to identify the types of adaptation actions being pursued across Europe (Leitner et al., 2020). It is important to note that while KTMs classify actions, they do not give details of the outcomes or effectiveness of those actions; as such, they do not serve as a comprehensive tool for MEL.

In the 2025 reporting cycle, 11 EEA member countries (Austria, Czechia, Denmark, Estonia, Germany, Hungary, Iceland, Italy, Portugal, Slovakia and Sweden) voluntarily reported on KTMs (compared with 12 countries in 2023 and eight in 2021). In total, 236 measures were reported in 2025, compared with 232 measures in 2023 and 228 measures in 2021. Analysis of the 2025 data reveals that institutional, governance, knowledge and behavioural change measures remain central to Member States' efforts.

However, a comparison with 2023 and 2021 data highlights a shift toward the implementation of concrete adaptation actions. The number of reported physical and technological measures rose (from 36 in 2023 to 53 in 2025) and nature-based solutions also saw an increase (from 38 in 2023 to 45 in 2025). This suggests that while countries are continuing to build the necessary institutional foundations to support adaptation, they are increasingly deploying tangible physical solutions as well.

Table 4.1 Changes in reported KTMs between 2021 and 2025

KTM	2021	2023	2025
Governance and institutional	66	72	60
Economic and finance	9	10	13
Physical and technological	37	36	53
Nature-based solutions	31	38	45
Knowledge and behavioural change	85	67	64
Total	**228**	**223**	**235**

Source: EEA compilation based on 2021, 2023, 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a).

The voluntary reports provide detailed insights into specific national adaptation actions.

Mainstreaming adaptation: Austria is integrating adaptation requirements into building standards, norms and laws. Similarly, Germany is taking steps to integrate climate change consequences systematically into planning processes within the Federal Waterways and Shipping Administration.

Infrastructure and risk management: Portugal has established a programme to analyse climate risks for airports, initiating an adaptation plan for Faro Airport due to climate risks. Portugal also reported the removal of infrastructure located in flood-critical territories along the coastline.

Health and monitoring: Estonia has developed information, monitoring and support systems to manage climate-related health risks. These include action plans covering meteorological factors, landscape fires, water quality, pollen dispersal, vector-borne diseases and parasites.

4.7 Limitations of the data and assessment

It is apparent from the reporting that the shift from planning to the actual implementation of adaptation actions is slow. However, the current low level of detail in the reported information about how and where implementation happens and who drives it represents a limitation. The clarity of reported information also varies and is linked to how countries interpret the reporting elements. Information is often dispersed across different sections of the reporting. Both challenges limit the assessment.

A sound overview of implemented adaptation actions remains incomplete. Mostly countries showcase examples of initiatives or campaigns implemented at the project or case-study level. Furthermore, there is currently no common approach for systematically tracking implemented adaptation actions across Europe. The few elements reported are generally showcased in the reported information as examples of mainstreaming, adaptive capacity building and knowledge exchange and sharing, as well as case studies. This limits the analysis presented in this report.

The reported data on subnational efforts currently only provide a snapshot of ongoing efforts towards implementing adaptation actions at the subnational and local levels and these snapshots are described from the national perspective. As such, the information on actions at these levels is not comprehensive.

The amounts of money spent on adaptation are difficult to distinguish from other investments (e.g. mainstreaming adaptation in maintenance work) in the current reporting. As such, there is very little quantification of the budgets spent. Therefore, the extent to which the reported adaptation efforts are backed up by sufficient funding remains unclear. While it should be noted that 11 EEA countries (Austria, Czechia, Denmark, Estonia, Germany, Hungary, Iceland, Italy, Portugal, Sweden and Slovakia) opted to voluntarily report on KTMs (see Box 4.6), a substantial amount of information is missing. This limits the significance of the statements made about implemented adaptation actions in this report.

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5 Monitoring, evaluation and learning

Key messages

- All European Environment Agency (EEA) member countries reported monitoring, evaluation and learning (MEL) activities, but they vary widely across the countries. This shows that MEL is increasingly recognised as part of adaptation policy, but activities remain underdeveloped in many countries.
- A total of 11 countries reported using indicator-based methods to monitor progress and evaluate effectiveness. However, links between objectives, corresponding indicators, implemented actions and outcomes remain weak, limiting the assessment of whether adaptation actions are delivering the intended results.
- In 2025 adaptation platforms and portals were increasingly operational across Europe. They varied across countries and sectors in terms of their maturity, interoperability and how the platforms are funded and managed.
- Overall, 19 countries operate national adaptation platforms, portals or hubs providing open access to climate data, guidance and case studies. These services increasingly support the adaptation policy cycle and strengthen multi-level governance and stakeholder engagement.

Monitoring, reporting and evaluation (MRE) is used to track progress towards adaptation goals, support effective planning and identify areas for improvement. It facilitates transparency and accountability by ensuring that adaptation efforts are assessed against defined objectives and remain responsive to changing circumstances (EEA, 2020).

However, there is a need for MRE systems to evolve as adaptation challenges become more complex. In this context, the term MEL is increasingly being used — notably since the adoption of the United Arab Emirates (UAE) Framework for Global Climate Resilience — to emphasise that data collection and reporting are not ends in themselves. In this report, MEL is used as a comprehensive term that not only incorporates reporting requirements but also signals a shift towards more adaptive governance.

Moving from a technical MRE approach to a MEL system strengthens adaptation governance by embedding learning into the policy cycle. Monitoring and reporting track what is happening, while evaluation and learning help explain why and how certain actions succeed or fail. By creating structured feedback loops, MEL:

- supports continuous policy improvement;

- helps identify maladaptation risks or unintended side effects early;
- ensures that national adaptation strategies (NASs) and national adaptation plans (NAPs) remain responsive to emerging climate risks (Beauchamp et al., 2024).

This shift is happening in several countries. For example, Switzerland identifies learning from experience as a primary outcome of its evaluation activities. Similarly, Finland's NAP includes an evaluation framework to assess its actions; it is designed not only to assess performance but also to generate recommendations for future policy iterations. These approaches illustrate how evaluation can act as a bridge between technical reporting and evidence-based decision-making.

A robust MEL system therefore serves a dual purpose: it meets reporting obligations while also driving progress in adaptation. By assessing whether climate risks are effectively managed, strengthening transparency — including tracking adaptation-related expenditure — and systematically linking risks, objectives and outcomes, MEL can provide the foundation for informed decision-making and continuous improvement across sectors and governance levels.

5.1 MEL as a system to support adaptation

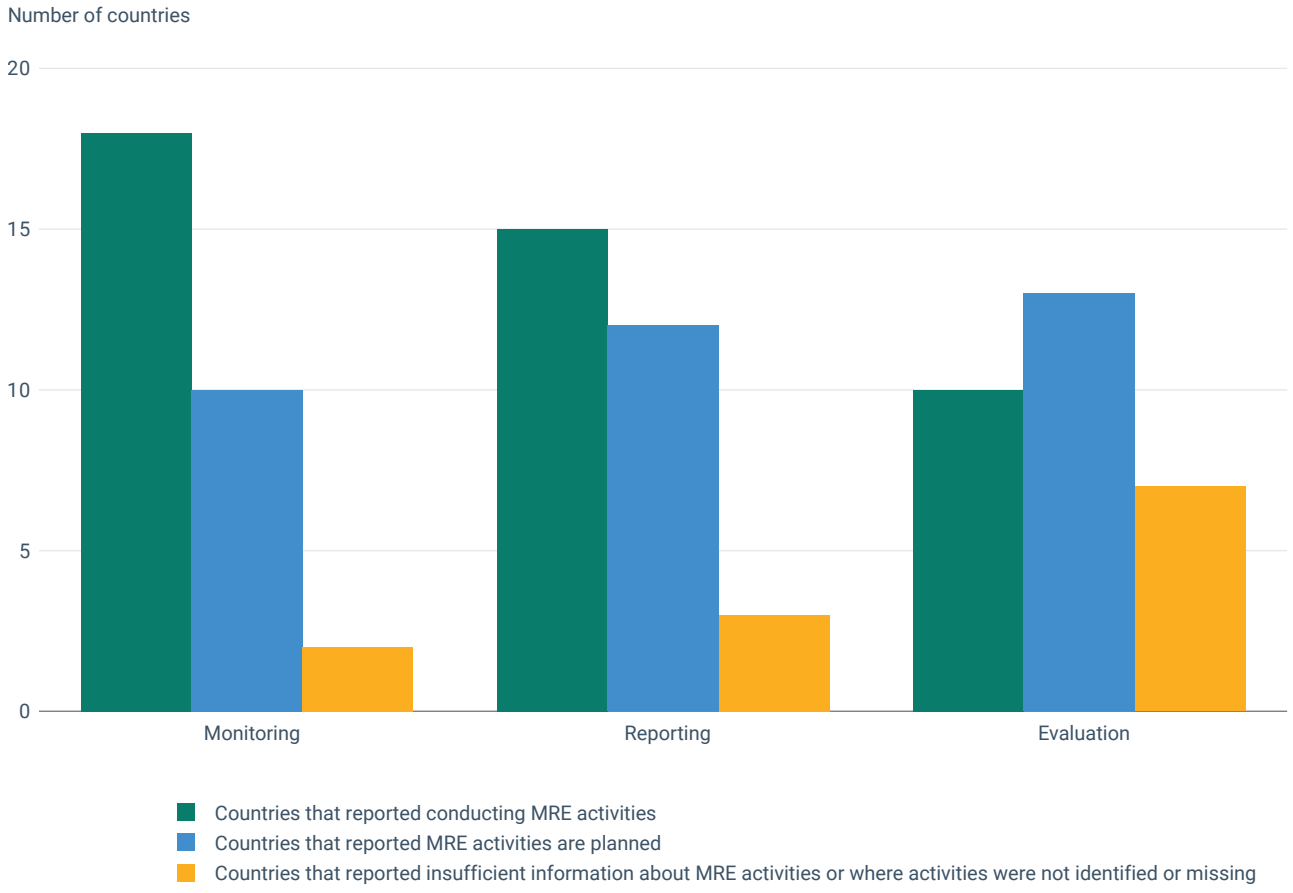
The 2025 reporting indicates that developments in MEL systems are underway across most countries. However, current progress remains uneven in depth and scope and MEL systems are incomplete in many countries. Figure 5.1 indicates that monitoring and reporting activities are currently more widespread than evaluation. These findings are consistent with previous assessments (Leitner et al., 2023). Based on the reported data, evaluation activities are currently planned or forthcoming in 13 countries (Belgium, Bulgaria, Cyprus, Estonia, Greece, Hungary, Iceland, Latvia, Luxembourg, Malta, the Netherlands, Poland and Slovenia). This suggests that evaluation capacity is likely to increase in the coming years.

