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ENHANCING ADAPTATION ACTION IN TURKEY PROJECT

TR2017 ESOP MI A3 04

CLIMATE CHANGE ADAPTATION IN THE EU AND THE MEMBER STATES

SEPTEMBER 2021



REPUBLIC OF TURKEY
MINISTRY OF ENVIRONMENT
AND URBANISATION



Environment and Climate Action
Sector Operational Programme



iklime uyum





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CLIMATE CHANGE ADAPTATION IN THE EUROPEAN UNION AND THE MEMBER STATES

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United Nations Development Programme
Turkey



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LIST OF ABBREVIATIONS

English Full-Form	EN-abbr.	TR-ks.	Türkçe Açık Hali
European Union	EU	AB	Avrupa Birliği
European Environment Agency	EEA	AÇA	Avrupa Çevre Ajansı
European Commission	EC	AK	Avrupa Komisyonu
United Nations	UN	BM	Birleşmiş Milletler
United Nations Framework Convention on Climate Change	UNFCCC	BMİDÇS	Birleşmiş Milletler İklim Değişikliği Çerçeve Sözleşmesi
Conference of the Parties	COP	COP	Taraflar Konferansı
German International Cooperation Society	GIZ	GIZ	Alman Uluslararası İşbirliği Kurumu
Intergovernmental Panel on Climate Change	IPCC	IPCC	Hükümetler arası İklim Değişikliği Paneli
European Commission Staff Working Paper	ECSWP	PÇK	Avrupa Komisyonu Personeli Çalışma Kağıdı
Non-Governmental Organisation	NGO	STK	Sivil Toplum Kuruluşu
United Nations Development Programme	UNDP	UNDP	Birleşmiş Milletler Kalkınma Programı
United Nations Office for Disaster Risk Reduction	UNDRR	UNDRR	Birleşmiş Milletler Afet Risk Azaltım Ofisi
United Nations Environment Programme	UNEP	UNEP	Birleşmiş Milletler Çevre Programı
United Nations Educational, Scientific and Cultural Organization	UNESCO	UNESCO	Birleşmiş Milletler Eğitim, Bilim ve Kültür Örgütü
World Meteorological Organization	WMO	DMÖ	Dünya Meteoroloji Örgütü



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EXECUTIVE SUMMARY

Climate change adaptation whose importance increased as a result of the establishment of Nairobi Working Group in 2005 under the United Nations Framework Convention on Climate Change obtained a strong structure which promoted international cooperation as a result of adoption of the Cancun Adaptation Framework and the establishment of the Adaptation Committee in 2010. The Paris Agreement which was signed at COP21 in 2015 became a historical milestone because it drew the subject of adaptation to the same political importance with mitigation through Article 7. While the 2030 Agenda for Sustainable Development which was adopted in the same year promoted the adoption of international goals concerning adaptation, the Sendai Framework for Disaster Risk Reduction also provided an inclusive approach to the management of climate change-induced disaster risks.

At the European Union level, the Green Paper *“Adapting to Climate Change in Europe – Options for EU”* which led the development of policies for climate change adaptation was published in 2007. The Green Paper pointed out the vulnerabilities of Europe against climate change and emphasized the importance of developing policy and action for adaptation at different levels. The framework for EU adaptation strategy was framed with the White Paper *“Adapting to Climate Change: Towards a European Framework for Action”* which was published in 2009. With the help of 2013 EU Adaptation Strategy, EU member states are encouraged to develop adaptation strategies and it is aimed for the adaptation to be integrated with EU policy and programmes (for example, Environmental Action Plan, Common Agricultural Policy, and Health Programme).

2013 EU Adaptation Strategy is planned to increase the objectives of mitigating greenhouse gas emission and is planned to be renewed in 2021 more ambitiously in the light of European Green Deal which presents the roadmap of 2050 net zero emission vision. According to the draft of European Climate Law which was developed under European Green Deal, the development and implementation of adaptation strategies by the member states will be required. In addition to that, pursuant to “Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action”, the member states are obliged to inform the European Commission about the actions which are implemented and planned to facilitate adaptation with national climate change adaptation strategies.

As of the end of 2019, the climate laws of 15 European countries were in force and seven countries were also preparing the law. Amongst these countries, conducting strategy and action planning concerning adaptation was described as a legal obligation in the laws on climate change enacted by only United Kingdom (2008), Bulgaria (2014), Finland (2015), Norway (2017) and in the law drafts of Spain and Croatia (2019).

As of the end of 2019, all EU countries have a climate change adaptation strategy or an action plan. It is observed that the climate change adaptation strategies and action plans are developed using several different approaches: (i) Integrated mitigation and adaptation strategies and action plans, (ii) Separate adaptation strategy and action plan documents and (iii) Integrated adaptation strategy and action plan. Additionally, there are countries which formulate the implementation of adaptation strategies with regional or sectoral adaptation action plans.

The strategies prepared by European countries after 2013 follow the six steps framed as “the Adaptation Support Tool” for Climate-ADAPT platform and in “the Guidelines on Developing Adaptation Strategies”: (1) Setting the stage for adaptation, (2) Assessing risks and vulnerabilities, (3) Establishing adaptation options, (4) Assessing adaptation options, (5) Implementation and (6)



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Monitoring and evaluation. This report covers the analyses of the experiences on these six steps in the EU member states.

This report analyses adaptation strategy and action plan documents of 30 European countries which consist of the 27 EU member states plus United Kingdom, Switzerland and Norway. As a result of these evaluations, the key findings are as follows:

Coordination Structure. In most of European countries, the ministries of environment are responsible for the coordination of climate change adaptation policies. Eight out of 30 European countries which consist of the 27 member states and United Kingdom, Switzerland and Norway accentuate “the climate” with their names of the ministry which is responsible for adaptation. Inter-ministerial horizontal coordination structures are observed across almost all the countries. Some of these structures also ensure the participation of external stakeholders such as local governments and private sector.

Participation. Almost all European countries conduct far-reaching participatory processes for preparing the adaptation strategies and action plans. Research institutions, universities, private sector and NGOs play an active role in policy development, implementation and monitoring processes by being included in coordination structures or expert groups of some countries.

Frame of Strategic Goals. Extreme weather events and damage costs based on these events more than the requirements of EU policies trigger the adaptation plan activities of European countries and this is reflected on the visions and goals of adaptation strategies with the statements such as “risk reduction”, “resilience enhancement” or “enhancing adaptation capacity”.

Guiding principles. European countries formulate their strategies under these principles by laying down various principles ranging from sustainability to evidence-based decision making and from flexibility to transparency.

Impact, Vulnerability and Risk Analyses. Impact, vulnerability and risk analyses are the key guide for adaptation policies. Almost every EU country has conducted at least one impact, vulnerability and risk analysis with the assistance of research institutions and universities while developing its strategies and plans. Methodological elements of analytical processes are as follows: Reference period and present climate variability analysis, future climate variability (scenario) analysis, impact analyses, adaptation capacity analysis, vulnerability analysis and damage/loss or non-action cost analyses. In these analyses conducted in the EU, biodiversity, ecosystems, health, agriculture, forestry, water and energy sectors come to the forefront.

Establishing Adaptation Options. Biodiversity, ecosystems, health, agriculture, forestry, water and energy sectors which come to the forefront in impact, vulnerability and risk analyses also constitute the focus of the solutions which are described in the strategies and plans. Adaptation solutions may aim at knowledge generation, enhancing awareness and capacity, updates and amendments to laws and legislation, integration, financing, governance or structural, implementation.

Prioritizing Adaptation Options. Countries predominantly benefit from cost-benefit analysis, cost-effectiveness analysis and multi-criteria analysis in order to prioritize the adaptation options that they identified while developing strategies and action plans.

Implementation. Implementation processes of adaptation policies encounter barriers because frameworks for governance and institutional capacity, financing and monitoring and evaluation have not been framed during the planning process. Therefore, implementation processes generally make slow progress. Very few European countries have made the cost calculation for their actions and most of these actions are financed by public funds on project basis.



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Monitoring and Evaluation. The frequencies of monitoring, reporting and evaluation vary depending on plan validity period of countries. It is observed that reporting is generally planned annually (for example, Estonia) or every 2-3 years (for example, Lithuania and Spain). It is stated that the evaluation is generally conducted every 4-5 years. Both mid-term review in the first 4-5 years and final evaluation at the end of the planning process have been targeted for the countries whose planning validity period is approximately 10 years. The identification of right indicators for the efficiency of monitoring and evaluation is critical for the future of adaptation action. However, monitoring and evaluation indicators do not exist in most of the strategies and plans and their framing is left to the implementation process. Therefore, the processes of plans cannot be followed properly. [here]

1. ADAPTATION IN INTERNATIONAL NEGOTIATIONS AND AGREEMENTS

Under international climate negotiations, adaptation has accelerated over the past decade. The Kyoto Protocol which was signed in 1997 and was able to enter into force only in 2005 has been binding for mitigation, which has featured mitigation for the state parties. In spite of that, Adaptation Fund stepped in 2010 depending on the Kyoto Protocol. The subject of climate change adaptation whose importance increased with the establishment of Nairobi Working Group in 2005 has obtained a strong structure which promotes international cooperation with the Cancun Adaptation Framework which was adopted in 2010 and the Adaptation Committee. The Paris Agreement which was signed in COP21 in 2015 also aimed to draw the subject of adaptation to the same political importance with mitigation through Article 7. Especially Article 7.1 guides the states parties towards the objective of a global adaptation: *“Parties establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2.(UNFCCC, 2015)”* In paragraphs 10, 11 and 12 of the same article of the Paris Agreement, countries are expected to regularly report their priorities on adaptation, their needs for implementation, plans and actions in the form of Adaptation Communications to UNFCCC Secretariat (UNFCCC, n.d.-b). The framework for Adaptation Communications has been determined in the Paris Rulebook.

Goals on adaptation were more and more included in thematic international protocol and agreements before the Paris Agreement. In the context of the Barcelona Convention, in Articles 2, 5, 8 and 22 of “Protocol on Integrated Coastal Zone Management in the Mediterranean” which was signed in 2008, there are statements for identifying, evaluating and mitigating the impacts of climate change on coastal zones (UNEP, 2008). “Aichi Biodiversity Targets” were framed under the Convention on Biological Diversity in 2011. Target 15 is directly associated with adaptation with the statement *“By 2020, ecosystem resilience and the contribution of biodiversity to carbon stocks has been enhanced, through conservation and restoration, including restoration of at least 15 per cent of degraded ecosystems, thereby contributing to climate change mitigation and adaptation and to combating desertification (the Convention on Biological Diversity, 2020)”*.

