

## Is Europe on track towards climate resilience? Status of reported national adaptation actions in 2023



In March 2023, EU Member States were mandated for the second time to report their national adaptation actions under the Regulation on the Governance of the Energy Union and Climate Action. For the first time they also reported on adaptation aspects in the progress reporting of their national energy and climate plans. Non-EU EEA member countries were invited to provide similar information on a voluntary basis. This briefing presents the current status of national adaptation actions across Europe, with an emphasis on recent developments and lessons learned since the reporting in 2021.

### Key messages

Heat waves, droughts, floods, heavy precipitation are the most reported observed extreme weather events, while changing temperatures and hydrological variability are the most common chronic hazards. For most temperature- and water-related hazards the majority of countries report an expected increase of frequency and/or intensity for the future.

National climate risk assessments are increasingly used to inform adaptation policy development. Almost half of the reporting countries have delivered these new assessments since 2021, although countries with legal obligations for repeated climate risk assessments

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are still an exception and a minority of countries are yet to produce their first national overarching assessment.

The adaptation policy landscape is gradually evolving and climate laws are increasingly emerging as an instrument to give greater legal power to such policies. Nine new national adaptation strategies and/or plans have been approved and adopted by countries since 2021, while others are still in the process of revising and adopting them.

Sub-national adaptation policymaking is further progressing in all countries, mostly due to voluntary and bottom-up initiatives. Multi-level networks and collaborative mechanisms are reported to be crucial to advancing local adaptation, supporting sub-national governments and stakeholders through capacity building activities, information provision, guidance, and financing schemes.

Governance-related challenges are a persistent barrier to the implementation of adaptation actions in many countries, even where well-developed governance frameworks are in place. These challenges include difficulties in coordination due to limitations in financial, technical and human capacities.

EU funds play a major role in financing adaptation action for most Member States. Some also reported dedicated national adaptation funds to finance the implementation of national or sectoral adaptation actions.

An indicator-based approach for monitoring, reporting and evaluation (MRE) is often reported, although the indicator types and how they contribute to evaluation purposes are not always clear. Few Member States reported exactly how MRE feeds back into the development of adaptation policy, despite its potential to influence decision-making.

## The European reporting framework for adaptation

Every second year, EU Member States report under the Regulation on the Governance of the Energy Union and Climate Action (GovReg) (EU, 2018). Under Article 19<sup>[1]</sup>, on national adaptation actions, they did so for the first time in 2021 and again in 2023. This briefing is based solely on reported information about preparation and planning, implementation, monitoring and evaluation of adaptation policies and actions. Besides the mandatory reporting by EU Member States, EEA member countries that are not EU Member States were invited to report on adaptation voluntarily. In 2023, Iceland and Switzerland reported on national adaptation actions and Türkiye did so in 2021. Unless stated differently, the assessment in this briefing is based on the data provided by all countries in 2023.

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The analysis of the reported information from 2021 can be found in a 2022 EEA report, *Advancing towards climate resilience in Europe: status of reported national adaptation actions in 2021*. This briefing is based on a *Technical Paper, Is Europe on track with climate resilience? – Status of reported national adaptation actions in 2023*, written by the European Topic Centre on Climate change adaptation and LULUCF (ETC CA, 2023), which contains further detailed analysis of the reported information and examples illustrating the observations.

All information reported by countries under Article 19 of the GovReg can be found in the *country profiles on Climate-ADAPT*, and information reported by EU Member States on Article 17 of the GovReg is available at the *Climate and Energy in the EU* portal. The country profiles present the latest information as updated by each country.

This briefing, and the ETC CA Technical Paper, quote 11 September 2023 as the cut-off date and do not include information that was later released by countries. Reported information that covers only the EU-27 is referred to as 'Member States'. Anywhere else, the more general term 'countries' is used.

## Observed and future hazards

The preparation of adaptation policies begins with an assessment of the physical observed hazards experienced due to climate change in a region or country, and how they could change in the future. Countries report this as 'acute' (extreme weather events) and 'chronic' (slow onset events) hazards.

Similar to 2021, droughts, floods, heavy precipitation and heat waves were reported by most countries as observed acute hazards in 2023. In particular, wildfires were reported in fifth place by 25 countries, while in 2021 (EEA, 2022) they were placed tenth in the most reported acute hazard list. This may be due to the fact that, in the summer of 2022, wildfires severely affected large parts of Europe, marking the second-worst wildfire season in the European Union since 2000 when the Copernicus Emergency Management Service European Forest Fire Information System records began (San-Miguel-Ayanz et al., 2023)<sup>[2]</sup>.