In spite of this overall trend, countries are at different stages of MEL development. Several countries report comprehensive systems or new assessments strengthening their systems (Belgium, Finland, Germany, Italy and Portugal). Others primarily update information on existing measures or link MEL elements to climate risk assessments (CRAs) or adaptation-related projects, without having a distinct MEL system in place (Bulgaria, Denmark and Greece).

A smaller group reported recognising that MEL systems are necessary and stated that they are currently preparing them (Hungary and Estonia). Other countries (Finland and France) are linking MEL activities either to existing measures or to measures which are still to be developed in accordance with their NAP/NAS. A few countries reported conducting MEL in conjunction with climate risk and vulnerability assessments (Ireland and Luxembourg). Additionally, countries such as Ireland, Estonia and Switzerland reported that national climate laws or similar legal acts are important drivers for institutionalising MEL systems.

Despite these advances, comprehensive MEL systems remain rare. The diversity of MEL approaches, visible from the reported data, raises questions about the availability of consistent data on implemented actions, their geographic coverage and their effectiveness. Without systematic links between risks, responses (adaptation actions) and results (outcomes) (EEA, 2025b) it is not possible to identify reliably progress and any remaining vulnerabilities. This limits the extent to which policy effectiveness can be assessed and weakens the evidence base needed to inform future revisions of CRAs, adaptation strategies and plans.

Figure 5.1 Monitoring, reporting and evaluation reported in 2025



Note: Monitoring activities are currently carried out in 18 countries, while reporting activities take place in 15. Looking ahead, 10 countries have plans for monitoring activities and 12 for reporting activities. Evaluation, however, remains less common, although the reporting indicated that evaluation activities are planned or forthcoming in 13 countries.

Source: EEA compilation based on 2025 reporting under Article 19 of the Governance Regulation through Reportnet 3 (EEA, 2026a).

5.2 Key methodological approaches in MEL activities

Some reporting countries provided details on the methodological approaches they use when conducting MEL activities. Both quantitative assessments (e.g. indicator-based) and qualitative assessments (e.g. co-production techniques with stakeholders) were reported among the main methods used.

Overall, 11 countries (Austria, Belgium, Czechia, Finland, France, Germany, Ireland, Italy, Portugal, Spain and Sweden) reported that they rely on indicator-based methods to monitor progress towards adaptation objectives or priorities and to evaluate the effectiveness of implemented measures.

For instance, Germany has developed a set of key indicators for its NAS, focusing on themes such as climate resilience, reducing vulnerability and adaptive capacity. Similarly, Austria uses a comprehensive indicator framework to track climate change impacts and adaptation progress across various sectors, including water management, agriculture and forestry. Taking another example, in Czechia 23 indicators were reported focusing on, among other things, vulnerabilities and quality of early warning systems.

In many other countries, however, there is unclear or limited evidence about the extent to which adaptation objectives are supported by measurable indicators. Where objectives are not systematically linked to indicators, it is not possible to track progress consistently meaning that it is difficult to assess outcomes.

Some countries have adopted qualitative assessment methods or combine them with quantitative techniques to capture nuances and context-specific information. For example, Cyprus reported planning both quantitative monitoring activities (e.g. data on infrastructure built, hectares restored, guidance documents produced) and qualitative (e.g. barriers encountered, stakeholder feedback). Belgium organises participatory workshops and interviews with stakeholders to understand their needs, priorities and perceptions regarding climate adaptation.

Austria reported a pragmatic methodology for monitoring and evaluation. This comprises a self-assessment approach using a stakeholder survey based on the NAP — which is sent to the key actors referenced in the NAP — and an indicator-based approach informed by qualitative and quantitative data. Finland reported on an ongoing project to develop a monitoring system, including indicators and qualitative monitoring tools, to assess the outputs and outcomes of its NAP as well as the risks associated with the targets outlined in the plan.

Integrative methodologies that combine quantitative and qualitative techniques with other approaches, such as modelling, mapping, geographic information system (GIS) analysis and scenario-based assessments, are being recognised as a way to address the uncertainties associated with adaptation. However, countries did not systematically report using integrative methodologies in MEL.

Overall, the assessment shows considerable methodological diversity in MEL approaches across Europe. While this diversity reflects national contexts and institutional settings, it complicates cross-country learning. Lessons learned in one country may not be easily transferable to another. This makes it more challenging to implement and scale good practices at the European level (see Box 5.1 Spotlight).

5.3 Overview of institutional arrangements and coordination

The main actors responsible for arranging MEL activities are often the governmental bodies responsible for the design and implementation of the plans and strategies. These are usually the ministries responsible for the environment and/or climate issues or regional development, or other governmental bodies dealing with risk assessments.

For example, in Finland the Ministry of Agriculture and Forestry is responsible for implementing the NAP. In Estonia, the Ministry of Climate is the body that develops up-to-date CRAs linked to MEL activities. In Belgium, in contrast, the NAP is developed by the Adaptation Working Group created under the National Climate Commission.

While responsibilities are generally assigned at the national level, governance arrangements for MEL differ across countries and are often characterised by complex coordination structures. These structures — coupled with unclear responsibilities — limit institutional capacity. In turn, this can undermine effective delivery of MEL.

Box 5.1

SPOTLIGHT

Knowledge sharing

It is increasingly vital for interested stakeholders — including policymakers, decisionmakers, practitioners and the general public — to have access to relevant and high-quality information for tackling challenges related to climate change. Adaptation knowledge and data underpin every phase of the iterative adaptation policy cycle and help adaptation strategies and action plans to deliver tangible benefits (e.g. more robust knowledge on climate risks, improved early warning and decision support tools).

Knowledge and data that are publicly accessible are varied and heterogeneous. They include:

- information on national policy frameworks (e.g. NASs, NAPs and national risk assessments);
- guidelines (e.g. guidance for subnational and sectoral adaptation);
- datasets (e.g. environmental, adaptation, biodiversity, meteorological and climatological data, including indicators and forecasts);
- climate projections and scenarios;
- best practices;
- scientific resources;
- awareness-raising materials;
- information on funding opportunities.

Accessible and reliable information enables decisionmakers to make informed decisions, basing their planning on accurate risk assessments, case studies and best practices. It also allows them to access funding to support the implementation of adaptation plans. Further, it supports more coordinated and informed adaptation efforts across governance levels and reduces the risk of maladaptation by supporting more coherent and cost-effective adaptation actions.

Such information plays a key role in supporting the formulation and implementation of adaptation strategies and plans at all governance levels. It also facilitates the implementation of the European Union (EU) adaptation strategy (2021) and raises awareness among stakeholders and communities about the need to adapt to climate change.

Knowledge and information provision supporting adaptation efforts

Access to climate adaptation knowledge in Europe is facilitated by a wide range of instruments and services that differ in their purpose, audience, structure and institutional ownership. This diversity reflects the maturity of iterative adaptation cycles, the distribution of responsibilities across governance levels and the large number of actors generating relevant data and information.

Across the EU, the most common instruments for sharing robust and targeted adaptation knowledge are web-based adaptation platforms, portals or hubs.

These terms are often used interchangeably, even though they may imply different levels of complexity or interactivity; this results in challenges and inconsistencies in terminology. However, in general terms, they typically function as gateways to relevant resources, providing a structured and comprehensive environment that integrates multiple knowledge types (policies, tools, datasets, best practices and relevant resources) and facilitates networking and knowledge sharing.

All countries also rely on websites operated by ministries, environment agencies (e.g. sectoral portals), meteorological offices or research institutions (e.g. technical data portals and geoportals) to disseminate climate adaptation knowledge (e.g. climate policies, national vulnerability assessments, climate forecasts, climate projections and scenarios or sectoral guidelines). In most countries these act as complementary information channels feeding into the main national instrument or service. In certain countries they represent the most relevant source of adaptation knowledge and data.