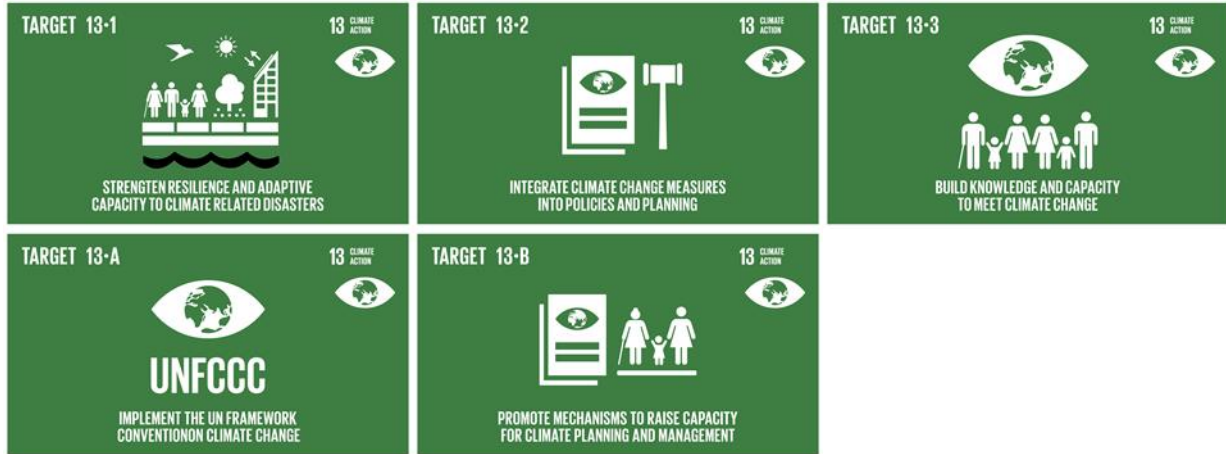
The 2030 Agenda for Sustainable Development has reinforced the adoption of international goals on adaptation. In 2015, United Nations member states adopted the 2030 Agenda for Sustainable Development which aims at peace and prosperity for present and future of people and the planet. At the core of this agenda, 17 Global Goals which were developed as a result of the experience of Millennium Development Goals and 169 targets were set (UN, n.d.). As one of Sustainable Development Goals, “Goal 13: Climate Action – Take urgent action to combat climate change and its impacts” encourages countries in mitigation and adaptation actions on climate change and sets objectives in this context (Figure 1). Additionally, adaptation was mentioned in “Goal 1: No Poverty” for social vulnerabilities; in “Goal 11: Sustainable Cities and Communities” for cities; in “Goal 14: Life



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Below Water” and “Goal 15: Life on Land” for ecosystems; in “Goal 6: Clean Water and Sanitation”, “Goal 9: Industry, Innovation and Infrastructure” and “Goal 12: Responsible Consumption and Production” for sectors. Although it is not directly stated, “Goal 5: Gender Equality” “Goal 10: Reducing Inequality” “Goal 16: Peace, Justice and Strong Institutions” “Goal 17: Partnerships for the Goals” require to be taken into consideration in the studies related to adaptation.



Source: Global Goals 2020b

Figure 1. Sustainable Development Goals – Goal 13: Climate action targets

The Sendai Framework for Disaster Risk Reduction has also provided an inclusive approach for climate change-induced disaster risks of disaster risk management. The framework provides a new approach which focuses on not compromising on development outcomes for disaster risk management policies and practices (UNDRR, n.d.). It evaluates climate change as one of the dynamics which affect disaster risk, therefore climate change is emphasized in the whole document (UN, 2015). The framework where disaster risks are evaluated as an opportunity to be reduced in a meaningful and coherent manner during the relevant intergovernmental processes has been supported by the indicators which will operate with the Paris Agreement and the 2030 Agenda for Sustainable Development.

Following the Paris Agreement, multi-stakeholder structures and initiatives which will support the adaptation action in a strategic and institutional manner have emerged.

- **Global Center on Adaptation** consists of governments, private sector, civil society, international institutions and institutes that generate knowledge and has been established to develop adaptation solutions and accelerate the adaptation action (n.d.).
- **Global Commission on Adaptation** is a multi-stakeholder structure which has been governed by Global Center on Adaptation and World Resources Institute since 2018 and supports the development of planning and investment solutions (n.d.).
- **Talanoa Dialogue Platform** was launched in COP23 for the first time and it is an initiative which allows non-state actors to participate in climate policies and action in principles of inclusion and transparency in order to achieve the objectives of national statements of intent that the countries reported after the Paris Agreement (UN, n.d.-a)

The initiatives which will strengthen the action for adaptation and resilience were introduced in 2019 UN Climate Action Summit where initiatives and commitments were announced in order to make the objectives of the Paris Agreement attainable. International Development Finance Corporation which consists of 24 national and regional development bank explained that they sought to mobilize at least 100 million dollars till 2025.



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2. CLIMATE ADAPTATION POLICIES IN THE EUROPEAN UNION

2.1. Authority and Responsibilities

Developing and implementing climate policies in the UN is the duty of European Commission (EC) Directorate-General for Climate Action. Directorate-General for Climate Action which was established in 2010 was expelled from the roof of Directorate-General for the Environment which undertook the works of the EU for climate change until then. Its duties which are directly related to adaptation are as follows: Developing and implementing climate policies and strategies, scaling up adaptation in other policies to reduce the vulnerability of the EU against climate change and fostering the adaptation solutions. Also, in the field of mitigation, it is responsible for implementing EU Emissions Trading System, monitoring national emissions of the member states and fostering low carbon technologies (EC, n.d.-b).

European Parliament and the Council of Europe are responsible for finalizing climate policies. After Directorate-General for Climate Action develops climate policies, it submits these policies to the approval of European Parliament or the Council of Europe which constitute the legislative bodies of the EU. The Environment Council Configuration under the Council of Europe are responsible for representing the position of the EU during international climate change negotiations (the Council of Europe, 2020).

2.2. History of EU Adaptation Policies

Although the process of developing an adaptation policy by the EU started earlier than international climate negotiations, it was conducted with delay in comparison to mitigation policies. The Kyoto Protocol prioritized the development of mitigation objectives and strategies also in the EU countries. Adding the expression of climate action between the objectives specified in Article 191 concerning environment policies of “Treaty on the Functioning of the European Union” was conducted only as a result of updating 2007 Treaty of Lisbon in 2007 (Amanatidis, 2020). European Climate Change Programme which was established in 2000 has sought to identify the policy and solutions which will reduce greenhouse gas emissions (EC, n.d.-e). The Second European Climate Change Programme which was launched in 2005 included a working group on adaptation for the first time (EC, n.d.-e). In the context of this programme, Green Paper “*Adapting to Climate Change in Europe – Options for EU*” was published in 2007. Green Paper pointed out the vulnerabilities of Europe against climate change and emphasized the importance of developing policy and action for adaptation at different levels and took the first step in including adaptation in policy framework in the EU.

The framework for EU Adaptation Strategy was framed with White Paper “*Adapting to Climate Change: Towards a European Framework for Action*” which was published in 2009. White Paper was prepared as a result of major consultations organized after Green Paper and with the analysis report on the impacts of climate change in Europe (EC, 2009b). White Paper specified four areas for an adaptation strategy to be developed in Europe: (i) Developing database which includes the installation of “Clearing House Mechanism” for adaptation, (ii) Integrating adaptation into key policy areas of the EU, (iii) Implementing various policy tools together to ensure the efficiency of adaptation and (iv) Strengthening international cooperation on adaptation (EC, 2009c). It described detailed actions which took the steps of an adaptation strategy for each area in 2013.

2013 EU Adaptation Strategy encourages the member states of the EU to develop adaptation strategies and integrate adaptation with EU policies and programmes. The non-binding strategy prepared by the European Commission consists of three key objectives and eight actions.

- **Priority 1.** Promoting adaptation actions in the member states



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- **Action 1.** Supporting the formulation of comprehensive adaptation strategies by the member states
- **Action 2.** Supporting the development of adaptation capacity in Europe and providing LIFE fund to accelerate adaptation activities
- **Action 3.** Including adaptation in the Covenant of Mayors for Climate and Energy
- **Priority 2.** Supporting better-informed decision-making processes
 - **Action 4.** Filling the information and data gaps
 - **Action 5.** Further develop Climate-ADAPT Platform in a manner that will be one-stop-shop for information on adaptation in Europe
- **Priority 3.** Making EU actions climate-proof: Supporting adaptation in vulnerable sectors
 - **Action 6.** Integrating “Climate Resilience” in the Common Agricultural Policy, Cohesion Policy and the Common Fisheries Policy
 - **Action 7.** Ensuring the resilience of infrastructures against climate change
 - **Action 8.** Promoting insurance and financial products for resilient investments and business decisions.

In 2013 and after that, the efforts of integrating adaptation with other strategies and policies in the EU were intensified (Table 1). The 7th Environmental Action Plan which follows adaptation strategy (2013-2020), Cohesion Policy (2014-2020), Common Agricultural Policy (2014-2020), 3rd Health Programme (2014-2020), Multi-annual Implementation Plan of the EU Forest Strategy (2015-2020) and Green Infrastructure Strategy were developed by considering the objectives and strategies for adaptation (Decision of the European Parliament and the Council of 20 November 2013; EC, 2014; Négre, 2020; EC, n.d.-c; EC, n.d.-d; EC, 2013c). Additionally, as it was presented in Table 1, various guidelines for integrating climate change into strategic environmental assessments, environmental impact analyses and the management of Natura 2000 sites were published. Amendment in the directive for assessing environmental impacts of public and private investments was conducted.

According to the assessment, which was published in 2018, the progress towards the objectives which were set in EU Adaptation Strategy was made while climate vulnerabilities in the EU continued (EC, 2018c). The assessment provides these suggestions for the future: Strengthening the relationships of adaptation with disaster risk management, public health, coastal zones and Marine and Fisheries Policy; developing the tools for climate risks for investors and insurers; promoting private sector financing for adaptation; including multipronged benefits of ecosystem-based solutions in the assessment of adaptation solutions; supporting the monitoring and evaluation of adaptation strategies and actions at local level; promoting social vulnerability analyses against climatic events and connecting with mitigation actions at all governance levels.



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Table 1. Development and integration of policies for adaptation in the EU and historical development of their relationships with international framework

Year	International Agreements	Adaptation milestones at the EU level	Sectoral Inclusion
2007		<ul style="list-style-type: none"> Green Paper: Adapting to Climate Change in Europe 	<ul style="list-style-type: none"> Directive: Flood Risk Assessment and Management (Flood Directive) Notification: Addressing the Challenge of Water Scarcity and Droughts in the European Union
2008	<ul style="list-style-type: none"> Protocol on Integrated Coastal Zone Management in the Mediterranean – Articles 3,5,8,22. (It was approved by EC in 2010) 		<ul style="list-style-type: none"> Directive: Establishing a Framework for Community Action in the field of Marine Environmental Policy (The Marine Strategy Framework Directive)
2009		<ul style="list-style-type: none"> Adapting to Climate Change: Towards a European Framework for Action Notification: Towards a Comprehensive Climate Change Agreement in Copenhagen 	<ul style="list-style-type: none"> Guidelines: River Basin Management in a Changing Climate
2010	<ul style="list-style-type: none"> Cancun Adaptation Framework (UNFCCC) Adaptation Fund (operational) 	<ul style="list-style-type: none"> Notification / Resolution: A Community Approach on the Prevention of Natural and Man-made Disasters EC Staff Working Paper (ECSWP): Risk Assessment and Mapping Guidelines for Disaster Management 	
2011	<ul style="list-style-type: none"> Aichi Biodiversity Targets: Target 15 (Convention on Biological Diversity) Green Climate Fund (operational) 		<ul style="list-style-type: none"> EU Biodiversity Strategy for 2020 White Paper: Road map to a Single European Transport Area – Towards a Competitive and Resource Efficient Transport System Directive: The Assessment of the Effects of Certain Public and Private Projects on the Environment
2012		<ul style="list-style-type: none"> Climate-ADAPT became available online 	<ul style="list-style-type: none"> Communication: The Integrated Maritime Policy on a Marine and Maritime Agenda for Growth and Jobs (Limassol Declaration) Notification: Plan on Protecting Water Sources in Europe
2013		<ul style="list-style-type: none"> Report: Climate change, impacts and vulnerability in Europe (EEA) Notification: The EU Strategy on Adaptation to Climate Change (EC) 	<ul style="list-style-type: none"> 7th Environment Action Programme 2013-2020 Notification: Green Infrastructure Strategy – Enhancing Europe’s Natural Capital