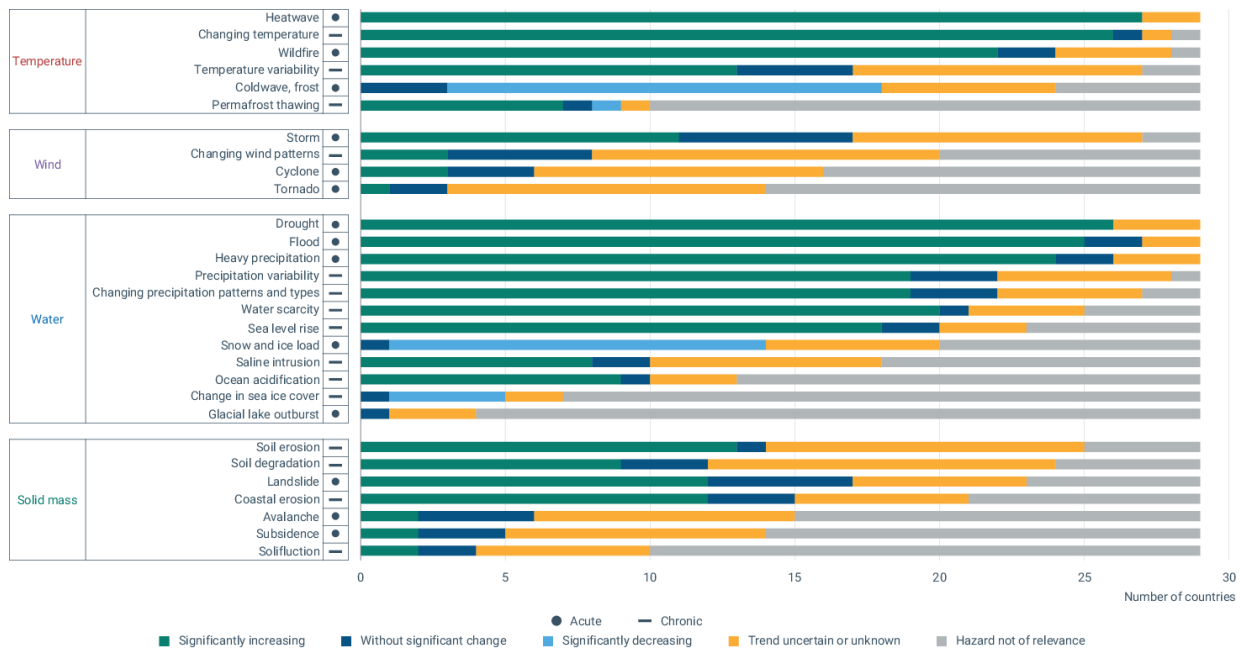
The most reported chronic hazard in 2023 was changing temperature, likewise reported in 2021. Temperature variability<sup>[3]</sup> was reported more often, ranking third among the chronic hazards, while it was the seventh most reported in 2021 (EEA, 2022). Other chronic hazards reported by most countries were precipitation and/or hydrological variability (ranking second) and changing precipitation patterns (ranking fourth). Twenty out of 23 countries with coastlines reported sea level rise as a water-related chronic hazard.

With a few exceptions, the hazards reported as expected future hazards were the same as the observed hazards. The most notable exception was the chronic water-related hazard 'water scarcity', reported by seven additional countries as a future key hazard compared to an observed hazard

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(Figure 1).

**Figure 1. Key future hazards reported in 2023**



**Notes:** Based on the reporting from all EU Member States and from Iceland and Switzerland (total number of countries: 29).

**Source:** Based on the reporting under GovReg Art. 19 through Reportnet 3 in 2023.

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The reporting template also asks for a qualitative assessment of the trend of future key hazards: will its frequency or intensity significantly increase; show no significant change; significantly decrease; or will the trend be unknown (Figure 1). For most temperature-related and water-related hazards (heat waves, wildfires, droughts, heavy precipitation, flooding, changing temperatures or precipitation, and water scarcity), the majority of countries reported an expected increase of frequency and/or intensity for the future. Only a limited number of cold-related hazards (acute cold wave frost, acute snow/ice load and chronic change in sea ice cover) were reported most often as a decrease in frequency or intensity for the future<sup>[4]</sup>.

For other groups of hazards, the assessment of future occurrence was generally uncertain regarding wind-related hazards such as cyclones, storms, tornados and changes in wind patterns, as well as soil mass-related hazards like avalanches, subsidence, soil degradation and soil erosion. This may

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partly be due to the difficulty of projecting these types of hazards into future scenarios and making a robust assessment. Reducing this knowledge gap is an element that could be taken into consideration in future assessments. Doing so would help to achieve the goal of smarter adaptation as it was set out in the EU Strategy on Adaptation to Climate Change (EC, 2021), aiming to further improve knowledge and reduce uncertainty.

## Climate risk assessments and adaptation policies

The 2023 country reports demonstrate further progress in assessing climate-related hazards, vulnerabilities and risks, confirming that enhancement, expansion, and deepening of the knowledge base on climate risks is a continuous and ongoing process in many countries. The availability of up-to-date climate risk information is crucial for good planning, and periodic update of climate risk assessments (CRAs) is needed to account for changes in risk and vulnerability levels and to inform policymaking. It also contributes to efforts to avoid insufficient adaptation or maladaptation.