At the subnational level, an increasing number of authorities operate their own instruments, services and networks to support local decisionmakers, practitioners and stakeholders. In most cases their focus is on sharing climate data and raising awareness, addressing knowledge and capacity gaps by sharing repositories of information, supportive data, guidance and resources. The aim is generally to help integrate climate adaptation across subnational governance levels, policies and programmes.

While the availability of climate adaptation knowledge across the EU is growing, the information remains highly fragmented and inconsistent between countries. Differences in the structure, terminology, level of detail, language availability and frequency at which data are updated reduce the usability of the resources available. In particular, methodological differences impede national and transnational learning and cooperation.

In many cases, knowledge is dispersed across multiple platforms, institutional websites or sector-specific portals; this means that it is challenging for users to access it. These challenges are compounded by varying levels of digital maturity and resource availability, meaning that knowledge-sharing instruments are uneven in terms of their quality and functionality.

At the subnational level, the landscape is further diversified. Regional and local authorities increasingly develop their own knowledge-sharing instruments, often tailored to specific contexts and user needs. While this can enhance the relevance of data for local stakeholders, it may also contribute to fragmentation and reduced usability.

At both the national and subnational levels, limitations related to data standardisation and metadata constrain the extent to which knowledge-sharing instruments are interoperable. This can hinder the integration of datasets, comparison of indicators and reuse of information across administrative boundaries. In turn, this affects the efficiency of knowledge exchange and coordinated action across governance levels.

Knowledge-sharing spaces on adaptation across Europe

At the **European level**, the Climate Adaptation Platform (Climate-ADAPT) is the primary reference platform on climate adaptation. It provides an official,

comprehensive and continuously updated knowledge base to support policymakers, practitioners and stakeholders across the whole iterative adaptation cycle. Co-managed by the European Commission (EC) and the EEA, it consolidates the most relevant EU-level policies, data, tools and good practices via a single-entry point. This ensures coherence with EU strategies such as the EU adaptation strategy and the European Green Deal.

Other relevant EU tools and viewers include the Copernicus Interactive Climate Atlas, the Climate Analytics — Climate impact explorer and information made available by the Disaster Risk Management Knowledge Centre. These tools provide critical data and analysis for understanding climate risks and vulnerabilities across Europe.

At the **transnational level**, platforms are in place for the Alpine region (Alpine Convention and CAPA), the Pyrenees (OPCC) and the Adriatic (Adriadapt). Meanwhile, the Adapterra awards organise a contest for the best climate adaptation actions in Czechia and in Austria.

At the **national level**, according to data reported by the 27 EU Member States (EU-27), Iceland, Switzerland and Türkiye, national adaptation platforms, portals or hubs are the main tools and channels for sharing robust and targeted knowledge about adaptation, alongside sectoral platforms and portals (e.g. focusing on agriculture, biodiversity, drought and water).

However, the diversity of policy contexts, legal and institutional frameworks in Europe results in a dynamic landscape of adaptation platforms and portals. Currently, these are 'not homogeneous in terms of the nature and scope of remit, roles and services provided, nor in terms of their stage of development and development pathways' (EEA, 2015). As of 2025, a variety of adaptation platforms or portals were available in Europe, with varied:

- stakeholders (funders and operating governments or agencies);
- means (e.g. embedded within national funding mechanisms or project-based);
- scope;
- content;
- interactivity (e.g. static information or dynamic and interoperable data);
- tools and resources;
- operational and business models;
- target audiences (policymakers, sectoral organisations, practitioners, researchers and businesses).

In 2015, 11 EU Member States (Austria, Denmark, Finland, France, Germany, Hungary, Ireland, the Netherlands, Poland, Spain and Sweden) and Switzerland had national adaptation platforms in place (EEA, 2015). By 2025, most EU Member States (Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Romania, Slovakia, Spain and Sweden) as well as Norway, Switzerland and Türkiye had an adaptation platform, portal or hub in place. A total of 10 of them had been operating for more than 10 years

(Austria, Denmark, Finland, Germany, Ireland, the Netherlands, Norway, Poland, Spain and Sweden).

The adaptation platforms, portals or hubs are often owned or supported by national authorities responsible for adaptation policy at the national level; the focus is generally on creating an enabling environment designed to support all the steps in the iterative adaptation cycle. The content shared by these web-based platforms, portal and hubs varies; however, it often includes:

- information on policy action at the transnational, national and subnational levels;
- results from scientific research;
- guidance;
- supportive data accessible through interactive maps and geoportals (e.g. environmental, adaptation and biodiversity data, climate projections and scenarios, relevant data for CRAs);
- tools to support decision-making;
- awareness-raising materials;
- descriptions of practical experiences based on good practice and implemented adaptation actions.

Some countries with more mature adaptation platforms have evaluated and upgraded their platforms to best support new policy and practice needs and to increase their user interface (e.g. Austria, Denmark, Germany and Poland). Furthermore, the number of countries developing and operating these kinds of platforms and portals as a means of supporting, developing and implementing their NASs and NAPs is increasing (Austria, Belgium, Denmark, France, Germany, Greece, Hungary, Italy, the Netherlands, Poland and Spain).

Some countries use their national platforms as mechanisms to support inter-institutional coordination and to strengthen the implementation of national and subnational strategies and programmes (the Netherlands' climate adaptation platform, the Polish national adaptation platform and the Spanish national adaptation platform (AdapteCCa)).

Some platforms are designed to provide high-quality data, tools and technical support to guide decisionmakers in developing and evaluating national and subnational adaptation strategies (the Greek climate change adaptation hub, the national adaptation geo-information system (NAGiS) in Hungary and the Italian national platform on climate change adaptation).

Other countries have developed national adaptation portals primarily aimed at disseminating information on climate impacts, vulnerability and available adaptation resources (Adapt2climate in Belgium and the French Climate Change Adaptation Resource Centre).

In Germany, there is more than one adaptation platform at the national level; these support the Federal Environment Ministry (BMUKN), which is leading the adaptation

policy process in Germany. The platform KomPass — climate impacts and adaptation in Germany, established by the German Environment Agency:

- provides information on research projects;
- publishes CRAs at the national and subnational levels;
- develops policy recommendations;
- communicates findings to the public and relevant stakeholders.

The BMUKN has also established the Climate Adaptation Centre; managed by the German Institute of Urban Affairs, it is the first nationwide advisory and information centre for adaptation actions in municipalities. Furthermore, the German climate preparedness portal collects data and information concerning climate change as well as offering services that support target-oriented climate adaptation (e.g. weather guidelines, web tools and maps).

Several countries reported different sectoral platforms and portals (see Table A2.1 in Annex 2):

- Latvia and Estonia have early warning platforms.
- Bulgaria, Czechia, Estonia, Poland and Portugal have platforms for environmental, adaptation and biodiversity data.
- Cyprus and Estonia have publicly available platforms for data relevant to CRAs.
- Austria, Greece, Romania and Switzerland have platforms containing climate projections and scenarios.
- Croatia's latest disaster risk assessment is available online.
- Denmark has a web portal with interactive GIS and tools.
- France has a geo-risk portal that gives early warnings as well as offering diverse climate services; these provide publicly available data relevant to the local level, free of charge.

At the **subnational level**, some countries reported awareness-raising and networking platforms to support local decisionmakers, practitioners and stakeholders. These aims were achieved by providing repositories of information, supportive datasets, guidance and other resources that facilitate the integration of climate adaptation into regional and local governance, policies and programmes.

Bulgaria reported the informational and educational portal Klimadapt, created with the support of the environmental protection and climate change programme and funded through the European Economic Area Financial Mechanism 2014-2021. The portal aims to disseminate information and train students, teachers and the general public.

As a specific component of national adaptation platforms and portals, some countries have also established communities of experts, dynamic environments to enable dialogue and the exchange of experiences across all iterative adaptation

cycles (e.g. the AdapteCCa community in Spain, Climate Ireland Adaptation Network and Climate Resilient Together Network in the Netherlands).

In Finland, the Network for the Mission on Adaptation to Climate Change serves as a platform for peer learning and is open to everyone working on adaptation, including representatives from regions, municipalities, joint municipal authorities, welfare areas, research institutes and other stakeholders.

Subnational climate portals or observatories established and owned by subnational authorities were also reported by Italy and Portugal.

Hydrometeorological services and climate projection services are crucial components of knowledge sharing as well. Overall, 34 hydrometeorological services were reported by 22 countries; they provide essential data, forecasts and early warnings needed to understand and respond to climate-related risks. A total of 50 climate projection services were reported by 26 countries, including climate data centres, climate atlases, dashboards/viewers and climate scenario platforms.

5.4 Limitations of the data and assessment

As for other chapters, the limitations of the analysis presented in Chapter 5 arise from methodological differences in assessing MEL activities in each country and differences in the number of details countries reported. The depth of MEL reporting varied across countries in terms of metrics, methods and the indicators currently being used as the basis for MEL. Additionally, even though countries were following the same reporting structure, countries interpreted the questions in varying ways.

Knowledge sharing

Specifically with regard to knowledge sharing, adaptation portals, hubs and websites showcase lots of relevant data and tools, but the sources are disparate; they focus on numerous different national and European contexts. This means that it is challenging to navigate and integrate information consistently.