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Year	International Agreements	Adaptation milestones at the EU level	Sectoral Inclusion
		<ul style="list-style-type: none"> ECSWP: Principles and Recommendations for Integrating Adaptation into Climate Change in the context of 2013-2020 European Maritime and Fisheries Fund Operational Programmes ECSWP: Summary of Impact Assessment and Impact Assessment ECSWP: Climate Change Adaptation, Coastal and Marine Issues ECSWP: Adaptation to Climate Change Impacts on Human, Animal and Plant Health ECSWP: Adapting Infrastructure to Climate Change ECSWP: Climate Change, Environmental Degradation and Migration ECSWP: Technical Guidance on Integrating Climate Change Adaptation into Programmes and Investments of Cohesion Policy ECSWP: Principles and Recommendations for Integrating Climate Change Adaptation Considerations into the 2014-2020 Rural Development Programmes ECSWP: Guidelines on developing adaptation strategies Green Paper: The Insurance of Natural and Man-Made Disasters 	<ul style="list-style-type: none"> Regulation: Union Guidelines for the Development of the trans-European Transport Network Notification: A new EU Forest Strategy for Forests and the Forest-based Sector Decision: The Union Civil Protection Mechanism Guidance on Integrating Climate Change and Biodiversity into Strategic Environmental Assessment Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment Regulation: Guidelines for trans-European Energy Infrastructure Decision: Serious Cross-Border Threats to Health Guidelines on Climate Change and Natura 2000- Dealing with the Impact of Climate Change on the Management of Natura 2000 Network of the Areas of High Biodiversity Value Regulation: Climate Change Support for European Regional Development Fund, European Social Fund, Cohesion Fund, European Agricultural Fund for Rural Development European Maritime and Fisheries Fund, methodologies, setting milestones and objectives in the framework of performance and general provisions on identifying initiative categories for European Structural and Investment Funds
2014			<ul style="list-style-type: none"> Cohesion Policy 2014-2020 Common Agricultural Policy 2014-2020 Regulation: The Prevention and Management of the Introduction and Spread of Invasive Alien Species Amendment: Directive on the Assessment of the Effects of Certain Public and Private Projects on the Environment Directive: Establishing a Framework for Maritime Spatial Planning EU Health Programme 2014-2020 Resolution: The Insurance of Natural and Man-Made Disasters
2015	<ul style="list-style-type: none"> The 2030 Agenda for Sustainable Development (UN) 	<ul style="list-style-type: none"> Notification: A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy 	<ul style="list-style-type: none"> Multi-annual Implementation Plan of the EU Forest Strategy 2015-2020



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Year	International Agreements	Adaptation milestones at the EU level	Sectoral Inclusion
	<ul style="list-style-type: none"> The Paris Agreement (UNFCCC) The Sendai Framework for Disaster Risk Reduction (UNDRR) 		<ul style="list-style-type: none"> Guidance Document on the application of water balances for supporting the implementation of the Water Framework Directive
2016			<ul style="list-style-type: none"> Regulation: Protective Measures against Plant Pests (Plant Health Law) Regulation: Contagious Animal Disease (Animal Health Law) ECSWP: the Sendai Framework for Disaster Risk Reduction Action Plan 2015-2030 – A Disaster Risk-informed Approach for all EU Policies
2017	<ul style="list-style-type: none"> The New Urban Agenda 		<ul style="list-style-type: none"> Notification: Strengthening the EU Disaster Management: rescEU Solidarity with Responsibility ECSWP: Overview of Natural and Man-made Disaster Risks the European Union may face EU Action Plan for Nature, People and the Economy 2017-2019
2018		<ul style="list-style-type: none"> Evaluation of the EU Adaptation Strategy Notification: A Clean Planet for All – A European Long-term Strategic Vision for a Prosperous, Modern, Competitive and Climate Neutral Economy 	<ul style="list-style-type: none"> Notification: Action Plan- Financing Sustainable Growth
2019		<ul style="list-style-type: none"> Notification: Towards a Sustainable Europe by 2030 The EU's Climate Emergency Declaration Presentation of the European Green Deal 	<ul style="list-style-type: none"> ECSWP: Guidance on a strategic framework for further supporting the deployment of EU-level green and blue infrastructure ECSWP: EU Guidance on Integrating Ecosystems and Their Services into Decision-making Notification: Stepping up EU action to protect and restore the world's forests (A new EU Forest Strategy)
2020		<ul style="list-style-type: none"> Adopting the Long-Term Climate Strategy of the European Union 	<ul style="list-style-type: none"> Notification: EU Biodiversity Strategy for 2030- Bringing nature back into our lives Launch event of the European Climate Pact
2021		<ul style="list-style-type: none"> New EU Adaptation Strategy 	<ul style="list-style-type: none"> 8th Environment Action Programme Common Agricultural Policy update will be delayed because of the Green New Deal

Source: Compiled from the sectoral pages of Climate-ADAPT



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2.3. Future of EU Adaptation Policies

Two important international developments which will affect the update of EU Adaptation Strategy are the adoption of the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction. EU policies are renewed in order to conduct commitments in the context of these two international strategies. The European Commission prepared an action plan on risk-based approach for all EU policies in 2016 and a notification on strengthening disaster management of the EU in 2017. In the environmental status report for 2020 published by EEA, it was emphasized that Goal 13 was included in the policy objectives of the EU on climate change. At the beginning of 2019, while the notification “Towards a Sustainable Europe by 2030” set the stage where the citizens, member states and relevant stakeholders would discuss the priorities of 2019-2024 EU Strategic agenda, the subject of how to proceed in the Sustainable Development Goals was also included in the context. These amendments shaped the 2050 vision of the EU.

Box 1. The European Green Deal and European Climate Law

“A Clean Planet for all: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy” was published in November 2018 (EC, n.d.-a). This strategic document draws the vision of decarbonization of European economy by 2050 in accordance with the commitments in the context of the Paris Agreement (EC, 2018a).

In December 2019, the European Commission submitted **the European Green Deal** package which enhanced the objectives of the EU to mitigate greenhouse gas emission for 2030 and presented the roadmap of 2050 net zero emission vision. In the context of the package, the draft of the **Climate Law** which will make 2050 climate neutral vision legally binding was submitted to the European Parliament and the Council of Europe by the European Commission in March 2020 (ECi 2020b). One of key elements of the Green Deal is that **the European Climate Pact** which is aimed at including all the citizens in climate action will be established (EC, n.d.-g).

With the European Green Deal, the aim is to develop a new and more ambitious adaptation strategy for the EU. The European Commission emphasized that climate change-induced stresses would be experienced in spite of mitigation efforts in the Statement on the Green Deal. Therefore, it is considered necessary to increase the efforts which strengthen climate resilience for adaptation and allow all the stakeholders to integrate climate change into risk management approaches. It is planned that new EU Adaptation Strategy will be set in 2021. It is prescribed that 8th EU Environmental Implementation Plan which is expected to be updated in 2021 and the Common Agricultural Policy will be organized in accordance with the Green New Deal (EC, 2019b).

New EU Adaptation Strategy targeting 2021 is developed in an action-oriented manner with a participatory method drawing on the lessons from the first strategy. In the document “Adaptation to Climate Change: Blueprint for a new, more ambitious EU strategy”, the importance of adaptation action, what the EU can conduct about this subject and elements which will be able to establish the adaptation strategy in parallel with the European Green Deal and current situations on these areas are presented (EC Directorate-General for Climate Action, 2020). There are seven areas that have been included in the scope: More and better data, deeper knowledge and faster deployment of solutions, closing “the climate protection gap”, preventing damage to infrastructure and beyond, adapting forests and other ecosystems for a resilient society, oceans, reinforced global action for climate resilience. This document constitutes the outline of online public consultation survey which was launched in the mid-May 2020 and ended in August 2020 (EC, 2020a).



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Regulation on the Governance of the Energy Union and Climate Action will require the member states to report on adaptation as of March 2021. Pursuant to “Regulation 2018/2019 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action”, the member states are obliged to inform the European Commission about national climate change adaptation strategies and plans and the actions which are implemented and planned for facilitating adaptation in 15 March 2021 and subsequently every two years. The appropriateness of notifications for reporting requirements of UNFCCC and the Paris Agreement has been highlighted and its scopes have been elaborated as follows: (a) Main objectives for adaptation, goals and institutional framework; (b) Extreme weather events, the assessment of climate change impacts, vulnerability and risks and climate change projections including key climate hazards; (c) Adaption capacity; (d) adaptation plans and strategies; (e) the framework for monitoring and evaluation and (f) the progress made in implementation including best practices and changes in governance.

According to the draft of European Climate Law developed in the context of the European Green Deal, it will be required for the member states to develop and implement adaptation strategy (EC, n.d.-f). According to the draft of European Climate Law (EC, 2020b):

- Relevant institution and the member states are expected to make continuous progress on enhancing adaptive capacities, strengthening resilience and mitigating vulnerability against climate change pursuant to Article 7 of the Paris Agreement. (Article 4.1)
- The member states are expected to develop and implement the adaptation strategies and action plans which include comprehensive risk management frameworks based on reference values and progress assessments. (Article 4.2)
- Until 30 September 2023 and subsequently every five years, the European Commission will evaluate
 - Collective progress of the member states on adaptation (Article 5.1.b.),
 - Adequacy of the support provided by the EU for the member states to make progress on adaptation (Article 5.2.b.),
 - Adequacy of national measures of the member states to make progress on adaptation (Article 6.1.b.).
- In the evaluations made by the European Commission,
 - If the European Commission observes deficiencies in making progress on adaptation at the EU level, it is obliged to take necessary measures pursuant to the Agreements (Article 5.3)
 - If deficiencies in adaptation efforts of the member states are identified, it can publish “recommendations” publicly. (Article 6.2)



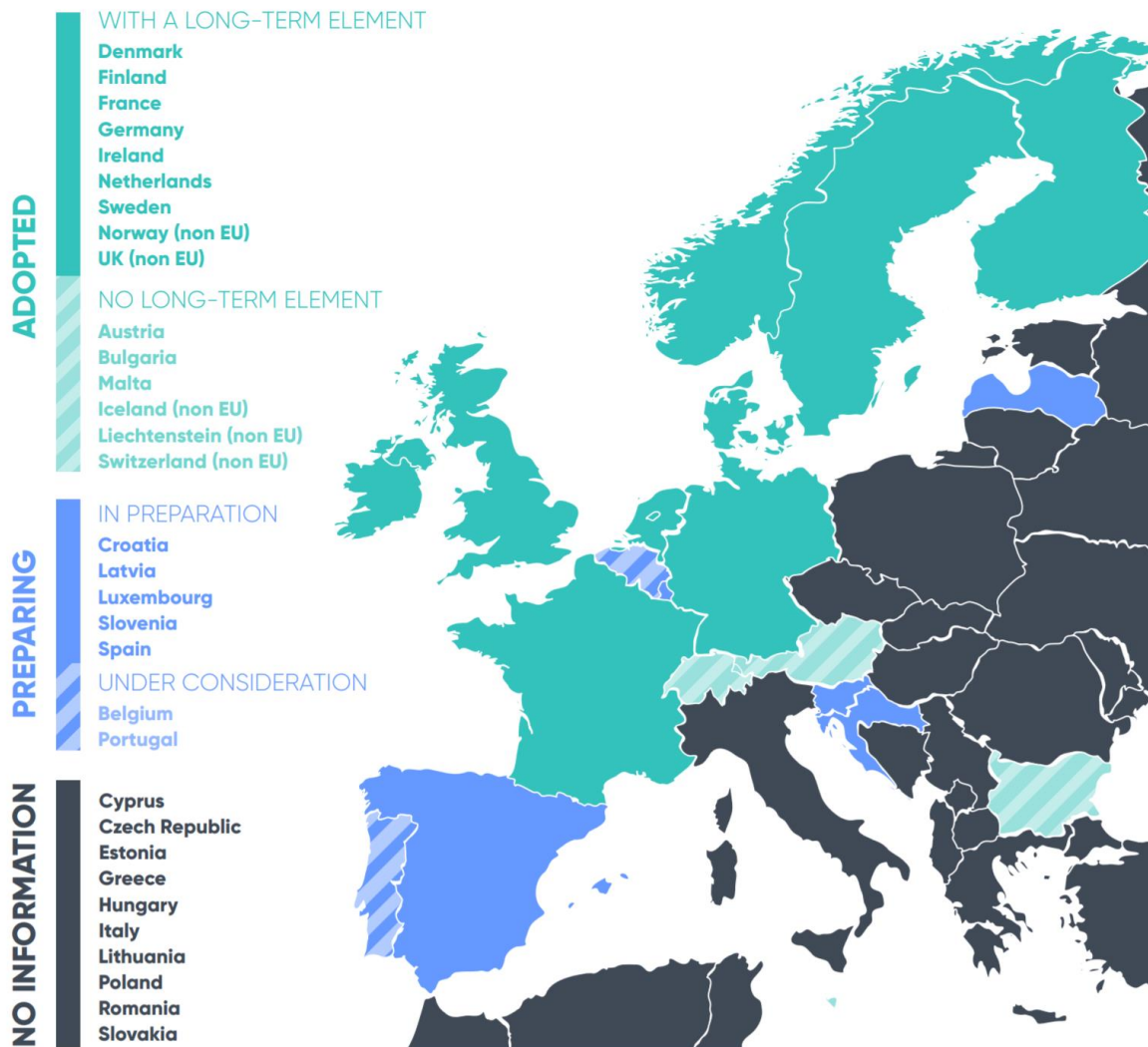
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3. NATIONAL CLIMATE ADAPTATION POLICIES AND POLICY DEVELOPMENT APPROACHES OF EUROPEAN COUNTRIES

3.1. Climate Change Laws

Climate Laws which have become prevalent across European countries lead to the development of strategies for adaptation. As of the end of 2019, the climate law of 15 European countries has been in force and seven countries are also preparing the law (Figure 2). These laws predominantly focused on the objectives for mitigation. However, conducting strategy and action planning concerning adaptation was described as a legal obligation in the laws on climate change enacted by only United Kingdom (2008), Bulgaria (2014), Finland (2015), Norway (2017) and in the law drafts of Spain and Croatia (2019). The law in Finland requires National Adaptation Plan to be elaborated with new risk assessments and measures every 10 years (Duwe and Evans, 2020).