New multi-sectoral or cross-sectoral CRAs and thematic/sector-specific studies have been conducted equally as often, confirming a trend seen since 2015<sup>[5]</sup> towards higher diversity of assessment designs. Between the first GovReg reporting cycle in 2021 and the one in 2023, roughly half of countries (Austria, Belgium, Croatia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Poland and Sweden) reported substantial achievements in updating or conducting new assessments of climate-related hazards, vulnerabilities, and risks (ETC CA, 2023). In addition, related efforts, such as developing assessment methodologies and content enhancement of web-based databases, were notable.

The gap still persists between an increasing number of countries with high levels of ambition and a regular update as well as a growing knowledge base, and a minority of countries that are still lacking their first national overarching CRA experience. Countries highlighted in their reports that generating national CRAs is a time and resource-intensive process that is often hampered by a range of barriers (lack of human and financial resources) and requires flexibility in allowing updates in longer than ideal cycles.

The number of countries with legal obligations for conducting climate risk assessments has increased. In several of those countries where climate laws have been newly enacted or amended, preparation and periodic updates of CRAs have been legally anchored in legislation and are usually coupled to revision cycles of the national adaptation strategy (NAS), the national adaptation plan (NAP), sectoral (SAPs) and/or regional adaptation plans (RAPs). However, countries with legal commitments are still in the minority.

The lack of data, knowledge and information were among the most frequently reported barriers to progress in adaptation, with knowledge gaps explicitly relating to CRAs the most often reported.

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These included limited capacity for systemic risk assessments, challenges in tackling knowledge gaps addressed by actions in the NAS, gaps in climate research, inadequate identification of climate risks and difficulties in translating climate risk information into actionable solutions. A few countries began tackling strategic knowledge gaps crucial to more systemic adaptation. These included knowledge of cross-border and international climate risks, cross-sectoral interactions, and complex, compound and cascading risks. However, overall progress is still limited.

Tendencies towards standardisation of CRAs to guide their repeated implementation and foster comparability are beginning to emerge. Germany and the Netherlands explicitly mentioned applying the ISO 14091 standard for their national CRAs. Moving towards standardisation creates the opportunity to compare changes in risk, vulnerability and preparedness levels over time by replicating CRAs in a comparable, coherent and transparent way. Experience with applying such frameworks is still limited, but it is a development that may deserve more attention in the future.

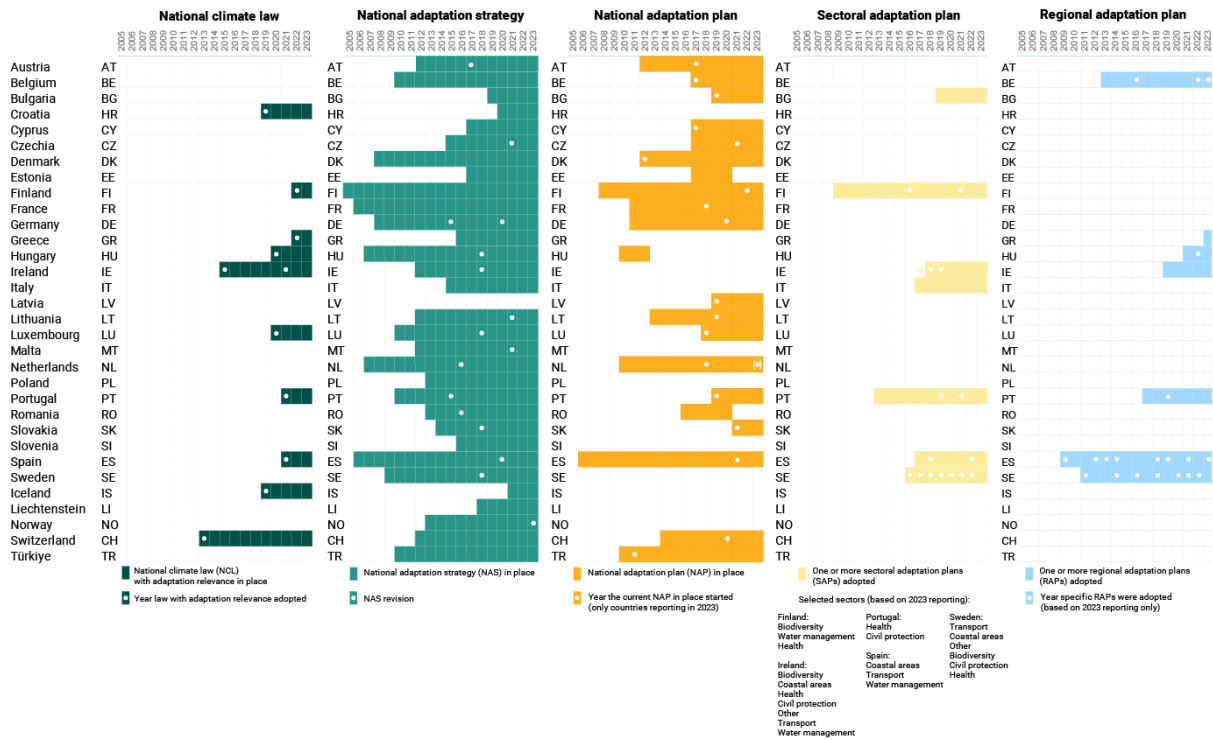
Since 2019, all EEA member countries have a dedicated adaptation policy in place (Figure 2). In 2023, ten countries reported an adopted national climate law covering adaptation aspects. The different colours in Figure 2 reflect a large variety in policy approaches but hide an even larger variety as NAS or NAP do not have the same scope, content or structure in different countries (and these even change within a country over time).