This diversity highlights the need for more harmonised approaches to developing, structuring and maintaining adaptation knowledge platforms. It would strengthen the usability and consistency of information if:

- distinctions between platform types (e.g. national, transnational or subnational adaptation platforms, sectoral platforms or temporary project sites or hubs) were clarified;
- shared principles for platform management, functions, update processes and linkages to EU-level services were defined.

Such alignment would improve access to reliable climate information, enhance knowledge exchange and better support the formulation and implementation of adaptation strategies and practices.

6 Challenges and opportunities across the iterative adaptation cycle

Building on insights from three reporting cycles under the Governance Regulation (2021, 2023 and 2025), it is possible to assess how the adaptation policy cycle is being carried out across Europe and to identify challenges and opportunities for implementation, progress monitoring and assessment. This chapter analyses the key challenges and opportunities across Europe.

The information reported in 2025 points to advances across the adaptation policy cycle over the past five years. However, it also highlights persistent implementation challenges and gaps in translating climate risk considerations into tailored action. Climate risk assessments (CRAs) have become more prominent, yet climate risks are not systematically translated into measurable policy objectives, concrete action or robust indicators. Diverse policy approaches, methodological inconsistencies, variable institutional capacity, complex coordination arrangements and uncertain financing continue to constrain the implementation of actions.

These findings are in line with other recent reports by the European Commission (EC) (EC, 2023) and the European Court of Auditors (ECA, 2024); these similarly conclude that the effects of adaptation actions on reducing vulnerabilities and addressing climate risks are not yet systematically measured. They also suggest that it is difficult to assess progress due to a lack of harmonised indicators, unified assessment criteria and consistent reporting approaches.

There are also ongoing challenges with aggregating adaptation outcomes across countries, reflecting the heterogeneous nature of the datasets that are available. In this context, the findings of this report reinforce the need for more harmonised, evidence-based criteria at the European Union (EU) level, as well as improved monitoring frameworks to better track progress towards climate resilience.

The EC's 2024 communication (EC, 2024a) on managing climate risks emphasises the importance of clear risk ownership, better use of decision-relevant evidence and more effective utilisation of existing tools, data and knowledge to inform policy choices across sectors and governance levels. The communication highlights the need for a more proactive and coordinated approach to climate adaptation, supported by improved evidence and strengthened implementation of existing policies.

Similarly, the EU *Climate Action Progress Report 2025* (EC, 2025a) points to limited availability of coherent data on the implementation of adaptation measures across Member States. This indicates that data gaps and methodological differences continue to impede the assessment of their effectiveness.

The findings also align with the 2026 report of the European Scientific Advisory Board on Climate Change (ESABCC, 2026); this calls for a shift from fragmented and largely reactive adaptation efforts towards a more effective, fair and transformational EU adaptation policy framework. The challenges identified in this assessment point to the same need for more coherent and evidence-based climate resilience policies.

The Council of the European Union conclusions on Europe's environment (EC, 2025b) from December 2025 further underline the increasingly urgent need to address climate risks and strengthen resilience across all policy areas and governance levels. They emphasise the importance of:

- mainstreaming climate resilience into relevant legislation and policies;
- improving cross-sectoral coordination;
- enhancing knowledge about costs and benefits;
- supporting the development of nature-based solutions where appropriate.

These findings are consistent with the challenges identified in this report. In this context, the forthcoming European Integrated Framework for Climate Resilience — currently under development by the EC for adoption in 2026 — represents a key opportunity to address challenges and leverage existing opportunities.

6.1 Impact, vulnerability and risk assessments

CRAs are advancing across Europe, but differences in methodological approaches, coverage and timeliness limit a coherent Europe-wide understanding of climate risks (see Chapter 2). The evidence points to several persistent challenges.

Links between CRAs, monitoring, evaluation and learning (MEL) systems and policy implementation are often weak. This undermines outcome-oriented policy steering, learning and accountability. Regardless of whether countries prepare integrated national CRAs or opt for sectoral assessments, it is crucial to integrate up-to-date climate risk knowledge systematically into decision-making processes, adaptation planning and revision cycles in order to achieve effective climate risk management.

Persistent gaps in data availability, technical expertise and financial and institutional resources for CRAs risk widening preparedness gaps between countries. They also continue to impede the translation of risk knowledge into effective adaptation policies and actions. A lack of data, information, knowledge and capacity continues to be the most frequently self-reported barrier to further roll-out of integrated CRAs and their translation into policy and decision-making. Capacities for systemic risk assessment are reportedly often limited by:

- missing or inaccessible data;
- a lack of high-resolution climate projections that could support more accurate spatial risk analysis;
- the absence of an integrated data infrastructure with interoperability across institutions;
- difficulties apparent in climate modelling and predictions for future socio-economic development when faced with uncertainties.

Capacity gaps in human resources are often reported; commonly there is a lack of sufficient expertise and experience in:

- conducting CRAs;
- accounting for compound impacts and cascading risks;

- developing indicators;
- applying cost-benefit evaluations;
- translating risk information into actionable solutions.

This suggests a disconnect between CRAs, the interpretation of assessment outcomes and their uptake in planning and implementing adaptation actions.

In many cases, capacity-related barriers seem to be closely linked to widely reported financial constraints. These include heavy dependence on EU funding and scarce resources due to competing political priorities. This also results in a shortage of personnel and training.

Some countries highlight specific knowledge gaps in their CRA-related efforts that are consistent with the findings of earlier studies (EEA, 2018, 2020, 2022); these include a paucity of information on:

- emerging but increasing climate risks (such as droughts and wildfires in central and northern European countries);
- the economic and societal impacts of climate change;
- social justice issues;
- security-related risks such as climate-induced migration, effects on transboundary resources and transnational risks from external disruptions.

CRAs across Europe use a wide range of assessment frameworks and methodologies. To some extent the approaches and methods depend on varying national contexts. However, this diversity continues to limit comprehensive risk identification and consistency between countries; it also weakens coherence between national and EU-level adaptation policies.

There is a growing recognition of transboundary climate risks; however, limited alignment between risk assessments constrains a shared understanding of climate risks across borders. Cross-border cooperation, data sharing and methodological consistency are currently limited. This prevents the development of a shared understanding of transboundary risks and leaves an incomplete picture of how such risks are being addressed across borders.

The analysis points to several opportunities to strengthen the role of CRAs in the iterative adaptation cycle:

- Legal mandates, statutory update cycles and institutionalised governance frameworks are key to supporting continuity in terms of up-to-date climate risk knowledge and its use in policy development and revision cycles.
- Comprehensive national CRAs covering multiple hazards, sectors and risks are essential to provide a stronger basis for systemic adaptation planning. Addressing compound impacts, cascading effects and transboundary dimensions more consistently would foster preparedness for unexpected risks and climate-related threats.
- Methodological harmonisation — for example, by building on the EUCRA framework — while avoiding the pitfalls of over-standardisation would foster more comparable results and consistent assessments between countries. This would

support transnational and cross-border risk management and multi-level coherence in policies.

- Use of high-emission scenarios and extreme-event considerations would help to avoid underestimating future risks and support precautionary resilience planning.
- Stronger science-policy interfaces could improve the links between CRAs, MEL systems and decision-making, helping to translate assessment outcomes into adaptation priorities and actions.
- Investment in capacity-building — including in data infrastructure, technical expertise, communities of practice and financial resources — is essential to overcome critical capacity gaps that currently limit the use of CRAs.

6.2 Planning

The three reporting cycles under the Governance Regulation confirm that climate resilience and adaptation policies have now been widely adopted by the reporting countries but diverse governance systems and coordination challenges limit strategic coherence across Europe (see Chapter 3).

Adaptation approaches differ widely between countries, reflecting differences in governance systems, legal traditions and institutional arrangements. This results in high policy diversity. In many cases, it is unclear how climate risk information informs adaptation objectives or planning for targeted adaptation actions. Reporting suggests that identified risks are not systematically linked to clear objectives, measurable targets, time-bound priorities or indicators.

Adaptation objectives are also often qualitative and links between the risks, objectives and monitoring frameworks are not clearly defined. This limits the extent to which planning systems can guide implementation, support accountability and enable learning, even where planning frameworks are regularly updated.

The reporting reinforces earlier findings that formal planning frameworks alone do not ensure coherent and well-coordinated adaptation actions within countries across Europe. As noted in the 2023 reporting and confirmed in 2025 submissions, adaptation governance in many countries remains complex, with responsibilities spread across multiple ministries, agencies and levels of government. This makes coordination more difficult, especially in decentralised and federal governance systems.

In this context, the reported information points to unclear risk ownership, limited resources and weak coordination across sectors and levels of government. Unclear roles and responsibilities and limited capacity further reduce the coherence, effectiveness and efficiency of adaptation planning, even where frameworks are in place.

Subnational adaptation planning is also evolving, supported by EU-level initiatives such as the Covenant of Mayors and the EU Mission on Adaptation to Climate Change, as well as national programmes and coordination mechanisms. However, the depth and continuity of multi-level collaboration remain uneven. This is particularly the case where support depends on project-based mechanisms.