Source: Duwe and Evans 2020

Figure 2. Status of the climate change laws in Europe (As of December 2019)



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3.2. Climate Adaptation Strategies and Action Plans

As of the end of 2019, all the EU countries developed the climate change adaptation strategy or action plan (Figure 3). The list of all the strategies and plans addressed in this study is provided in Annex-1. It is observed that climate adaptation strategies and action plans were developed with several different approaches:

- **Mitigation and adaptation integrated climate change strategies and action plans:** Finland, Latvia, Lithuania, Hungary and Romania designed their adaptation strategies as a part of general climate change strategies. Adaptation action plans of Latvia and Romania are also subcomponent of general climate action plan. Finland, Lithuania and Hungary have adaptation-oriented action plans in addition to their climate change strategies.
- **Separate adaptation strategy and action plan documents:** Several countries opt for this method. Strategies are formulated in the longer term, which ensures the flexibility of formulating action plans in the short term.
- **Integrated adaptation strategy and action plan:** Austria, Bulgaria, South Cyprus, Croatia, Malta, United Kingdom and Norway developed integrated strategies and action plans.

Slovenia and Greece formulate the implementation of adaptation strategies with regional adaptation action plans. Ireland seeks to develop adaptation action plans which are divided into thematic sector groups for the implementation of national adaptation framework.

Ülke	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Germany																	
Austria														*			
Belgium																	
Bulgaria																	
Czech Republic																	
Denmark																	
Estonia																	
Finland								**			*/**						
France															**		
South Cyprus																	
Croatia																	
Netherlands													*				
Ireland															*		
Spain						**			**								
Sweden																	
Italy																	
Latvia																	
Lithuania													**		**		
Luxembourg															*		
Hungary															*		
Malta																	
Poland																	
Portugal												*					
Romania													*				
Slovakia															*		
Slovenia																	
Greece																	
United Kingdom															*/**		
Switzerland																	
Norway																	
Turkey																	



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	No policy
	National Adaptation Strategy (NAS) adopted
	National Adaptation Plan (NAP) adopted
	National Adaptation Strategy (NAS) and National Adaptation Plan for Action (NAPA) adopted
*	National Adaptation Strategy (NAS) updated
**	National Adaptation Plan for Action (NAPA) updated

Source: Compiled from Climate-ADAPT and the strategies and action plans of countries (Annex-1)

Figure 3. Historical development of adaptation strategies and action plans in European countries

Box 2. Barriers Encountered during Adaptation Policy Processes

Countries encounter different barriers to developing and maintaining adaptation policies. According to a survey conducted by EEA (2014), deficiencies in financial and technical capacity is the barrier most frequently cited. Barriers to governance during the process cannot be overcome, especially political will is not permanent, coordination structure cannot be framed effectively and frameworks for responsibility cannot be formed clearly, which lead to failure of the implementation of strategies and action plans. The strategy does not have clear objectives and they are not connected to indicators, which does not allow the strategy to be evaluated and updated.

Category	Barrier	Planning	Implementation	Monitoring/Evaluation
Governance	Lack of political will, intent and leadership			
	Other subjects are of priority in the policy agenda			
	Timeframe of adaptation is longer than policy processes			
	Weakness of coordination between relevant institutions			
	Responsibilities of relevant institutions are not defined clearly and there are overlapping responsibilities			
	Confrontational values and interests of stakeholders			
Institutional Capacity	Limited cooperation between stakeholders			
	Lack of human resource with necessary technical equipment in relevant institutions			
	Knowledge, awareness and technical capacities of relevant institutions are at different levels			
	Capacities of relevant policy, implementation and research communities are limited			
Legislation	Adaptation efforts are defined as an addition to daily workload of responsible personnel			
	Fast recirculation of personnel			
Information	Adaptation policies conflict with current legislation			
	Strategies and policies which will support adaptation policies are not developed			
Financing	Uncertainty in climate change scenarios			
	Knowledge and data which will support the decision-making and will constitute the input for analyses (for example, socio-economic and climatic) and the data which will constitute the reference value on adaptation capacity are inadequate or incomplete			
	Lack of knowledge about vulnerabilities			
	Relevant stakeholders have limited access to information			
	Knowledge generation is limited			
	Sharing of knowledge and data is not transparent			
	Lack of information exchange			
Lack of financing sources				



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	Adaptation costs and financing calculations cover only what will be done in the public sector but do not consider the adaptation of private sector, households and individuals			
	Only engineering costs of adaptation solutions are calculated and implementation cost (for example, administrative), transaction costs and opportunity cost of adaptation solutions are not considered			
Adaptation Strategy and Action Plan	Objectives are not clear			
	Indicators are not identified clearly			
	Impact analysis on outputs and outcomes is not conducted			

Source: UNDP 2010, EEA 2014, Hickel et al. 2013, UNEP 2018

The strategies prepared by European countries after 2013 follow the steps in “Guidelines on developing adaptation strategies” (EC, 2013b). The guidelines transferred to Climate-ADAPT platform Climate-ADAPT as “Adaptation Support Tool” consist of six steps (Climate-ADAPT, n.d.):

1. Setting the stage for adaptation
2. Assessing risk and vulnerability
3. Establishing adaptation options
4. Assessing adaptation options
5. Implementation
6. Monitoring and evaluation

The institutions such as World Bank and United Nations Development Programme also have the roadmap works for developing adaptation policies. However, noteworthy differences are not observed in their process approaches (Hallegatte, Lecocq and de Perthuis, 2011; UNDP, 2004).

3.2.1. Setting the Stage for Adaptation

Coordination Structure and Participation

In most of European countries, the ministries of environment are responsible for the coordination of climate change adaptation policies. Eight out of 30 European countries which consist of the 27 EU member states and United Kingdom, Switzerland and Norway accentuate “the climate” with their names of the ministry which is responsible for adaptation. For example, the duty of policy making is under the roof of “Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology” in Austria and under the roof of ministries of environment in 20 countries. Only in Belgium, the responsibility of policy development and coordination has been given to Adaptation Working Group of the National Climate Commission. The institutions which are responsible for adaptation in Denmark and Portugal are environment agencies.

Special structures have been established in order to ensure the horizontal and vertical coordination in most of the countries (EEA, 2014). According to an evaluation conducted in 2018 (EC, 2018b), inter-ministerial horizontal coordination structures are observed in almost every country. Some of horizontal coordination structures also ensure the participation of external stakeholders such as local governments and private sector. In the institutional panel of Italy, regional and local governments are also represented (Italy, 2019). Bulgaria, Czech Republic and Greece have framed the coordination with local governments by including national unions of municipalities in national coordination groups (EC, 2018d; Czech Republic, 2019; Greece, 2019). In Denmark which has required all the municipalities to prepare adaptation action plan, a mobile team for technical support and an adaptation network to provide an intermunicipal experience exchange have been established (Denmark, 2019). Additionally, most of the countries have mentioned the role of Covenant of Mayors for Climate and Energy as a facilitator in vertical coordination.



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Table 2. Coordination structure of adaptation policy processes in European countries

Country	The Institution which is Responsible for the Coordination of Adaptation Policies	Working Groups, Committees etc.
Germany	Federal Ministry of the Environment, Nature Conservation and Nuclear Safety	Inter-ministerial Adaptation Working Group, the Standing Committee for the Adaptation to Climate Change Impacts
Austria	Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology	National Climate Protection Committee
Belgium	National Climate Commission – Adaptation Working Group	
United Kingdom	The Department for Environment, Food and Rural Affairs	The Adaptation Committee
Bulgaria	Ministry of Environment and Water	The National Coordination Committee on Climate Change
Czech Republic	Ministry of Environment	12 working groups
Denmark	The Danish Environmental Protection Agency (It is affiliated with Ministry of Environment and Food)	Task Force on Climate Change Adaptation
Estonia	Ministry of Environment	Steering Committee
Finland	Ministry of Agriculture and Forestry	Coordination and monitoring groups
France	Ministry of Ecological and Inclusive Transition	The National Council for Ecological Transition-Specialized Committee
South Cyprus	Ministry of Agriculture, Rural Development and Environment	Sectoral steering committees
Croatia	Ministry of Environmental Protection and Energy	Cross-sectoral Coordination Committee for Policies and Measures on Mitigating Climate Change and Climate Change Adaptation
Netherlands	Ministry of Infrastructure and Water Management	Coordination group
Ireland	Department of Communications, Climate Action and Environment	National Adaptation Steering Committee
Spain	The Spanish Office for Climate Change (It is affiliated with the Ministry for the Ecological Transition and the Demographic Challenge)	Working Group on Climate Change Impacts and Adaptation, National Climate Council, The Coordination Commission of Climate Change Policies
Sweden	Ministry of Environment and Climate	National Expert Council
Switzerland	The Federal Department of the Environment, Transport, Energy and Communications	The Interdepartmental Committee on Climate
Italy	The Ministry for Environment, Land and Sea Protection	Scientific Panel, Institutional Panel
Latvia	Ministry of Environmental Protection and Regional Development	Two separate working group (interdepartmental and experts)
Lithuania	Ministry of Environment	The National Climate Change Committee
Luxembourg	Ministry of Environment, Climate and Sustainable Development	-
Hungary	Ministry of Innovation and Technology	-
Malta	Ministry for the Environment, Sustainable Development and Climate Change	Interdepartmental and Inter-ministerial committees
Norway	Ministry of Climate and Environment	
Poland	Ministry of Environment	Working Group on Climate Change Adaptation
Portugal	Environment Agency (with the approval of Ministry of Environment and Climate Action)	Coordination Group
Romania	Ministry of Environment, Water and Forests	National Commission on Climate Change
Slovakia	Ministry of Environment	Working Group on Adaptation of the High-Level Committee for Coordination of Climate Change Policy
Slovenia	Ministry of the Environment and Spatial Planning	Inter-ministerial Working Group on Climate Change Adaptation



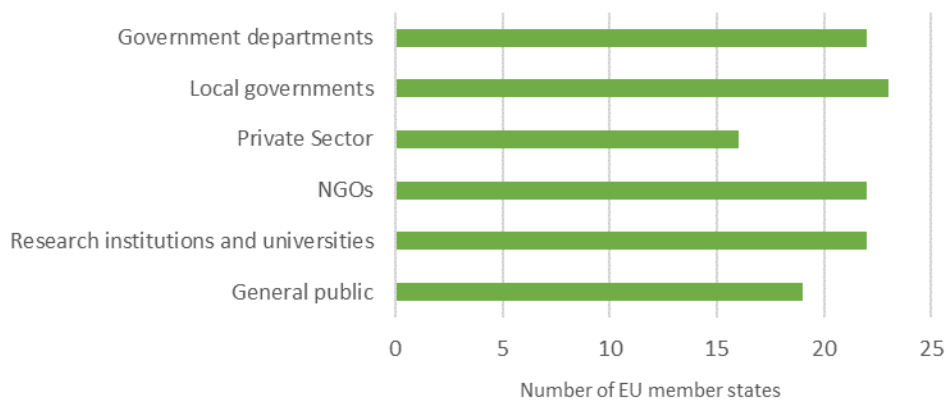
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Country	The Institution which is Responsible for the Coordination of Adaptation Policies	Working Groups, Committees etc.
Greece	Ministry of Environment and Energy	The National Climate Change Adaptation Committee

Source: Compiled from the web pages of the government and ministries of countries and the pages of Climate-ADAPT.