Since 2015, fifteen countries reported that a revised or new NAS was adopted. With very few exceptions, all NAPs currently in force are from 2017 or later (Figure 2), indicating the much shorter lifetime of a NAP compared to a NAS.

A more detailed assessment of these can be found in the report *Monitoring and evaluation of national adaptation policies throughout the policy cycle* (EEA, 2020). In 2024, together with the ETC CA, the EEA will further develop its knowledge on the different policy instruments (including climate laws, NASs and NAPs), how they are adopted and execute power, the obligations they contain, and the reporting and updating mechanisms.

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**Figure 2. Overview of adaptation policies**



**Notes:** Estonia: NAP 2021-2025 is finished but will not be adopted as a separate policy document due to changes in the national strategic planning. The NAP will be integrated into ministries and other governmental authorities' work plans.

- Ireland: a climate action plan (CAP) is made every year. While the CAPs contain adaptation actions that can feed into the Sectoral Adaptation Plans (SAPs) made under the current National Adaptation Framework, these CAPs are not NAPs.

- The Netherlands: the Delta Programme 2023 is reported as 'other policy' relevant for adaptation.

**Sources:** Based on reporting under the Monitoring Mechanism Regulation ((EU) No 525/2013 Art. 15) in 2015, 2016 (voluntary) and 2019, the 2018 country scoreboards (EC, 2018) prepared for the evaluation of the 2013 EU adaptation strategy, and the reporting under GovReg Art. 19 in 2021 and in 2023.

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### Cross-sectoral policy coherence on adaptation

Mainstreaming adaptation into different sectors remains an important instrument for the horizontal coordination of adaptation activities. Overall, 275 sectors were reported by 27 EU Member States plus Switzerland<sup>[6]</sup>, as key affected sectors. However, Cyprus, Estonia, France, Luxembourg and Switzerland reported three or fewer key affected sectors, while Italy, Romania, Spain and Sweden reported more than 15. Overall<sup>[7]</sup>, the sectors reported the most often were health, agriculture, forestry and biodiversity (Figure 3). This is in line with the previous reporting cycle from 2021 (EEA, 2022).

Countries also qualitatively assessed each key affected sector identified on the various risk components. These included:

- a) observed impacts of key hazards;
- b) likelihood and exposure under the future climate;
- c) vulnerability of the sector including adaptive capacity;
- d) assessment of the overall risk of potential future impacts<sup>[8]</sup>.

While it is not possible to fully compare the qualitative assessments across sectors (ranging from high to low, or not applicable), it is obvious that the two items related to the future climate (b and d) are significantly more often reported as being 'high', whereas the two items related to the actual climate (a and c) have 'medium' as the most reported answer.

In particular, fourteen countries reported that for most, or all of their key affected sectors, the assessments of the sector's vulnerability and the risk of potential future impacts were different for individual geographical regions within each country.

While adaptation mainstreaming takes place in each country, only seven EU Member States (reported in 2021 and/or 2023), adopted SAPs (Figure 2). In 2023, the most reported sectors in SAPs were biodiversity, coastal areas, health, civil protection, transport and water management.

Mainstreaming adaptation means defining key affected sectors in adaptation policies, for example in SAPs, and explicitly incorporating adaptation actions in the different/specific policies and plans of sectors. For the latter though, such a structured overview of adaptation actions in sectoral policies is not yet available.

An example of mainstreaming adaptation into specific sectoral plans is the Common Agricultural Policy 2023-27 strategic plans. Each plan must, by its eco-schemes, cover at least two of the following areas of action: climate change mitigation, climate change adaptation, water management, soil management, biodiversity, animal welfare or pesticides (anti-microbial resistance), (EC, 2023b).