Regional and local authorities continue to face limitations in their administrative and technical capacity, staffing and financial resources. These constraints affect their ability to translate national priorities into targeted local action and contribute to differences in preparedness across territories.

Examples are emerging of adaptation planning that operationalises the 'leave no one behind' principle by addressing the needs of the most vulnerable. However, it is the case that only a few countries are experimenting with integrating just resilience considerations into adaptation strategies and plans, for example by addressing social vulnerability, distributional impacts and access to adaptation benefits. These approaches highlight the potential of adaptation planning not only to manage climate risks, but also to improve societal well-being and social preparedness when equity considerations are embedded from the outset.

Several opportunities to better align adaptation planning with the iterative adaptation cycle emerged from the analysis of reporting:

- NASs and NAPs and/or sectoral adaptation plans (SAPs) have strengthened relevance when they are revised regularly. It is crucial to keep adaptation policies aligned with evolving climate risks and policy needs.

- Diversity in planning approaches creates both challenges and opportunities. Countries use different planning systems, legal instruments and governance structures that reflect their national institutional contexts. This allows for flexibility and context-specific solutions, but it can also make it harder to achieve a consistent strategic approach across Europe. Better guidance and exchanges of experiences could help balance flexibility with greater coherence.

- Clear institutional responsibilities and strong governance arrangements present a significant opportunity to improve the coherence of climate action. While adaptation planning often face coordination challenges across sectors and governance levels, improving the coordination can help clarify roles and reduce overlapping mandates, including in the area of risk ownership. Addressing these governance challenges can strengthen strategic coherence and support more effective mainstreaming across sectors and levels of governance, particularly in more decentralised systems.

- Clear, time-bound objectives and measurable targets can make adaptation planning more operational. Strengthening the links between identified climate risks, planning objectives, adaptation measures and indicators can help translate risk knowledge into actionable roadmaps. This can improve the role of monitoring frameworks in tracking progress, supporting accountability and enabling learning from implementation.

- Subnational capacity and engagement play an important role in effective adaptation planning. Fostering capacities at the subnational level along with ensuring sufficient funding for implementation — particularly where operationalising adaptation planning currently relies mostly on project-based funding or voluntary initiatives — can help subnational authorities translate national and European priorities into locally relevant action.

- Embedding just resilience considerations can enhance the societal value of adaptation planning. Such considerations, when integrated into planning and policies, can contribute to improved societal well-being and wider social preparedness.

6.3 Implementation

Assessment of Europe's progress towards climate resilience and preparedness is constrained by limited evidence on implementation. The gap between information on how adaptation policies are planned (see Chapter 3) and on their operationalisation and implementation (see Chapter 4) makes it difficult to draw conclusions. Current reporting provides stronger insight into strategies, policy frameworks and coordination arrangements than into delivered actions and their outcomes. Comprehensive data on what is being implemented, where, with what resources and with what results remain limited. This creates blind spots about where implementation gaps remain and whether adaptation efforts are reducing climate risks and strengthening resilience in practice.

Despite increased efforts since 2021 to mainstream and integrate adaptation into sectoral policies, plans and programmes and to strengthen links with disaster risk management (DRM) and environmental processes, significant barriers to effective implementation persist. Although many countries now formally require adaptation to be mainstreamed in sectoral policies, the 2025 reporting continues to include frequent references to challenges related to sectoral integration.

In 2025, countries reported ongoing challenges related to knowledge, governance and capacity, including technical, human and financial resources. Financing constraints fundamentally limit the scale of adaptation. Several countries underlined the need for stable and long-term funding arrangements, as adaptation investment needs increase. However, currently, most adaptation actions remain dependent on project-based or external financing.

It is not clear if the reported adaptation actions are underpinned by sufficient budgets. While EU funding plays a major role in supporting adaptation action across Europe, national funding is inconsistent and many countries lack dedicated adaptation budgets or financing schemes that could provide predictable support to enable effective long-term planning and investment.

Furthermore, a systemic overview of current adaptation spending, funding and financing is lacking. This limits the ability to identify funding gaps or constraints and to design better-targeted financing approaches. Even when funding is available, there is no clear information on adaptation costs and benefits, particularly at the sectoral, subnational and local levels. This means it is difficult to budget appropriately.

The lack of reliable data also hinders an assessment of trade-offs and effective prioritisation of adaptation actions based on available funding. Further, it limits the ability to align investment with adaptation needs in a way that maximises results. Incentives for private-sector investment are still largely absent, limiting opportunities to mobilise additional resources and scale up adaptation actions. This affects both the extent of implementation and the ability to assess whether financing is aligned with adaptation needs.

Several opportunities to strengthen the implementation of adaptation actions and improve the evidence base on progress emerged from the reported data:

- Systematic tracking of implemented adaptation actions can improve understanding of progress. Reporting on adaptation actions using the key type of measure (KTM) classification is voluntary for countries. The result is that the current information is incomplete and inconsistent across countries. This limits the ability to provide an EU-wide picture of actions being taken, such as infrastructure development, changes in systems or ecosystems and assets being protected. More consistent

tracking of adaptation actions, outcomes and resources would help show how policies are being put into practice and whether they are contributing to climate resilience.

- Stronger sectoral mainstreaming can support more consistent implementation. Many countries have formal requirements to integrate adaptation into their sectoral policies, but uptake remains uneven. Differences in sectoral expertise, competing policy objectives and limited resources help explain this variation. This highlights the need to complement legal mandates with sustained investment in coordination and policy alignment to ensure that adaptation is more consistently embedded across sectors.

- There is a significant opportunity to make better use of existing tools such as strategic environmental assessment (SEA). This kind of tool can act as a powerful and proactive mechanism for integrating climate change adaptation at an early, strategic stage of decision-making, particularly during the development and formulation of policies, plans and programmes. Unlike the project-level focus of environmental impact assessments (EIAs) — with their focus on climate proofing and incorporating climate projections into project design — SEA provides a broader, long-term framework to ensure that climate resilience is built into the fundamental objectives of framing documents such as policies, plans and programmes, rather than just being a consideration at the project implementation stage.

- Adequate and predictable funding remains central to implementation. Stable, long-term financing arrangements can help move adaptation beyond project-based or external funding and support continuity. Better information on adaptation spending, costs and benefits would also be helpful for prioritising and assessing whether financing is aligned with adaptation needs.

- Initiatives such as the Covenant of Mayors and the EU Mission on Adaptation to Climate Change are raising awareness of adaptation at the subnational levels. They aim to accelerate planning and implementation through a mix of resources and technical assistance. These efforts complement and strengthen other knowledge-sharing activities across governance levels, including national platforms, peer-learning initiatives and cross-border, city-to-city or region-to-region cooperation. To move beyond project-based successes, there is a need for more institutionalised and sustained support for local implementation.

6.4 MEL

MEL systems provide critical input on progress and gaps, strengthening adaptation planning on multiple levels. There is a growing focus on tracking progress and creating the foundations for more systematic MEL systems (see Chapter 5).

MEL systems remain incomplete in many countries. Consistent data on what is implemented, where and with what effect remain limited. Effectiveness, accountability and learning are constrained by insufficient coordination across sectors and levels, combined with underdeveloped monitoring frameworks. As a result, progress, effectiveness and remaining risks cannot be reliably identified. This weakens the evidence available to inform future climate risk assessments, policy design and implementation.

Implementing effective MEL systems is challenging given the diverse range of interacting social, economic and environmental factors, variables and baselines. As adaptation takes place at the nexus of these baselines, the evolving risk contexts add uncertainty to strategies. In short, the challenges related to MEL are:

- conceptual — relating to the difficulty of identifying successful adaptation interventions and what would have happened in the absence of the intervention;
- analytical — it is challenging to attribute observed ecological changes to climate change;
- practical — there are gaps and challenges in measuring the success of adaptation interventions over time are suitable for informing policy and management decision-making (Pearce-Higgins et al., 2022).

Another challenge that is often discussed in relation to MEL activities is that there is no single unit of analysis available for adaptation. This is because the term is applied to different purposes, different scales and several sectors. Consequently, it is challenging to implement effective MEL given the diverse range of interacting social, economic and environmental factors/variables and baselines. The countries that submitted reports talked about the importance of finding cross-cutting tools for conducting MEL.

While indicators do play a significant role in MEL systems across countries (EEA, 2020), usable ones are not always readily available. The link between policy objectives and corresponding suitable indicators to measure them is often missing. This limits the ability to track progress and outcomes. Developing suitable metrics for adaptation is often challenging due to the diversity and complexity of climate risks and adaptation responses.

Compared to monitoring and reporting, the reporting countries still identified evaluation as less common. This could be because evaluations typically require significant resources and expertise. An additional barrier here is that sometimes the effects of a particular adaptation intervention are only visible after a delay, which can make it hard to evaluate certain activities. The diverse approaches to designing climate resilience and adaptation strategies and plans are often resulting in a wide range of MEL approaches and practices. This can pose challenges for cross-country learning and the transfer of good practices. MEL methodologies and lessons learnt in one region or country may not be applicable elsewhere.