Almost all European countries conduct far-reaching participatory processes for preparing the adaptation strategies and action plans. According to the review conducted via the 2018 report cards of the member states of the EU (EC, 2018b), all the countries except for Poland and Luxembourg include research institutions, universities, private sector, NGOs and citizens as well as central and local governments in policy development processes. Research institutions, universities, private sector and NGOs play an active role in policy development, implementation and monitoring processes by being included in coordination structures or expert groups of some countries (Figure 4). For example, The National Climate Change Adaptation Committee of Greece incorporated the industry associations, relevant NGOs and academicians who are specialized in the field, as well (Greece, 2019). In order to ensure the participation of citizens, Ireland defined public consultation as a legal obligation before every national adaptation framework and sectoral adaptation planning proposal (Duwe and Evans, 2020).



Source: European Commission 2018

Figure 4. Stakeholder groups involved in developing adaptation policy

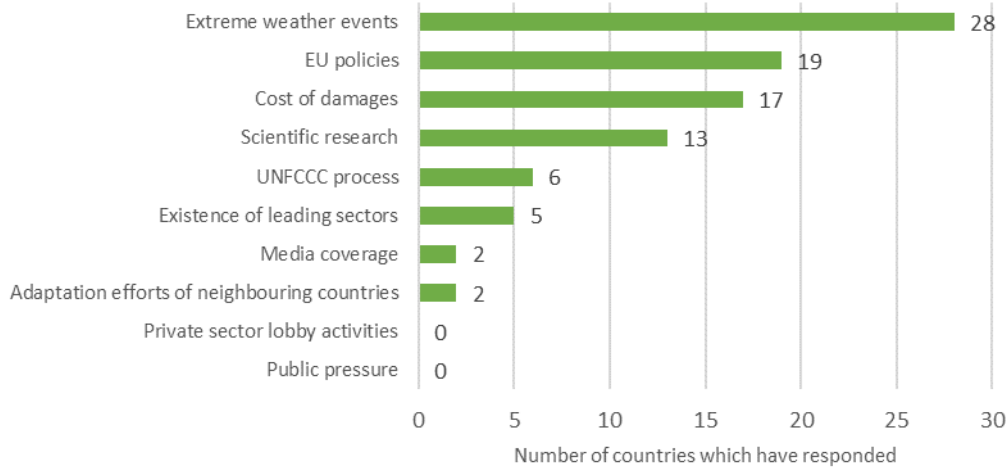
Formulation of Strategic Goals

Identification of vision and goals of adaptation strategies guides the establishment of objectives and actions. According to the research conducted by EEA (2014), extreme weather events and damage costs based on these events more than the requirements of EU policies trigger the adaptation plan activities of European countries (Figure 5). This is reflected on the vision and goals of adaptation strategies with the statements such as “risk reduction”, “resilience enhancement” or “enhancing adaptive capacity” (Figure 6). Some countries opt for the differentiating emphases on social, economic or environmental resilience. Additionally, it is quite common to evaluate the adaptation as an opportunity. Among the goals of launching strategic plans, there are also statements on governance such as integrating adaptation into other policies and strengthening coordination.



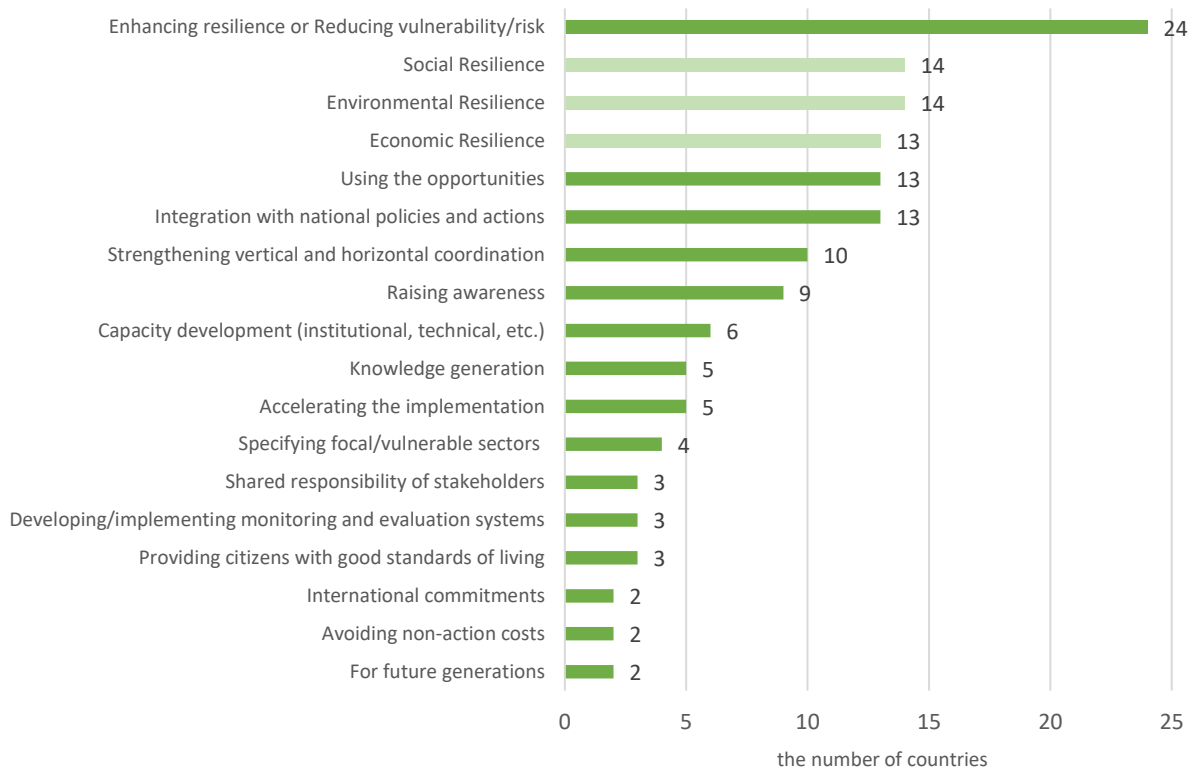
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Source: EEA 2014

Figure 5. Reasons for making adaptation plan by European countries



Source: An original analysis which consists of adaptation strategies and action plans of 30 European countries

Figure 6. Overview of vision and goal statement of adaptation strategies and plans of European countries

Guiding Principles

It is observed that adaptation strategies are framed in parallel with the guidance of the EU in the framework of some key principles in some countries. Annex-1 in “the Guidelines on Developing Adaptation Strategies” of the EU includes 10 key principles which are necessary for developing successful adaptation policies (EC, 2013b). For example, some countries defined their own principles,



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while Bulgaria adopted the Guidelines of the EU. These principles may be used for one or more than one of development, implementation and monitoring and evaluation processes of strategies. While sustainability is a principle which needs to be considered during the whole process, integrated approach principle does not concern the monitoring and evaluation process. The findings on eight countries which include principles in their strategies have been compiled based on the framework for EU Guidelines in Table 3.

Table 3. Guiding principles for adaptation policies

Principle	Description	Planning	Implementation	Evaluation	Source
Sustainability	Formulating adaptation policies and actions in a manner that does not increase climate change risks and enhancing the resilience and adaptation capacity of the environment, community, and economy				EU, Germany, Bulgaria, Sweden, Switzerland, Italy
	Formulating adaptation to complement mitigation in a manner that does not prevent meeting mitigation objectives				EU, Austria, Ireland, Switzerland, Italy, Lithuania
	Taking intergenerational equity into consideration				Sweden, Switzerland, Italy
Cooperation	Identifying and cooperating with relevant stakeholders (e.g. citizens, institutions, NGOs, finance sector and private sector) at different levels (e.g. local, national, and international)				EU, Germany, Austria, Bulgaria, Italy, Ireland, Sweden, Switzerland, Italy, Ireland, Lithuania
	Working closely with the stakeholders that create scientific research and innovation and ensuring knowledge transfer				Germany, Switzerland
	Encouraging the transfer of international knowledge and experience				
Evidence-based decision-making	Basing decision-making processes for adaptation on current research, scientific data and implementation experiences				EU, Germany, Austria, Bulgaria, Sweden, Italy, Lithuania,
Integrated approach	Planning adaptation with a holistic approach that considers other risks outside of climate change, and cross-sectoral relations and the integration of adaptation into relevant policies				EU, Germany, Austria, Bulgaria, Sweden, Italy, Lithuania
Risk-based approach	Taking into consideration past, present and future risks for climate variability and extreme weather events and ensuring coordination with disaster risk management				EU, Bulgaria, Italy, Sweden
Vulnerability-based approach	Starting adaptation planning with an awareness of present and future vulnerabilities				Ireland
Precautionary principle	Adopting a precautionary principle to ensure adaptation despite the uncertainties concerning climate scenarios and climate change impacts				Germany, Austria, Ireland, Italy, Sweden, Switzerland
Prioritization	Prioritizing adaptation policies and actions by establishing parameters (e.g. cost-benefit, urgency, and risk category)				EU, Austria, Bulgaria, Ireland
Appropriateness for scale	Adapting adaptation solutions to the scale required by the relevant climate change impact (by taking into consideration responsibilities and finance)				EU, Bulgaria
	Taking into consideration the complementarity and proportionality of solutions among different governmental scales				Germany
Flexibility	Policies and actions being adaptable to change despite future climate uncertainties				EU, Germany, Bulgaria, Sweden
Transparency	Communicating the data, policy objectives and their impacts clearly with stakeholders				EU, Germany, Bulgaria, Ireland, Sweden



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Principle	Description	Planning	Implementation	Evaluation	Source
Monitoring and evaluation	Regularly evaluating the efficiency, productivity, and equity of adaptation decisions and making the necessary improvements in line with current knowledge and evidence				EU, Austria, Bulgaria, Ireland, Italy, Switzerland
Ownership / Responsibility	Ownership by the senior executives of institutions working on adaptation, and provision of human sources and finance in the long term				Austria, Ireland
Solution diversity	Ensuring the diversity of solutions produced for adaptation				Austria, Ireland
Time scale	Taking into consideration different time scales when developing and implementing adaptation strategies and actions				Sweden, Switzerland

Source: Adapted from "Guidelines on Developing Adaptation Strategies" (EC, 2013b), "Guiding Principles for Adaptation to Climate Change in Europe" (Prutsch et al. 2010) and the adaptation strategies and action plans of specified countries.

3.2.2. Assessing Risk and Vulnerability

Impact, vulnerability and risk analyses of climate change are the key guide for adaptation policies. It is required to conduct analyses on current and future situation in the framework of evidence-based decision-making guiding principle. Several guiding guidelines were developed following the technical guidelines which was published in order to assess the impacts of climate change and adaptation of Intergovernmental Climate Change Panel in 1994 (Table 4). According to the report which was published by EEA in 2018, almost every EU country conducted at least one impact, vulnerability and risk analysis while developing the strategies and plans. However, it was discovered that these guidelines were used in a very limited manner and countries usually developed their own analysis methods. It was also discovered that research institutions and universities predominantly played a role in the analyses.