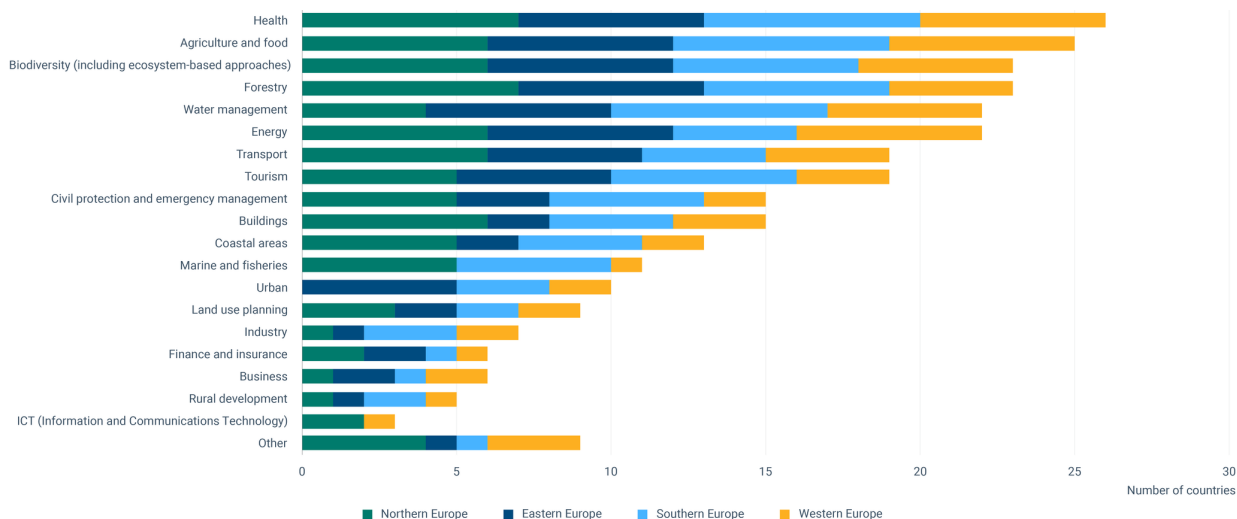


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For 22 EU Member States climate change adaptation, was selected as one of the areas of action – according to a study requested by the AGRI Committee of the European Parliament, 2023 (European Parliament, 2023). Furthermore, 24 Member States reported agriculture as a key affected sector in the GovReg reporting. This is a good example of the reciprocity of mainstreaming between adaptation policies and sectoral policies. Even so, mainstreaming also needs to be strengthened in other specific policies and plans of sectors.

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**Figure 3. Key affected sectors per geographical area reported in 2023**



**Notes:** Based on the reporting from all EU Member States and Switzerland. No information from Iceland could be included in this analysis (total number of countries: 28). Some countries indicated the same sector several times to add additional details. For the purposes of this analysis, when this situation arose, the sector was counted only once. Each key affected sector reported 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). Because of these principles, 275 key affected sectors reported result in 288 data points in the graph above. The geographical classification of countries is consistent with the UN geo-scheme for Europe (UN DESA, n.d.), and with the similar nomenclature frequently used in EEA and Commission climate-related assessments: Northern (7 countries): Denmark, Estonia, Finland, (Iceland), Ireland, Latvia, Lithuania and Sweden; Eastern (6): Bulgaria, Czechia, Hungary, Poland, Romania and Slovakia; Southern (8): Croatia, Cyprus, Greece, Italy, Malta, Portugal, Slovenia and Spain; and Western (7): Austria, Belgium, France, Germany, Luxembourg, the Netherlands and Switzerland.

**Source:** Based on the reporting under GovReg Art. 19 through Reportnet 3 in 2023.

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### Box 1. National adaptation actions contributing to a resilient Energy Union

The achievement of the Energy Union objectives and targets is ensured through a combination of EU initiatives and national policies. These, including adaptation goals, are set out in the integrated national energy and climate plans (NECP), contributing to the dimensions of the Energy Union<sup>[9]</sup>.

In 2023, EU Member States reported for the first time on the status of the implementation of their NECPs. Article 17 of the GovReg defines the conditions for integrated national energy and climate progress reporting (NECPR)<sup>[10]</sup>. The progress reporting is biennial and covers, among other areas, information on adaptation which may affect the delivery of Energy Union objectives and targets and the long-term Union greenhouse gas emission reduction commitments under the Paris Agreement (United Nations Framework Convention on Climate Change, 2015).

Under Article 17 of the GovReg, Member States report on the direct effects of climate change impacts due to extreme weather events, which affect the demand and supply of the energy system. Under potential future impacts, changes in frequency and intensity of extreme weather events like heat waves (hot spells), droughts, stronger storms, as well as an increased amount of precipitation, are reported. The reported hazards seem to be in line with those hazards reported under Article 19 of the GovReg on national adaptation actions. However, due to the different reporting structure a direct comparison cannot be made.