The reporting pointed to several opportunities for strengthening MEL frameworks:

- Clear adaptation objectives and quantified targets are essential to guide the MEL activities. Countries that have developed these have been able to better track progress and evaluate the effectiveness of their adaptation efforts.
- Since corresponding indicators play a significant role in tracking progress towards objectives, or activities across countries, and usable indicators for MEL purposes are not always available, diversified MEL approaches to measuring risk reduction, responses and results can be beneficial (see Figure 7.1).
- Institutional arrangements and coordination need to be strengthened, as cross-sectoral or cross-ministerial working groups can play a key role in coordinating and mainstreaming MEL activities at the national level.
- Learning is increasingly recognised as a crucial component of MEL, as it provides opportunities to learn from past experiences to inform future adaptation actions. In addition to MEL activities, cross-sectoral and cross-governmental and/or cross-ministerial collaborations are also increasingly seen as essential platforms for learning activities.
- Learning, knowledge-sharing and exchange platforms and cooperation networks help build adaptive capacity and can strengthen monitoring and evaluation. Across

Europe, adaptation platforms, portals and hubs have become essential tools for advancing adaptation by providing open access to reliable information, data and resources. In several countries, these services directly support and can further strengthen the development and implementation of national and subnational adaptation policies, reinforce multi-level governance and help foster collaboration, innovation and public awareness.

- National adaptation portals can also become more useful at the subnational level by guiding stakeholders to the right information and supporting learning. In countries where information is scattered or platforms are still emerging, these networks help users find reliable sources and build a shared understanding of adaptation across governance levels. Efficiency in using these national portals and its tools can be improved by better linking Climate-ADAPT and EU tools to create a unified, evidence-based resource for decisionmakers. Greater harmonisation, long-term resourcing and stronger integration with EU-level services (such as Climate-ADAPT and Copernicus) are also needed to ensure consistent, reliable and user-oriented access to adaptation knowledge across Europe.

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7 Conclusions and outlook

Over the past five years, reporting of national adaptation actions under the Governance Regulation has matured and now provides insights into how countries organise adaptation policy. It is the most comprehensive reporting format on adaptation currently available in Europe, offering a structured snapshot of existing policies and actions. While the reporting is not without limitations, it has created a common body of information and improved the overall picture of adaptation planning across Europe.

This represents progress. Reporting is particularly valuable for understanding: whether countries have adaptation policies in place; how responsibilities are distributed across governance levels; which priorities are being addressed; how coordination mechanisms are established.

At the same time, the assessment presented in this report points to clear limitations of the reporting. The reporting requirements are not currently supported by mandatory guidance or indicators and systematic reporting on adaptation measures remains voluntary. This means that the requirements are left open to interpretation by Member States, resulting in heterogeneous data and uneven reporting. As such, the reporting structure could be further refined.

Country submissions tend to capture adaptation planning, governance and coordination mechanisms most consistently, but there is currently a lack of structured information on implementation and outcomes, pointing to a key gap. Information on planned and implemented actions, their scale, effectiveness and contribution to climate resilience remains limited, fragmented and difficult to aggregate across sectors and governance levels. Links between identified climate risks, policy responses and observed results are also often weak, making it difficult to assess whether actions are targeted and proportionate to the risks faced.

Differences in monitoring, evaluation and learning (MEL) approaches — in the use of indicators and methodologies — further constrain the ability to track progress over time. As a result, the current reporting tends to be more effective at documenting policy frameworks than demonstrating implementation, preparedness and progress towards climate resilience. This limits the ability to assess actual preparedness and progress towards climate resilience and may leave important implementation gaps and blind spots.

The findings point to a clear next step: moving from understanding whether adaptation frameworks are in place to assessing what adaptation actions are being implemented, whether they are reducing risks and where gaps remain.

The ongoing review of the Governance Regulation is likely to offer the opportunity to improve how progress on climate resilience is tracked. To obtain a clearer picture of Europe's progress in building climate resilience, future reporting will need to move beyond describing plans and governance arrangements and place greater emphasis on implementation and results. Systematic reporting of adaptation actions, stronger MEL systems and clearer links between identified climate risks, policy responses and observed results are all necessary.

A first priority is to improve the evidence base on implemented adaptation actions. At present, information on action taken on the ground remains voluntary, incomplete and highly fragmented. Adaptation is delivered through a wide range of actions and measures, often embedded in sectoral policies and implemented across different governance levels. This makes it difficult for countries to maintain a comprehensive overview of what is being implemented and, in turn, limits the scope for aggregation and categorisation at EU level. In the absence of a common structure for identifying and classifying implemented actions, the reporting results in a vast and unstructured body of information that makes it challenging to understand, aggregate or interpret progress at the European Union (EU) level.

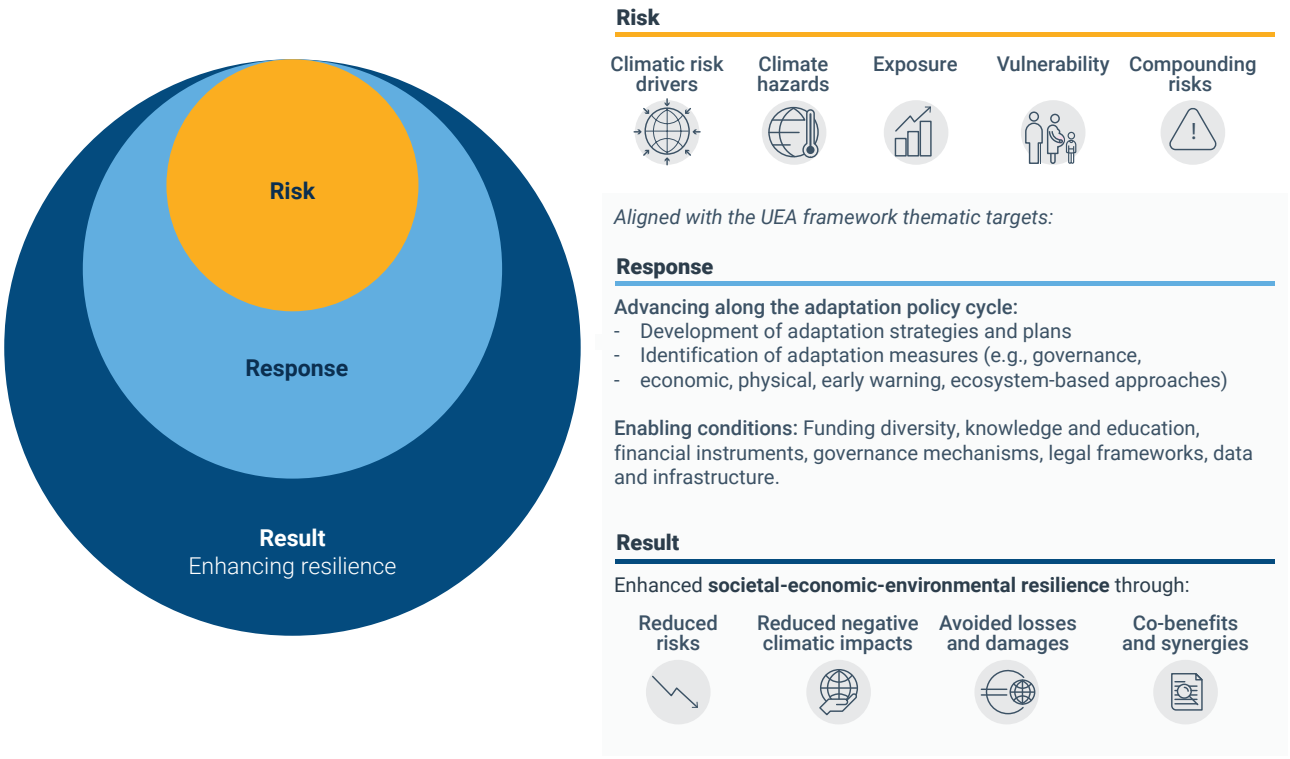
One possible response would be to further develop the use of the key type of measure (KTM) approach, outlined in Leitner et al., 2020. The KTM approach could help classify adaptation actions into common categories, supporting a more consistent overview across countries. To make reporting more feasible and policy-relevant, countries could focus on a limited number of key implemented measures per sector and governance level, selected according to criteria such as scale, relevance, priority risks or expected impact. These measures could then be assigned to KTM categories, providing a more manageable and comparable basis for understanding adaptation action across Europe. However, classification would only address part of the problem; and alone does not resolve the underlying challenges related to data availability and reporting incentives.

A second priority is to strengthen the use of indicators and outcome-oriented progress monitoring. There is increasing emphasis on tracking adaptation progress in terms of risks, responses and results. This reflects the need to understand not only what risks exist, but also how societies respond and what difference these responses make in practice. In this context, the 3R approach (EEA, 2025b) developed by the European Environment Agency (EEA) as a potential European-wide assessment framework, offers a useful logic for structuring indicators.

The first dimension, risks, focuses on identifying climate drivers, hazards and their impacts. It helps to establish the evolving baseline for adaptation. The second, responses, captures the policies, governance arrangements, resources and capacities that enable adaptation and risk reduction. The third, results, focuses on whether these responses are effective; it includes analysis of whether climate risks and vulnerabilities are reduced and adaptive capacity and climate resilience are strengthened.

Structuring future reporting more clearly around risks, responses and results would help bridge the current gap between risk identification, action and outcomes (see Figure 7.1). These improvements are increasingly important in the broader EU policy context, which is currently evolving.