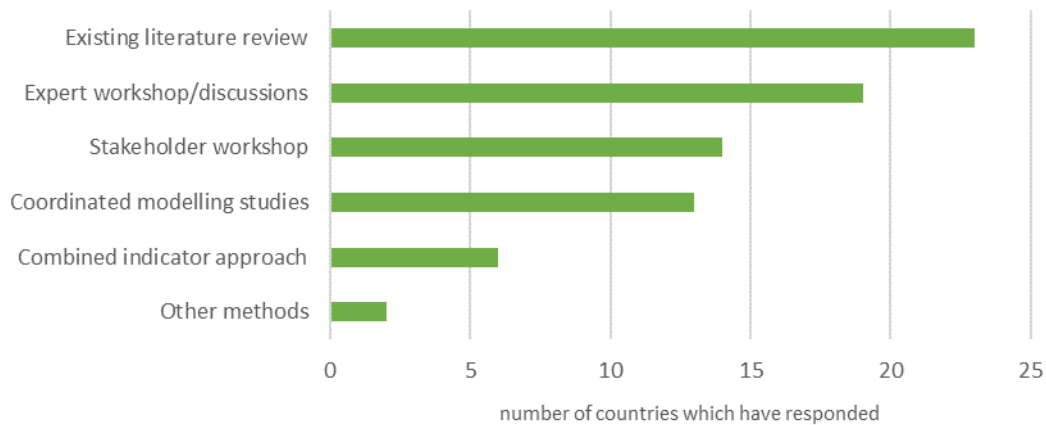
Table 4. Guidelines for impact, vulnerability and risk analyses of climate change

Year	Institution	Guidelines
1994	IPCC	Technical regulations for assessing climate change impacts and adaptations
2005	UNFCCC	Summary on the method and tools for assessing climate change impacts and vulnerability and adaptation against climate change
2010	UNFCCC	Adaptation Assessment, Planning and Implementation: Impacts of Nairobi Working Programme on climate change, overview of vulnerability and adaptation
2011	UNFCCC	Assessing the climate change impacts and vulnerability, making conscious adaptation decisions. Critical points on the contribution of Nairobi working programme
2013	European Commission	Principles on developing adaptation strategies
2013	UNEP, UNESCO, WMO	The Global Programme of Research on Climate Change Vulnerability, Impacts and Adaptation, (PROVIA) Guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change
2017	German Federal Environment Agency	Guidelines for Climate Impact and Vulnerability Assessments
Being developed	International Standards Organization (ISO)	ISO/DIS 14091: Adaptation to climate change- vulnerability, impacts and risk assessment



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Source: EEA 2018

Figure 7. Risk and vulnerability assessment methods which are most frequently used in European countries

In impact, vulnerability and risk analyses, different analysis method and approaches are preferred. In the analyses which were published by EEA in 2018, the methods which vary from field scanning to model-based works and research programmes were used (Figure 7). Methodological elements of analytical process are listed below (Buth, 2017; UNEP, 2013; UKCIP, 2019; EC, 2013b):

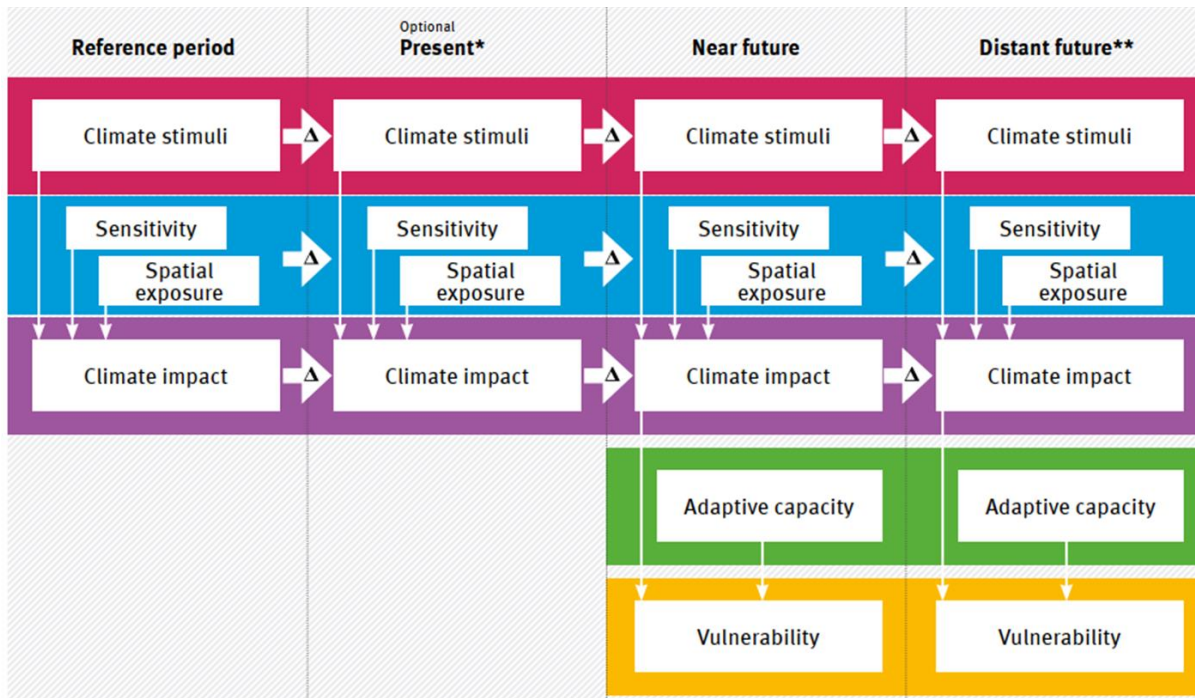
- **Reference Period and Present Climate Variability Analysis** ensures the development of an insight on current sensitivities and future impacts by examining the past and current trends of climate change in the framework of different climatic parameters.
- Changes of future trends **Future Climate Variability (Scenario) Analysis** and different climatic parameters are examined in the light of the IPCC Special Report on Emission Scenarios.
- **Impact Analyses** provide information on how socio-economic systems will be affected by examining via scenario outputs on climate change. The subcomponents of these analyses are as follows:
 - Identifying the probability and impact analyses, risk levels and priorities of climate change-induced hazards (for example, high risk/high priority, low risk/low priority)
 - Determining the changes which risks will create in the short, medium and long-term
 - Examining the interaction with climate change impacts and risks by using scenarios on other global, socio-economic and environmental changes
- **Adaptation Capacity Analysis** evaluates the availability of source options which communities, institutions or sectors can mobilize for adaptation (for example, financial, social and institutional capitals)
- **Vulnerability Analysis** reveals the vulnerability by their sensitivity and adaptation capacity levels against climate impacts in the short, medium and long term.
- Additionally, financial damage, loss and loads which will result from direct and indirect impacts which have been identified with **Cost Analyses** are examined. It is also important for implementation cost or non-action cost assessments to be used in the prioritization of adaptation solutions.

The methodological framework in Figure 8 presents the relationships of these elements.



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Source: Buth et al. 2017

Figure 8. Methodological framework for vulnerability analyses

Biodiversity, ecosystems, health, agriculture, forestry, water and energy sectors which come to the forefront in impact, vulnerability and risk analyses also constitute the focus of the solutions which are described in the strategies and plans. These sectors are included in all the documents on which risk and impact analysis and strategy or action plans have been framed in the same sectoral structure (Figure 9). EEA research conducted in 2014 emphasizes that the most developed sectors are water, agriculture and forestry for all management levels in terms of the implementation of adaptation measures. These sectors are followed by tourism, disaster risk management and transportation.

There are also some specific subjects which are less encountered in the context of adaptation:

- **Coastal zones** are addressed separately in only 55% of coastal countries (This rate is 77% for fisheries and aquaculture)
- The subject of **insurance** has been presented as a separate heading by only seven countries (Germany, Denmark, Estonia, France, Spain, Romania and Greece).
- **Communication infrastructure** is addressed under adaptation headings by only United Kingdom and Ireland.
- The subject of **cultural heritage** has been specified as a separate priority for Greece and Italy which have a lot of cultural assets in UNESCO world heritage list.



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Source: An original analysis for 18 European countries whose risk analysis and strategy/action plan sectoral breakdowns match

Figure 9. Distribution of the sectors which are observed in adaptation strategies and action plans of European countries

3.2.3. Establishing Adaptation Options

Adaptation solutions respond to climate risks through three different approaches. These three approaches are directly associated with the perspective on adaptation process of the country and the formulation of its strategic objectives (EEA, 2016; UNEP, 2013):

- **Coping approaches** respond to risks caused by acute shocks. Such approaches oversee disaster recovery. They have short-term benefits. The impact of the solution offered cancels when acute shock repeats. Such approaches have high long-term costs.
- **Incremental approaches** both contribute to climate change adaptation and reduce risks on acute shocks which may occur in the framework of recognized methods in the short and medium terms. These approaches fail to recommend a solution concerning key problems underlying risks. Therefore, they are effective up to a certain level of risk in the long term and once that threshold is exceeded, they become ineffective and require further solutions.
- **Transformative approaches** offer solutions which take into account the long-term impacts of climate change, address the issues of climate change adaptation and development jointly. While the implementation of such solutions requires mainly time and source, they become increasingly beneficial. If this approach is implemented, the capacity of coping will be high, even when risks are too high.

Adaptation solutions are based on different tools from legislation to financing, from capacity development to project implementation. Countries identify needs for enhancing adaptation capacity and reducing risk in the light of their strategic goals which are identified, risk and vulnerability assessments and sectoral priorities. They define different tailor-made solution tools:

- Solutions for knowledge generation (for example, climate scenario research, risk analyses)



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- Solutions for awareness and capacity development (for example, trainings, awareness campaigns)
- Laws and legislation-oriented solutions (for example, updates and changes to regulations and standards)
- Integration (for example, integration into sectoral policies)
- Financing solutions (for example, grant funds, incentive credits and taxes)
- Solutions for governance (for example, updates in governance processes, establishment of monitoring and evaluation systems)
- Structural and practical solutions (for example, construction projects, services, technological solutions)

In adaptation strategies and action plans of European countries, these solution tools appear at varying weights in accordance with needs of the country. According to EEA (2014), the first one of policy tools which are most frequently used in implementation is knowledge generation and the second one is integration.

3.2.4. Prioritizing Adaptation Options

Countries follow different methods in order to prioritize the adaptation options which they have identified while developing strategies and action plans. Table 5 presents details on these methods and information on the most appropriate situations for these methods. The methods which are most frequently used are cost-benefit, cost-effectiveness and multi-criteria analyses or expert judgement (UNDP, 2004). A study (2019) conducted by German International Cooperation Society (GIZ) mentions the failures in cost-oriented analyses on adaptation. These analyses which depend on a single criterion have difficulty in dealing with temporality of adaptation solutions, their variability based on context and location and their uncertainty. Therefore, it is specified that multi-criteria analyses which are also emphasized in “Guidelines on Developing Adaptation Strategies” of the EU may be more appropriate for adaptation. This method is often encountered in the strategies and action plans of European countries. The details on the criteria which are used in these analyses and recommended in various sources have been compiled in Table 6.

Table 5. Methods for prioritizing adaptation options

	Approach	Area of Use	Strengths	Weaknesses	Coping with Uncertainty
Traditional economic decision support	Cost-benefit analysis Valuates all costs and monetary benefits of all of the options for the society and calculates their net benefits and costs.	Determining low and zero regret options for the short term. As a decision support tool in a climate risk management, in a cyclical and iterative structure	Useful when climate risk probabilities are known and sensitivity is low and also where net market values can be used.	Valuation of non-market sectors / non-technical options. Limited uncertainty with probabilistic risks / sensitivity tests.	Does not openly deal with uncertainty, but can be used together with sensitivity testing and probability modelling.
	Cost-effectiveness analysis Lists effectiveness (monetary / non-monetary) against costs and compares them with cost curves for objectives / resources.	Same as the above, except for the markets and non-market sectors where benefits do not correspond to a monetary value	Same as the above, but for non-monetary sectors and where previously identified objectives must be attained	Not quite appropriate for cases where a single main metric is difficult to determine or for complex or cross-sectoral risks.	Does not openly deal with uncertainty, but can be used together with sensitivity testing and probability modelling.