Strategic and overarching national adaptation goals and sector specific adaptation goals are almost equally reported. They address either climate resilience, the urge to adapt economy, society and environment to the adverse effects of climate change, or outline action for affected sectors

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such as agriculture, buildings, forestry, energy, infrastructure and transport. The reporting also shows that Member States' adaptation goals (defined in their national adaptation policies, for example NAS), are usually not organised along the Energy Union dimensions. While it is not a requirement to organise adaptation policies along the Energy Union dimensions, the NECPs may specify how the included adaptation goals are addressing the Energy Union dimensions, especially decarbonisation. Based on the reporting, it is evident that, in practice, several NECPs only refer to adaptation policies in general and do not make clear how the goals defined are supporting the dimensions of the Energy Union.

In most EU Member States, monitoring and evaluation frameworks for measuring progress of implementation towards meeting the adaptation goals are under development or are recently implemented. If operational, these frameworks are mostly structured around adaptation measures outlined in national adaptation strategies or plans, or follow an indicator-based approach, and might not consider synergies with the Energy Union dimensions.

A few EU Member States highlighted the principles of adaptation in their reports: the importance of addressing synergies between climate change mitigation and adaptation, avoiding insufficient adaptation action, or maladaptation and the role of prevention.

## Institutional arrangements and adaptation governance

Diverse national coordination bodies and mechanisms for multi-sectoral policy integration and multilevel governance coordination (including high-level inter-ministerial, cross-sectoral coordination bodies or advisory boards), are in place in almost all countries. Coordination work at the technical and operational level is often tasked to dedicated adaptation working groups. Allocating policy ownership in environment-related ministries remains a stable model. In addition, since 2021, more

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countries have established specific climate ministries, which may signal strong political commitment.

Almost all countries reported substantial barriers, gaps and challenges in institutional, financial, technical and human capacities. More than half of all countries reported gaps in coordination, cooperation and policy coherence, which were often connected to unclear responsibilities, lack of awareness and low political saliency. Complex coordination mechanisms lacking capacities are a barrier in many countries, even in those with many mature governance frameworks in place.

## Regional and local adaptation progress

The European adaptation strategy (EC, 2021) refers to the local level as the bedrock of adaptation. Therefore, upscaling regional and local adaptation and securing smooth coordination of adaptation policies across all administrative levels is a key condition of successful adaptation.

Multi-level governance arrangements, targeting sub-national level, continue to advance, while sub-national adaptation policymaking is already moving forward in all countries. These networks and collaborations are crucial to the progression of local adaptation, supporting sub-national governments and stakeholders with capacity building activities, information provision, guidance and financing schemes.

Top-down regulatory frameworks and legal obligations for sub-national level remain still a minority model. Obligations for regional and local governments to set up adaptation plans can be an important driver of swift policy implementation. These obligations can derive from national climate laws, or from other specific pieces of central legislation, and are a driver for increasing and advancing regional and local adaptation strategies and plans. However, only seven countries, all EU Member States, reported the adoption of RAPs in 2021 and 2023 combined. (Figure 2).

In most countries, sub-national adaptation continues to be a largely non-binding policy field, mostly benefitting from voluntary, soft, bottom-up initiatives. An increasing number of cities and municipalities are developing their local adaptation strategies and plans as signatories of the Covenant of Mayors (EC, 2023a) initiative. This initiative continues to offer crucial support to local authorities through capacity building, technical assistance, networking activities and involvement in European projects aiming at the local level. Several countries reported the involvement of regional and local governments in the EU Mission on Adaptation to Climate Change. A complete overview of all local and regional authorities that signed the Mission Charter can be found on the [Mission Portal](#).

Some countries that don't have direct legal obligations to sub-national authorities reported that sub-national adaptation can be influenced by other instruments. These include sub-national CRAs or regional climate projections with predominantly multi-sectoral assessment designs, or the mainstreaming of adaptation into formal planning procedures (spatial planning, etc.).

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In relation to monitoring, reporting and evaluation (MRE), countries reported that sub-national activities were implemented in many municipalities and on different scales. More than half of them stated that municipalities and regions have responsibilities for the implementation and evaluation of their respective strategy or measures. Some countries reported that the monitoring and evaluation of actions at the sub-national level are conducted in conjunction with national ones. A few countries reported that they either have no overview of MRE-related sub-national action, or that a full report from the municipalities regarding their adaptation actions was not required.

## Implementing adaptation and its monitoring, reporting and evaluation

Many Member States reported challenges related to the immaturity of the monitoring, reporting and evaluation systems for tracking implementation, especially financing. Assessing the cost of adaptation remains a challenge and is often only done partly at the federal or sectoral level. A common methodology to assess costs and track financing of the implementation of adaptation strategies and plans is still not available, yet all Member States report increasing sector costs due to adaptation.