Figure 7.1 **3R assessment framework**



Note: The EEA has developed an assessment framework based on selected guiding principles from Singh et al. (2022) for measuring progress towards climate resilience:
(1) maximising economic benefits
(2) improving well-being
(3) reducing vulnerability
(4) enhancing resilience
(5) linking to sustainable development
(6) avoiding maladaptation
(7) ensuring equity and justice.
The framework also takes into account the targets of the United Arab Emirates (UAE) Framework for Global Climate Resilience, supporting the monitoring of both response and result dimensions.

Source: EEA.

The second European Climate Risk Assessment (EUCRA-2), to be published in 2028, will further strengthen the EU-wide evidence base on climate risks. At the same time, the European Commission (EC) European Integrated Framework for Climate Resilience will establish a more comprehensive and coherent approach to climate resilience and preparedness, facilitating action by individual Member States and the EU as a whole. The policy package is due to be published by the end of 2026.

The 2026 Governance Regulation review will likely offer an opportunity for improvements, while the 2028 Climate Law progress assessment will present new insights on overall progress in Europe.

In this context, better reporting is not just a technical issue. It is essential for ensuring that climate resilience and adaptation policies are informed by robust evidence and translate into strengthened policies and measurable progress in reducing climate risks and safeguarding Europe's climate resilient future.

Abbreviations

3Rs	risks, responses and results
APCC	Austrian Panel on Climate Change
AR6	sixth assessment report (IPCC)
BML	Austrian Federal Ministry of Agriculture and Forestry, Climate and Environmental Protection, Regions and Water Management
BMSGPK	Austrian Federal Ministry of Social Affairs, Health, Care and Consumer Protection
BMUKN	German Federal Environment Ministry
CAPA	Climate Adaptation Platform for the Alps
Climate-ADAPT	European Climate Adaptation Platform
CMIP	Coupled Model Intercomparison Project
COP	Conference of the Parties
CRA	climate risk assessment
DRM	disaster risk management
EC	European Commission
EEA	European Environment Agency
EEA-32	The 32 EEA member countries
EIA	environmental impact assessment
Eionet	European Information and Observation Network
EPCI	public inter-municipal cooperation establishment
ETC CA	European Topic Centre on Climate Change Adaptation and LULUCF
EU	European Union
EU-27	the 27 EU Member States
EUCRA	European Climate Risk Assessment
GHG	greenhouse gas
GIS	geographic information system
GWL	global warming level
Governance Regulation	Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action
ICT	information and communication technology
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
JRC	Joint Research Centre
KTM	key type of measure
LCDS	low carbon development strategy (Malta)
LNE	environment, nature and energy (Belgium)
LULUCF	land use, land-use change and forestry
MEL	monitoring, evaluation and learning
MOP	Ministry of Natural Resources and Spatial Planning (Slovenia)
MRE	monitoring, reporting and evaluation
NAF	national adaptation framework (Ireland)
NAGiS	national adaptation geo-information system (Hungary)
NAP	national adaptation plan
NAS	national adaptation strategy

NCC	National Climate Commission (Belgium)
NECP	national energy and climate plan
NUTS	nomenclature of territorial units for statistics
ONERC	French National Observatory on the Effects of Global Warming
OPCC	Pyrenees Climate Change Observatory
PCAET	territorial climate-air-energy plan (France)
PERUN	prediction, evaluation and research for understanding
RAP	regional adaptation plan
RCP	representative concentration pathway
SAP	sectoral adaptation plan
SEA	strategic environmental assessment
SIAM	scenarios, impacts and adaptation measures
SME	small and medium-sized enterprise
SSP	shared socio-economic pathway
UAE	United Arab Emirates
UN	United Nations
UNCCD	UN Convention to Combat Desertification
UNFCCC	UN Framework Convention on Climate Change

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Annex 1

Structure for reporting on national adaptation actions

Commission Implementing Regulation (EU) 2020/1208 (EU, 2020) on structure, format, submission processes and review of information reported by Member States pursuant to Regulation (EU) 2018/1999 of the European Parliament and of the Council and repealing Commission Implementing Regulation (EU) No 749/2014 (EU, 2018).

Annex I: Information on national adaptation actions pursuant to Article 4

1. National circumstances, impacts, vulnerabilities, risks and adaptive capacity [1]

1.1 National circumstances relevant to adaptation actions:

a. biogeophysical characteristics;

b. demographics;

c. economy and infrastructure.

1.2 Climate monitoring and modelling framework:

a. main activities on climate monitoring, modelling, projections and scenarios;

b. main approaches, methodologies and tools, and associated uncertainties and challenges.

1.3 Assessment of climate impacts, vulnerability and risks, including adaptive capacity:

a. overview of observed climate hazards among the ones listed in Table A1.1 [2] and existing pressures [3];

b. identification of key future climate hazards from the ones listed in Table A1.1 and key affected sectors [4].

(1) 'Adaptive capacity' as defined in the Fifth Assessment Report of the United Nations Intergovernmental Panel on Climate Change (IPCC AR5): 'The ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences.'
Where relevant, Member States shall also consider secondary effects of these hazards, such as forest fires, spread of invasive species and tropical diseases, cascading effects, and multiple hazards occurring at the same time.
(2) The list is not exhaustive.
(3) Member States shall report existing environmental, economic and social pressures that are likely to be significantly affected by climate change: e.g. loss of biodiversity, poor harvest, energy poverty, unemployment, migration.
(4) Member States shall select key sectors among the following: Agriculture and food, biodiversity (including ecosystem-based approaches), buildings, coastal areas, civil protection and emergency management, energy, finance and insurance, forestry, health, marine and fisheries, transport, urban, water management, ICT (information and communications technology), land use planning, business, industry, tourism, rural development, other [please specify].

Table A1.1 Classification of climate-related hazards [5]

	Temperature-related	Wind-related	Water-related	Solid mass-related
Chronic	Changing temperature (air, freshwater, marine water)	Changing wind patterns	Changing precipitation patterns and types (rain, hail, snow/ice)	Coastal erosion
	Temperature variability	Other	Precipitation and/or hydrological variability	Soil degradation (including desertification)
	Permafrost thawing		Ocean acidification	Soil erosion
	Other		Saline intrusion	Solifluction
			Sea level rise	Other
			Change in sea ice cover	
			Water scarcity	
			Other	
Acute	Heat wave	Cyclone	Drought	Avalanche
	Cold wave/frost	Storm (including blizzards, dust and sandstorms)	Heavy precipitation (rain, hail, snow/ice)	Landslide
	Wildfire	Tornado	Flood (coastal, fluvial, pluvial, ground water, flash)	Subsidence
	Other	Other	Snow and ice load	Other
			Glacial lake outburst	
			Other	

c. For each key affected sector, overview of the following, rated on qualitative scales of high/medium/low/not applicable, with accompanying explanation as appropriate [6]:

   i. observed impacts of key hazards, including changes in frequency and magnitude;

   ii. likelihood of the occurrence of key hazards and exposure to them under future climate, drawing upon the best available climate modelling science;

   iii. vulnerability, including adaptive capacity;

   iv. risk of potential future impacts.

2. Legal and policy frameworks and institutional arrangements

2.1 Legal and policy frameworks and regulations, including national adaptation strategies (NASs), national adaptation plans (NAPs) [7] and any sectoral adaptation plans.

(5) Where relevant, Member States shall also consider secondary effects of these hazards, such as forest fires, spread of invasive species and tropical diseases, cascading effects, and multiple hazards occurring at the same time.

(6) The analysis outlined in points (i) to (iv) shall apply the best available science for vulnerability and risk analysis by the Intergovernmental Panel on Climate Change and the latest Commission guidance on the climate proofing of the Union-funded projects.

(7) Member States shall report the title, year of adoption and status [superseded/adopted/completed and submitted for adoption/being developed] of each NAS and NAP.

2.2 Overview of institutional arrangements and governance at the national level for:

a. assessing climate vulnerability and risks;

b. planning, implementing, monitoring, evaluating and revising adaptation policy [8];

c. integrating climate change impacts and resilience into environmental assessment procedures;

d. collection, ownership and reuse of relevant data (such as climate-related disaster loss data or risk data) and access to it;

e. integrating climate change impacts and adaptation planning into disaster risk management frameworks and vice versa [9].

2.3 Overview of institutional arrangements and governance at the subnational [10] level:

a. legal requirements and strategic documents;

b. networks or other collaborations on adaptation across national authorities;

c. good practice examples of networks or other collaborations on adaptation across local and regional authorities.

3. Adaptation strategies, policies, plans and goals

3.1 Adaptation priorities.

3.2 Challenges, gaps and barriers to adaptation [11].

3.3 Summaries of national strategies, policies, plans and efforts, with a focus on goals and objectives, foreseen actions [12], budget and timeline [13].

3.4 Overview of the content of sub-national strategies, policies, plans and efforts.

3.5 Overview of efforts to integrate climate change adaptation into sectoral policies, plans and programs, including disaster risk management strategies and action plans.