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	Approach	Area of Use	Strengths	Weaknesses	Coping with Uncertainty
				Evaluations for uncertainty is scarce.	
	Multi-criteria analysis Allows for evaluating quantitative data collectively to list alternative options.	Same as the above, but for scoping options. It may complement other tools and capture qualitative aspects.	If a mix of qualitative and quantitative data is available.	Based on expert judgement or stakeholders and is subjective, including uncertainty analysis.	Can integrate uncertainty as an assessment criteria, but is generally based on subjective expert judgement or stakeholder opinion.
Uncertainty framing	Cyclical and iterative risk management (or adaptation-based management) Uses the cyclical and iterative framework for monitoring, research, evaluation, and learning to develop future strategies.	For assessment in the medium-long term. Can be implemented as a policy-level framework, as well.	Useful when long-term and uncertain challenges exist, particularly when there are clear risk thresholds.	Challenging if there are multiple risks acting in conjunction and it is difficult to define thresholds.	Iterative analysis openly deals with uncertainty by fostering monitoring, evaluation, and learning.
Economic decision-making under uncertainty	Real option valuation Establishes an economic analysis of future option value and the economic benefit of waiting / knowledge / flexibility.	Economic analysis of medium-term large capital investment decisions. Analysis of flexibility in large projects.	Can be used for major, irreversible decisions with available information on climate risk probabilities.	Requires economic valuation, probabilities, and clear decision points.	Openly deals with uncertainty by analysing adaptation performance for different future scenarios.
	Sound decision-making Defines optimal (sound) strategies against multiple potential scenarios.	Determining a combination of strategic (independent of long-term scenario) and operational (dependent on short term scenario) decisions.	When uncertainties and risks are high. Can use a mixture of qualitative and quantitative knowledge.	Requires intense numerical analyses and lots of testing.	Openly involves uncertainties and risks, and particularly systemic dependent risks, to obtain drastic solutions.
	Portfolio analysis Economic analysis of optimal options portfolio through trade-offs between return (net present value) and uncertainty (change).	Project-based analysis of future combinations. Designing portfolio mixes as part of cyclical and iterative means.	Can be used when complementary adaptation actions and good knowledge is available.	Requires economic and probability data. Inter-dependence problems.	Openly deals with uncertainty by examining the complementarity of adaptation options to cope with future climates.

Source: Rouillard et al. 2016, EEA 2014

Table 6. Criteria used for prioritizing adaptation options

Category	Criteria	Description	Source
Sustainability	Mitigation Co-Benefit	Avoiding options that make benefits (win-win) and mitigation difficult for mitigation strategies and actions to achieve their objectives	Austria, Czech Republic
	Environmental Impacts	Impact on ecosystem services and biodiversity	Czech Republic



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Category	Criteria	Description	Source
	Equity	Number of individuals provided with social benefits (in consideration of gender, age, and income equalities)	Czech Republic
	Implementation cost (cost-benefit)	Comparing implementation cost with non-action cost	Czech Republic
	Operation and maintenance cost	Comparing long-term operation and maintenance cost with non-action cost and other budget outlays	
	Flexibility	Being able to keep up with changes and alterable if necessary	EU, Austria, Germany
Effectiveness	Importance/Relevance	Potential to mitigate climate change impact and enhance resilience being indispensable	Austria
	Robustness	Applicable to the uncertainty of future impacts and different future scenarios	EU, Austria, Czech Republic
	Reliability	Solution has been tried or proven to be effective	Austria
	Cost-effectiveness	Cost and benefit provided are inversely proportional	EU, Austria, Germany
Risk and Uncertainty	Urgency	Directly related to current threats and risks	EU, Austria, Croatia
	Risk category	Current and future degrees of impact of associated risks, amenability to intervention	
	Scope	Able to produce solution for more than one risk (multiple risks)	EU, Czech Republic
	Protectiveness	Ensuring preparation to mitigate future risks	EU
Opportunity	Side benefits	Contributing to other environmental, economic, and social objectives, knowledge generation and capacity development	EU, Austria, Czech Republic
	Interaction/Reinforcement between Actions	Reinforcing effectiveness of other adaptation options	Austria, Germany
	Zero regret option	Irrespective of climate change impacts, providing positive environmental, economic or social impact	
	Window of opportunity	Being in a special situation to facilitate the implementation of the option	
Implementation	Cultural acceptability	Appropriate for society's culture and not ill-received	EU
	Political acceptability	Suitability with the country's political dynamics	EU, Austria
	Sources of funds	Availability of financing sources required for implementation or accessibility to finance	
	Capacity	Adequacy of technical capacity and human source required for implementation or capacity deficiencies	
	Institutional competence	Being in the area of competence of the relevant institution or requirement for horizontal and vertical coordination with other institutions	

Source: Compiled from Climate-ADAPT, UNEP 2009 and the adaptation strategies and plans of the mentioned countries.

3.2.5. Implementation

Implementation processes of adaptation policies make slow progress when solutions against adaptation barriers have not been able to be developed. Most of the barriers which are encountered during the development of adaptation policies are applicable for the implementation process, as well. In the evaluation which was conducted in 2017, the applications of 22 countries in the EU were especially limited to main sectors related to water and environment or priority actions (EC, 2018b). It is observed that the implementation makes a slower progress in the sectors where private sector is



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more effective or in the areas depending on special geographical conditions (for example, winter tourism) (EEA, 2014). This situation generally results from the fact that the frameworks for governance, financing and monitoring which are necessary for implementation have not been framed during the planning process. For a successful implementation:

- It is required to provide sufficient number of human resource with technical skills who will work in the context of **governance and institutional capacity**, clearly define the duties of these staff, validate that it does not coincide with existing workload, provide the tools and sources which will support the implementation (UNEP, 2013).
- In terms of **financing**, it is critical to make cost calculations in a manner that will include not only engineering solutions but also administrative costs of the implementation, formulate the financing mechanisms or identify sources of funds.
- It is needed to formulate measurable goals and objectives for **monitoring and evaluation**, identify reference values and develop comprehensive indicators.

Financing

It is a serious barrier for the implementation to usually leave the subject of how to fund the actions of adaptation strategies and action plans in uncertainty. Very few of European countries have made cost calculation for their actions. Germany wrote down the amount of fund which will be provided according to financing source for its some actions in its action plan. Bulgaria specified an approximate budget for some of its actions and prepared a cost categorization as “small” (less than 1 million EUR), “medium”(between 1-100 million EUR) and “large”(more than 100 million EUR) for others. Switzerland reported its cost calculation by year for some of its long-term actions.

During the implementation stage, adaptation actions are usually funded by public funding based on the project (AİKB, 2018). It is reported that the financing is specially allocated from public budget especially in water and agricultural sectors of approximately 11 countries. It is common that insurance mechanisms are used in water, agricultural and forestry sectors. While it is not very common, public-private cooperation especially in water, transportation and energy sectors is a preferred financing solution. The least utilized sources which the countries reported are the EU funds (EEA, 2014).

Integration

Integration is a solution option which indirectly allows adaptation to be implemented mostly through environmental, disaster risk management and planning policies. EU recommends that adaptation is integrated into policies on sectors and local governments (EC, 2013b). In order to ensure this, EU integrates adaptation into environmental and sectoral directives which are binding on the member states (EEA, 2014). In addition to that, the adaptation strategies of countries also include guidance or actions on integration. The fields where integration is most frequently observed are listed below (Runhaar et al., 2018):

- **Environmental Policies:** European Commission has prepared environmental policies on the integration of adaptation into strategic environmental assessment and environmental impact analyses for the member states. According to 2018 adaptation scorecards assessment (EC, 2018b), 21 member states (for example, Ireland) started integrating adaptation into environmental impact assessments and 15 countries (for example, Slovenia) started integrating adaptation into strategic environmental analyses.
- **Disaster Risk Management:** The concept of “resilience” is a common conceptual basis for both adaptation and disaster risk management. EEA emphasizes that setting the objectives of two approaches jointly will be more effective during the implementation and including the analyses for climate change adaptation in national risk analyses will facilitate it. This integrated approach may create new financing opportunities. EU integrates both disaster risk



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management and climate adaptation into Adaptation Policy and financing mechanisms (EEA, 2017). However, the integration with disaster risk management is conducted in only nine of EU countries (EC, 2018b).

- **Planning:** 15 countries in the EU have reported that they have started integrating adaptation into spatial and urban planning and coastal zone management plans (EC, 2018b).
- **Sectoral Policies:** In the 2018 reporting cycle, only six countries reported the integration at sectoral level (EC, 2018b). For example, France and Denmark integrated adaptation into infrastructure and building codes and Finland integrated adaptation into the legislation on electricity market (EEA, 2014).

Barriers to governance, capacity and financing which affect the implementation of adaptation solution are applicable to integration activities, as well (Runhaar et al.,2018). If the integration is properly implemented, it will be able to be quite effective. However, it is a vulnerable strategy against socio-political Dynamics (Table 7). For instance, it distributes the responsibility to more than one institution and foresees that every institution carries into action in its own sphere of competence, while it ensures the scalability and the resource efficiency of actions on adaptation. It is necessary to ensure that the common objectives are clear, frame the coordination and cooperation structures of institutions vertically and horizontally and define the responsibilities of institutions clearly for the sharing of this responsibility to be effective (EEA, 2017). It is foreseen that the integration of integration objectives into investment plans will facilitate the fund development (UNDP, 2010).

Table 7. The advantages and disadvantages of incorporating adaptation with other policies

Advantages	Disadvantages
<ul style="list-style-type: none"> • Creating synergy with other policies (triggering multi- and co-benefits) • No need to allocate resource efficient, special fund in an administrative and budgetary sense <ul style="list-style-type: none"> • Potential to trigger innovation • The integration of adaptation into existing systems are more easily applicable and effective • Potential to ensure a more comprehensive impact and change 	<ul style="list-style-type: none"> • The goal for adaptation become unclear • “Adaptation” is not visible in applications. • Falling behind other priorities because there are not any resources which are clearly allocated for adaptation • The ownership of relevant institutions becomes difficult

Source: Mullan et al. 2013, Runhaar et al. 2018, Mogelgaard et al. 2018

Integration can be more effective if it is conducted in the framework which includes complementary strategies. The integration recommendations which are specified in adaptation strategies generally coincide with one of five strategy categories below (Wamsler and Pauleit, 2016).

- **Programmatic integration:** Conducting the changes which will include adaptation in sectoral activities, projects and programmes of relevant institution on the site
- **Managerial integration:** Changing management and business execution (for example, terms of references, organogram of units) in order to institutionalize the approaches on adaptation
- **Intra-institutional or inter-institutional integration:** Promoting cooperation among units, cross-sectoral cooperation and cooperation with stakeholders (for example, other public bodies, NGOs and citizens) in order to develop awareness, knowledge and skills on adaptation and guide the objectives jointly
- **Integration in legislation:** Amending planning procedures, strategies, regulations and relevant tools in order to ensure the integration of adaptation
- **Guiding integration:** Providing high level support for the integration of adaptation (for example, specialized financing, capacity development trainings)



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3.2.6. Monitoring and Evaluation

Frequencies of monitoring, reporting and evaluation vary between countries. Austria, Bulgaria, Ireland, Italy and Switzerland which consider monitoring and evaluation as one of guiding principles in their strategies have planned both monitoring and reporting and evaluation processes temporarily. In the light of adaptation strategies, action plans and reporting to the EU, it is observed that monitoring and reporting are generally planned annually (for example, Estonia) or for 2-3 years (for example, Lithuania and Spain). According to the 2019 report, France plans to report twice a year. The frequency of evaluation is further included in the strategies and plans and it is stated that the evaluation is generally conducted every 4-5 years. It has been targeted that in Switzerland and United Kingdom whose plan validity periods are approximately 5 years, the frequency of monitoring is 2 years and the evaluation is conducted at the end of 5-year period. In the countries such as Bulgaria, Hungary, Latvia and Poland whose validity periods are approximately 10 years, both mid-term review in the first 4-5 years and final evaluation at the end of planning period have been targeted.