As in the previous reporting cycle (EEA, 2022), most countries' adaptation policy documents do not have dedicated budgets or financing streams for implementation. Some Member States reported quantitative adaptation finance information, mainly from EU and other funds (research), and also from the public budget annual expenditure. Most Member States though, reported support gained by EU funding instruments to coordinate adaptation policies and actions, and several reported having dedicated national adaptation funds, or parts of funds, to finance the implementation of national, sectoral or local adaptation actions.

When it comes to conducting MRE, half of the Member States indicated progress where at least one of the three MRE activities was either being performed or planned. However, the level of engagement varied across the Member States, which is understandable considering the timeline and nature of adaptation policy cycles (Figure 4). However, at national level, evaluation is still less common compared to monitoring and reporting activities. Performing evaluations is often a challenging and time-consuming task - which may explain the current situation.

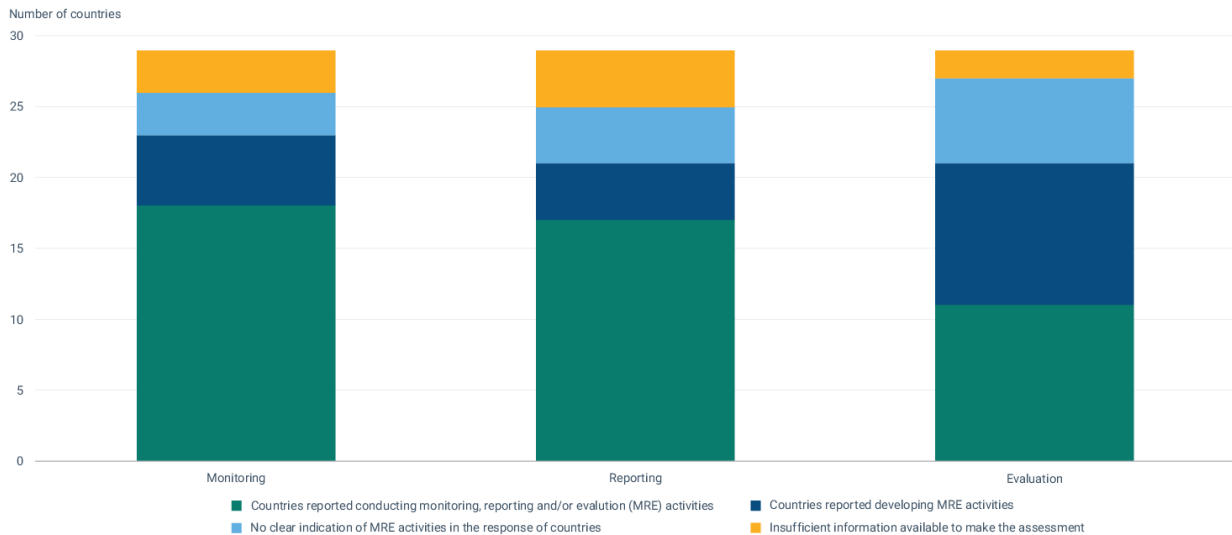
Using various methodological approaches and combining qualitative and quantitative data is key to effective MRE. Several countries highlighted the important role of indicators and some countries prioritised developing multi-purpose indicators which benefit more than one sector. Often though, the indicator types and how they contribute to evaluation purposes are not always clear. In addition to quantitative indicators, countries also reported on new developments diversifying the methodology of MRE by performing qualitative assessments and evaluations developed in close cooperation with stakeholders.

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MRE occurs at national, regional and local levels and has the potential to influence decision-making throughout the adaptation policy cycle, but currently only a few Member States explicitly report how MRE feeds back into the development of adaptation policies or how and by whom the activities are coordinated. Ensuring that different levels of MRE are connected is important to gain a more comprehensive understanding of what is being monitored, reported and evaluated and to improve the efficiency of MRE activities more widely. When it comes to good practices, most Member States that reported progress implied that the role of a coordinating actor, such as a ministry, governmental agency, or an institute of environmental protection, was often significant when scaling adaptation actions or evaluating their progress.

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**Figure 4. Monitoring, reporting and evaluation activities reported in 2023**



**Notes:** Based on the reporting from all EU Member States, Iceland and Switzerland (total number of countries = 29).

Insufficient information available to make the assessment: this category includes instances, where: 1) Member States do not explicitly state that activities are taking place or are being planned, but where the reported information hints at the possibility and likelihood of such an activity to exist; 2) Member States refer to published outputs available online but do not include a translation of the key information.

**Source:** Based on the reporting under GovReg Art. 19 through Reportnet 3 in 2023.

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## Adaptation actions in Europe: state and future outlook

Notably, in the last 2 years, countries have been improving different aspects of their adaptation planning. However, due to the nature of the adaptation policy cycle, along with resource-intensive climate risk assessments, long-term strategic planning, implementation of short/mid/long-term adaptation measures and challenges with MRE, rapid and radical progress cannot be showcased.