(8) Aspects to consider include decision making, planning and coordination related to adaptation strategies, policies, plans and goals, addressing cross-cutting issues, adjusting adaptation priorities and activities, implementing adaptation actions, including facilitating action to avert, minimise and address the adverse effect of climate change.
(9) Including Article 6(1) of Decision No 1313/2013/EU of the European Parliament and of the Council of 17 December 2013 on a Union Civil Protection Mechanism (OJ L 347 I, 20.12.2013, p. 924).
(10) Throughout the Annex, 'sub-national' refers to local and regional.
(11) Including those institutional, governance-related and other barriers that restrict the adaptive capacity as identified in the vulnerability assessment.
(12) Including nature-based solutions and actions leading to mitigation co-benefits and other relevant co-benefits.
(13) The summaries shall cover also efforts to build resilience and avert, minimise and address the adverse consequences of climate change, and include an explanation how gender perspectives have been taken into account.

3.6 Stakeholder engagement.

Overview of measures in adaptation policy at the national level and good practice examples from the subnational levels to engage with:

a. stakeholders particularly vulnerable to climate change impacts;

b. the private sector [14].

4. Monitoring and evaluation of adaptation actions and processes

4.1 Monitoring and evaluation methodology [15] related to:

a. reducing climate impacts, vulnerabilities, risks, and increasing adaptive capacity;

b. implementation of adaptation actions.

4.2 State of play of the implementation of measures planned under points 3.3 to 3.6, including an overview of the subnational level and the disbursement of funding to increase climate resilience.

The reporting on funding shall cover:

a. spending earmarked for climate adaptation including in disaster risk management;

b. to the extent possible, the share of spending used to support climate adaptation [16] in each sector [17].

4.3 Evaluating progress towards the following [18]:

a. reducing climate impacts, vulnerabilities and risks;

b. increasing adaptive capacity;

c. meeting adaptation priorities;

d. addressing barriers to adaptation.

4.4 Steps taken to review and update the following:

a. vulnerability and risk assessments;

b. national adaptation policies, strategies, plans and measures.

4.5 Overview of good practice with regard to steps taken to review and update subnational adaptation plans, policies, strategies and measures.

(14) Member States shall provide an overview of available information on private sector plans, priorities, actions and programmes, public/private partnerships, and other relevant private adaptation initiatives and/or projects.
(15) Member States shall report on approaches, systems used, transparency and indicators.
(16) The additional investment that makes a project (that would have been realised anyway) climate resilient.
(17) Member States shall report on investment in adaptation actions by the following sectors: Agriculture and food, biodiversity (including ecosystem-based approaches), buildings, coastal areas, civil protection and emergency management, energy, finance and insurance, forestry, health, marine and fisheries, transport, urban, water management, ICT (information and communications technology), land use planning, business, industry, tourism, rural development; other [please specify].
(18) Based on the monitoring and evaluation methodology as reported under point 4.1.

5. Cooperation, good practices, synergies, experience and lessons learned in the field of adaptation

5.1 Good practices and lessons learnt, including at sub-national level [19].

5.2 Synergies of adaptation actions with other international frameworks and/or conventions, in particular the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction.

5.3 Cooperation with Union Member States, international cooperation, and with regional and international organisations [20]:

a. cooperation to share information and to strengthen science, institutions and adaptation knowledge;

b. cooperation to enhance adaptation action at the sub-national, national, macro-regional and international level, including the area, scale and types of cooperation.

6. Any other information related to climate change impacts and adaptation

6.1 Key contact details of national coordinator and organisation.

6.2 Relevant websites and social media sources used for communication on adaptation action at national and sub-national level, as appropriate.

6.3 Key reports and publications at national and sub-national level.

6.4 Any other relevant information.

(19) Member States may report on the good practices and lessons learnt in the following areas, when relevant: Climate modelling activities and methodologies; assessment of climate impacts, vulnerability and risks to climate change, including adaptive capacity; institutional arrangements and governance at the national level; policy and regulatory changes; coordination mechanisms; adaptation priorities; adaptation barriers; adaptation goals, objectives, undertakings, efforts, strategies, policies and plans; efforts to integrate climate change adaptation into development and sectoral policies, plans and programs; integration of gender perspectives into climate adaptation; integration of indigenous, traditional and local knowledge into climate adaptation; stakeholder engagement; climate risk communication; monitoring and evaluation; strengthening scientific research and knowledge; disaster risk reduction and management, innovative adaptation solutions and innovative financing mechanisms.

(20) Excluding information on support to developing countries referred to in Part 2 of Annex VIII of Regulation (EU) 2018/1999.

Annex 2

Overview of main adaptation platforms, portals and hubs operative at the national level

Table A2.1 Overview of main adaptation platforms, portals and hubs operative at the national level

	Main adaptation platforms, portals & hubs	URL
European		
EEA and EC	Climate-ADAPT	https://climate-adapt.eea.europa.eu/en
EC	Copernicus interactive climate atlas	https://atlas.climate.copernicus.eu/atlas
JRC and EC	Disaster Risk Management Knowledge Centre	https://drmkc.jrc.ec.europa.eu/risk-data-hub/#/atlas
Climate Analytics	Climate impact explorer	https://climate-impact-explorer.climateanalytics.org
Transnational		
Alpine Region	Alpine Convention	https://www.alpconv.org/en/home/topics/climate-change
Alpine Region	CAPA (Climate Adaptation Platform for the Alps)	https://www.capa-eusalp.eu/home
Pyrenees	OPCC (Climate Change Observatory for the Pyrenees)	http://www.opcc-ctp.org
Adriatic	Adriadapt (resilience information platform for Adriatic cities and towns)	https://adriadapt.eu
Czechia & Austria	Adapterra awards (best practices on adaptation)	https://www.adapterraawards.cz
National		
Austria	Klimawandelanpassung (Austrian climate adaptation portal)	https://www.klimawandelanpassung.at
Belgium	Adapt2Climate (national adaptation portal)	https://www.adapt2climate.be
Croatia	Prilagodba Klimi (central platform for information and education on adaptation to climate change in Croatia)	www.prilagodba-klimi.hr
Denmark	Klimatilpasning.dk (Danish national adaptation platform)	http://www.klimatilpasning.dk
Finland	Ilmasto-opas (climate guide, Finnish adaptation platform)	https://www.climateguide.fi/frontpage
France	Centre de ressources pour l'adaptation au changement climatique (climate change adaptation resource centre)	https://www.adaptation-changement-climatique.fr
Germany	KomPass (German national adaptation platform)	https://www.umweltbundesamt.de/en/topics/climate-energy/climate-impacts-adaptation
Germany	Climate adaptation portal for BMUKN	https://www.bundesumweltministerium.de/en/topics/climate-adaptation/overview-climate-adaptation
Germany	Deutsche klimavorsorgeportal — KliVo portal (German climate preparedness portal)	https://www.klivoportal.de/EN/Home/home_node.html;jsessionid=F95E46EDFA77338468527A753320CD60.live21304
Germany	Zentrum KlimaAnpassung (climate adaptation centre)	https://zentrum-klimaanpassung.de
Greece	Εθνικός Κόμβος Προσαρμογής (Greek climate change adaptation hub)	https://adaptivegreecehub.gr
Hungary	Nemzeti alkalmazkodási térinformatikai rendszer (national adaptation geo-information system)	https://nater.met.hu/en
Ireland	Climate Ireland (Irish national adaptation platform)	http://www.climateireland.ie

	Main adaptation platforms, portals & hubs	URL
Italy	Piattaforma nazionale sull'adattamento ai cambiamenti climatici (national platform on climate change adaptation)	http://climadat.isprambiente.it
Latvia	Adaptation to climate change (information portal)	https://klimatam.lv/en
Lithuania	Klimata pārmaiņu portals (climate change portal)	www.klimatokaita.lt
Luxembourg	Klima.LU (information platform)	https://klima.lu
Malta	Climate Action Authority (information platform)	https://www.climateaction.gov.mt
Netherlands	Kennisportaal klimaatadaptatie (climate adaptation platform Netherlands)	https://klimaatadaptatienederland.nl/en
Norway	Climate change adaptation — knowledge and guidance (national adaptation platform)	www.klimatilpasning.no
Poland	Kimada 2.0 (national adaptation platform)	https://klimada2.ios.gov.pl/en
Portugal	Portal do clima (national climate portal)	http://rna2100.portaldoclima.pt/pt
Romania	RO-ADAPT (climate change adaptation platform)	https://www.roadapt.ro/index.php
Slovakia	Klima adapt (climate change adaptation platform)	https://www.klima-adapt.sk/about-the-website
Slovenia	National environmental portal	https://kazalci.arso.gov.si/en/themes/climate-change-adaptation
Spain	AdapteCCa (national adaptation platform)	http://www.adaptecca.es
Sweden	Klimatanpassning (portal for climate change adaptation)	https://klimatanpassning.se/in-english
Switzerland	NCCS (national centre for climate services)	https://www.nccs.admin.ch/nccs/de/home.html
Türkiye	Iklim portal (climate portal)	https://iklimportal.gov.tr/

Notes: BMUKN: German Federal Environment Ministry; CAPA: Climate Adaptation Platform for the Alps; EC: European Commission; EEA: European Environment Agency; JRC: Joint Research Centre; OPCC: Pyrenees Climate Change Observatory.

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European Environment Agency

European Environment Agency
Kongens Nytorv 6
1050 Copenhagen K
Denmark
Tel.: +45 33 36 71 00
Web: eea.europa.eu
Enquiries: eea.europa.eu/en/about/contact-us

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