It is critical for the future of adaptation action to identify right indicators for the efficiency of monitoring and evaluation. Strategic objectives, adaptation options and monitoring indicators should be addressed in an integrated manner during the preparation process. Studies reveal that adaptation policies are limited to output indicators and they cannot measure the efficiency of the implementation because they haven't identified outcome indicators (Runhaar et al., 2018). Indicators are grouped according to their functions or contents (EEA, 2018). Adaptation indicators according to their functions (Makinen et al., 2018):

- **Input indicator** provides a measurement for financial and human resources which are allocated for a certain adaptation activity, programme or intervention.
- **Process indicator** monitors the progress and resource management in adaptation policy processes and actions.
- **Output indicator** defines direct outputs of an adaptation policy or action, irrespective of their results on adaptation.
- **Outcome indicator** defines a clear result of an adaptation action. Outcome indicators also indicate the achievement level of certain adaptation solutions (for example, reduced vulnerability or adaptation capacity increased).

Adaptation indicators according to their contents:

- **Hazard indicator** is an indicator of potential formation of a natural or human-made physical event, trend or impact which may lead to loss of life, injury or other health effects and damage and losses in ecosystems, natural resources, properties, infrastructures, services and livelihood.
- **Exposure indicator** indicates the exposure of people, livelihood, species or ecosystems, environmental functions, services and resources, infrastructure or economic, social or cultural assets in locations and environments which may be affected negatively.
- **Sensitivity indicator** indicates the level of being affected positively or negatively from climate variability or change of a system or species. The impact may be direct or indirect. In the frame of disaster risk mitigation policies, this concept is defined as "vulnerability".
- **Adaptation capacity indicator** indicates the skills of adapting to potential damage, benefitting from opportunities or responding to results of systems, institutions, people and other organisms.
- **Combined vulnerability indicator** provides a criterion which features the vulnerability of system by combining a few indicators which are assumed to represent vulnerability. It includes the indicators which combine two or more exposure, sensitivity or adaptation capacity indicator. In some cases in literature, it is defined as a "vulnerability index indicator".



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Monitoring and evaluation indicators do not exist in most of the strategies and plans and their formulation is left to the implementation process. Estonia stands out as the only country with an indicator whose base and target value for main goal of the plan have been set. The ratio of people who are aware of climate risks and take measures in society has been used as an indicator and it has been targeted to increase 28% which is the base value of 2015 up to 35% by 2030. The indicators on sectors or actions are included in the strategies or action plans of France (in the first action plan), United Kingdom, Lithuania and Poland, except for Estonia. Bulgaria and Croatia have shared draft lists. One of the reasons is that the formulation of monitoring and evaluation systems is already one of priority targets of strategies as well as the examples of Bulgaria and Latvia. Some countries such as Croatia and Finland have stated that they will conduct monitoring and evaluation in accordance with the obligations of the EU and UNFCCC.



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ANNEX-1: Strategies, action plans and list of relevant documents of examined countries

Country	Reference adaptation documents
Germany	<ul style="list-style-type: none"> The German Strategy for Adaptation to Climate Change, 2008 Adaptation Action Plan of the German Strategy for Adaptation to Climate Change, 2011 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Austria	<ul style="list-style-type: none"> Austrian Strategy for Adaptation to Climate Change, 2017 Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Belgium	<ul style="list-style-type: none"> Belgian National Climate Change Adaptation Strategy, 2010 <ul style="list-style-type: none"> Belgian National Adaptation Plan 2017-2010 Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
United Kingdom	<ul style="list-style-type: none"> The National Adaptation Programme and The Third Strategy for Climate Adaptation Reporting: Making the Country Resilient to a Changing Climate, 2018 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Bulgaria	<ul style="list-style-type: none"> National Climate Change Adaptation Strategy and Action Plan, 2019 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Czech Republic	<ul style="list-style-type: none"> Strategy on Adaptation to Climate Change in the Czech Republic National Action Plan for Adaptation to Climate Change, 2015 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Denmark	<ul style="list-style-type: none"> Danish Strategy for Adaptation to a Changing Climate, 2008 How to Manage Cloudbursts and Rain Water – Action Plan for a Climate-proof Denmark, 2012 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Estonia	<ul style="list-style-type: none"> Climate Change Adaptation Development Plan until 2030 Climate Change Adaptation Development and Implementation Plan 2017-2020 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Finland	<ul style="list-style-type: none"> National Climate Change Adaptation Plan 2022, 2014 Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
France	<ul style="list-style-type: none"> The French National Strategy for Adaptation to Climate Change, 2007 The French National Climate Change Impact Adaptation Plan 2011 - 2015 <ul style="list-style-type: none"> The French National Climate Change Impact Adaptation Plan 2 Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
South Cyprus	<ul style="list-style-type: none"> The National Strategy for Adaptation to Climate Change, 2017 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Croatia	<ul style="list-style-type: none"> Climate Change Adaptation in the Republic of Croatia for the period until 2040, with a view to 2070, 2020 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche



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Country	Reference adaptation documents
	<ul style="list-style-type: none"> Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Netherlands	<ul style="list-style-type: none"> The Netherlands' National Climate Adaptation Strategy 2016: Adapting with Ambition <ul style="list-style-type: none"> Adapting with Ambition: The Implementation Programme 2018 – 2019 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Ireland	<ul style="list-style-type: none"> National Adaptation Framework – Planning for a Climate Resilient Ireland, 2018 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Spain	<ul style="list-style-type: none"> The Spanish National Climate Change Adaptation Plan <ul style="list-style-type: none"> The National Climate Change Adaptation Plan 1 The National Climate Change Adaptation Plan 2 The National Climate Change Adaptation Plan 3 (2014-2020) <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Sweden	<ul style="list-style-type: none"> The National Climate Change Adaptation Strategy <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Switzerland	<ul style="list-style-type: none"> Adaptation to Climate Change in Switzerland: Goals, Challenges and Fields of Actions <ul style="list-style-type: none"> Adaptation to Climate Change in Switzerland – Action Plan 2014–2019
Italy	<ul style="list-style-type: none"> National Climate Change Adaptation Strategy <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Latvia	<ul style="list-style-type: none"> Latvian National Plan for Adaptation to Climate Change until 2030, 2019 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Lithuania	<ul style="list-style-type: none"> The Strategy for National Climate Change Management Policy <ul style="list-style-type: none"> Inter-Institutional Action Plan for the implementation of the goals and objectives of the Strategy for the National Climate Change Management Policy Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Luxembourg	<ul style="list-style-type: none"> Strategy and Action Plan for Adaptation to Climate Change in Luxembourg 2018-2023 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Hungary	<ul style="list-style-type: none"> The 2nd National Climate Change Strategy 2018-2030 with an Outlook until 2050, 2018 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Malta	<ul style="list-style-type: none"> The National Climate Change Adaptation Strategy, 2012 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Norway	<ul style="list-style-type: none"> Climate Change Adaptation in Norway
Poland	<ul style="list-style-type: none"> Polish National Strategy for Adaptation to Climate Change (NAS 2020) <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Portugal	<ul style="list-style-type: none"> National Adaptation to Climate Change Strategy 2020 Portuguese Action Plan for Adaptation to Climate Change Adaptation preparedness scoreboard: Country Fiche



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Country	Reference adaptation documents
	<ul style="list-style-type: none"> Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Romania	<ul style="list-style-type: none"> National Climate Change and Low Carbon Green Growth Strategy 2016-2030 <ul style="list-style-type: none"> 2016-2020 National Action Plan on Climate Change Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Slovakia	<ul style="list-style-type: none"> 2018, Climate Change Adaptation Strategy of the Slovak Republic <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Slovenia	<ul style="list-style-type: none"> Strategic Framework for Climate Change Adaptation, 2016 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019
Greece	<ul style="list-style-type: none"> National Climate Change Adaptation Strategy, 2014 <ul style="list-style-type: none"> Adaptation preparedness scoreboard: Country Fiche Reporting on National Adaptation Actions under Article 15 of the Monitoring Mechanism Regulation, 2019



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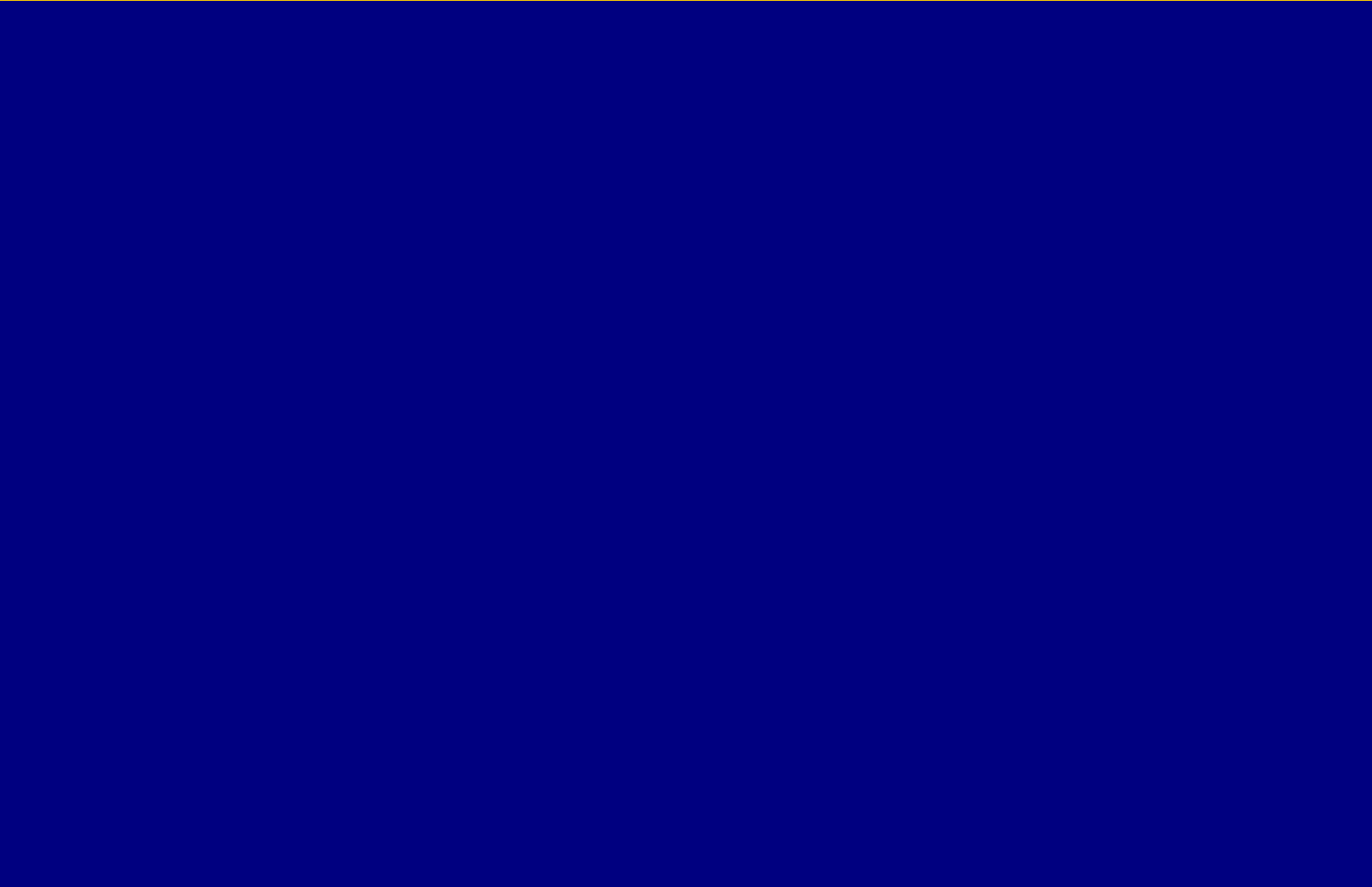
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