Experience from this second reporting cycle under the GovReg shows an increased quality of



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information on observed and future hazards, key affected sectors and sub-national adaptation. This provides a better picture of which climate hazards countries are concerned about, outlining the key affected sectors where strengthened mainstreaming might be needed, or illustrating diverse action taken at the regional and local levels.

Gaps and challenges remain in the reporting regarding spending on climate change adaptation, good practice and MRE. The first might be caused by the lack of a common methodology to assess costs and track the financing of the implementation of adaptation strategies and plans. In the latter case, development of unified criteria defining representative good practice or excellence might be beneficial. While insufficient adaptation, or maladaptation, seems to be better understood, finding the right characteristics of 'best' adaptation is challenging. Furthermore, many of the MRE systems are relatively new and immature. Gaining solid experience with MRE would reveal the real performance of adaptation actions in Europe and their influence on decision-making.

A decade has passed since the adoption of the first European adaptation strategy (EC, 2013) and in 2023, GovReg (EU, 2018) celebrates its fifth anniversary. During this decade all Member States and non-EU EEA member countries built a solid ground for adaptation, in line with the provisions of the European Climate Law (EU, 2021), calling for "continuous progress in enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change".

In 2025, the nine contracting parties of the Energy Community<sup>[11]</sup> will report similar information on adaptation (EEA, 2023).

There are numerous signs that the agenda of climate change adaptation is maturing - similar to other more 'classic' environmental policy fields, such as environmental protection or water management.

These signs include:

- an increase in periodically performed climate risk assessments;
- adoption and revision of national adaptation strategies and plans across all of Europe;
- a new wave of climate laws embedding adaptation into national legislation;
- grounded coordination mechanisms;
- upscaled sectoral and local action;
- tendencies towards standardisation;
- consideration of the 'just' dimension.

However, international and cross-border aspects remain underreported. Currently, only water management has a clear framework in place for cross-border assessments with the Water Framework Directive (EU, 2000) and Floods Directive (EU, 2007), and further European initiatives might help to bring other aspects of adaptation into the spotlight as well.

In Europe, strategic planning must be put into practice to shift the focus towards reaching climate resilience. Information reported in 2023 clearly demonstrates the availability of comprehensive plans.

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It also reveals that many national adaptation actions addressing crucial gaps are already planned or being implemented. Under the current policy landscape, actions often occur in parallel instead of following a stepwise approach or a cycle. Their management requires 'multi-tasking' - with certain cross-cutting issues requiring specific attention. Monitoring and reporting of implementation is currently cumbersome.

While the reported information captures well the challenges European countries face, further research and support is needed to:

- define variable adaptation pathways;
- identify and promote examples of adaptation excellence;
- determine the bankability of adaptation options;
- investigate the effectiveness, efficiency and progress of adaptation measures.

An analysis of the reported information from all countries shows that inspiration and mutual learning between all actors engaged in adaptation actions appears crucial and essential, while also happening and successful.

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## Notes

[1] Wherever this briefing refers to Article 19 of the GovReg, it refers to Article 19 §1 and Part 1 of Annex VIII only since this is the part related to integrated reporting on national adaptation actions. Wherever this briefing refers to Article 17 of the GovReg, it refers to Article 17 §2(d) only since this is the part related to adaptation. Other paragraphs of GovReg Articles 17 and 19 and parts of Annex VIII are not covered in this briefing.

[2] Based on the Copernicus Emergency management service (2023).

[3] Defined as deviations of temperature from a given mean state (including the occurrence of extremes, etc.), at all spatial and temporal scales beyond that of individual weather events (IPCC, 2022).

[4] While most countries, where these hazards are of relevance in the future, reported a decrease in frequency and/or intensity, some reported that the situation remains more or less the same, or is unknown.

[5] Reporting on adaptation under the monitoring mechanism regulation (EU, 2013) took place in 2015 and 2019. More details can be found in this 2022 EEA report.

[6] Based on the reporting of the EU Member States and Switzerland. No information on key affected

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sectors is reported by Iceland.

[7] Some countries indicated the same sector several times to add additional details. For the purposes of this analysis, when this situation arose, the sector was counted only once.

[8] Being the kind of information also relevant for the European Climate Risk Assessment (EUCRA). EUCRA will assess current and future climate change impacts and risks relating to the environment, economy and wider society in Europe and will complement the existing knowledge base on the assessment of climate-related hazards and risks in Europe.

[9] Energy Union dimensions: decarbonisation: greenhouse gas emissions and removals; decarbonisation: renewable energy; energy efficiency; energy security; internal energy market and research, innovation and competitiveness.

[10] The structure, format, technical details and process of the NECPR is defined by the second implementing regulation (EU, 2022) to the GovReg.

[11] The nine contracting parties of the Energy Community are the six cooperating countries of the EEA (Albania, Bosnia and Herzegovina, North Macedonia, Kosovo, Montenegro, and Serbia), as well as Georgia, the Republic of Moldova and Ukraine (EEA, 2023).

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