

Policy instruments to tackle social inequalities related to climate change



Policy Department for Economic, Scientific and Quality of Life Policies
Directorate-General for Internal Policies

Author(s): Mariya GANCHEVA, Berkay AKBABA, Matthew GERACI,
Vanessa LUDDEN, Ralitsa DONKOVA, Silvia BEGHELLI,
Thomas NEUMANN, Francesca FINELLO, Anna-Maija LAINE
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Abstract

This study assesses the extent to which policy frameworks at EU and national level are equipped to tackle the socioeconomic impacts associated with climate action policies, identifies gaps and outlines recommendations for action that could be taken up by the European Parliament in future policy debates.

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AUTHOR(S)

Mariya GANCHEVA, Milieu Consulting
Berkay AKBABA, Milieu Consulting
Matthew GERACI, Milieu Consulting
Vanessa LUDDEN, Ramboll Management Consulting Belgium
Ralitsa DONKOVA, Ramboll Management Consulting Belgium
Silvia BEGHELLI, Ramboll Management Consulting Belgium
Thomas NEUMANN, Ramboll Management Consulting Belgium
Francesca FINELLO, Ramboll Management Consulting Belgium
Anna-Maija LAINE, Ramboll Management Consulting Belgium

Case studies: Antonia CIOANCA and Pedro RODRIGUEZ, Ramboll Management Consulting Belgium

Quality assurance: Jennifer MCGUINN, Milieu Consulting

External peer review: Dr. Harriet THOMSON

ADMINISTRATOR RESPONSIBLE

Monika MAKAY

EDITORIAL ASSISTANT

Irene VERNACOTOLA

LINGUISTIC VERSIONS

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To contact the Policy Department or to subscribe for email alert updates, please write to:

Policy Department for Economic, Scientific and Quality of Life Policies

European Parliament

L-2929 - Luxembourg

Email: Poldep-Economy-Science@ep.europa.eu

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LIST OF ABBREVIATIONS

AROPE	At risk of poverty or social exclusion
CEAP	Circular Economy Action Plan
CINEA	European Climate, Infrastructure and Environment Executive Agency
CoR	European Committee of the Regions
CPR	Common Provisions Regulation
CSO	Civil society organisation
CVRA	Climate vulnerability risk assessment
DG EAC	Directorate-General for Education, Youth, Sport and Culture
DG ECFIN	Directorate-General for Economic and Financial Affairs
DG EMPL	Directorate-General for Employment, Social Affairs and Inclusion
DG ENV	Directorate-General for the Environment
DG REFORM	Directorate-General for Structural Reform Support
DG REGIO	Directorate-General for Regional and Urban Policy
DG RTD	Directorate-General for Research and Innovation
EACEA	European Education and Culture Executive Agency
EAPN	European Anti-Poverty Network
EaSI	Employment and Social Innovation (strand of ESF+)
EEA	European Environment Agency
EED	Energy Efficiency Directive
EEPI	European Energy Poverty Index
EESC	European Economic and Social Committee
EGD	European Green Deal
EGF	European Globalisation Adjustment Fund for Displaced Workers

EIB	European Investment Bank
EMPL	Committee on Employment and Social Affairs (of the European Parliament)
EP	European Parliament
EPBD	Energy Performance of Buildings Directive
ERDF	European Regional Development Fund
ESF+	European Social Fund Plus
ESR	Effort Sharing Regulation
ETS	Emission Trading System
ETUI	European Trade Union Institute
EU	European Union
FIT	Feed-in tariff
GDP	Gross Domestic Product
GHG	Greenhouse gas
GVA	Gross value added
HaDEA	European Health and Digital Executive Agency
IFI	International financial institution
IPCC	Intergovernmental Panel on Climate Change
JRC	Joint Research Centre
JTF	Just Transition Fund
JTM	Just Transition Mechanism
LULUCF	Land Use, Land Use Change and Forestry
NAP	National Adaptation Plan
NAS	National Adaptation Strategy
NECP	National Energy and Climate Plan

NGO	Non-governmental organisation
OECD	Organisation for Economic Co-operation and Development
PBL	Netherlands Environmental Assessment Agency
PSLF	Public Sector Loan Facility
PV	Photovoltaic system
REA	European Research Executive Agency
RED	Renewable Energy Directive
RES	Renewable energy sources
RIA	Regulatory impact assessment
RRF	Recovery and Resilience Facility
SCF	Social Climate Fund
SMEs	Small and medium-sized enterprises
TJTP	Territorial Just Transition Plan
UNCRPD	United Nations Convention on the Rights of Persons with Disabilities
US	United States
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

Background

There is widespread agreement that urgent action is needed to mitigate climate change and adapt to its inevitable consequences. The European Union (EU) has put in place a variety of climate action policies covering different sectors, as well as mitigation and adaptation objectives. Through actions in energy, transport and other sectors, Member States are expected to reduce greenhouse gas (GHG) emissions and improve their resilience to the impacts of climate change. Multiple EU funds are available to support Member States and stakeholders to implement these policies and transition to a low-carbon, green economy. However, climate change policies can result in both positive and negative socioeconomic impacts. It is now clear that if climate change policies at the required level of ambition are to be adopted and successfully implemented, policymakers need to seriously consider and respond to their socioeconomic effects. There is growing consensus at EU level and among many Member States that the green transition must be a just transition.

Aim

This study aims to provide policymakers in the European Parliament with a solid assessment of the extent to which policy frameworks at EU and national level are equipped to tackle the social inequalities produced by climate change action (e.g. the negative effects on workers and households most vulnerable to the green transition) and derive recommendations for the European Parliament to use in future policy debates (e.g. possible revisions of EU instruments and funds). More specifically, the study aims to analyse the effectiveness of policy design – at both EU level and in the Member States – in tackling social inequalities related to climate change policy, as well as to identify gaps and areas for further action. This is based on a combination of literature review/document screening, stakeholder interviews and triangulation analysis used to draw out findings and conclusions.

Key findings

The literature on the **socioeconomic impacts of climate change mitigation and adaptation policies** is still in its early stages, with more research available on mitigation than adaptation policies. Research on the social impacts of adaptation policies is primarily at local level, reflecting the local nature of such policies. There is little research on the magnitude of impacts of either mitigation or adaptation, of the few studies that exist, gender, race, and ethnicity are the most studied dimensions of inequality, whilst disability, ill health, class, and level of education remain under-studied.

Generally, the socioeconomic impact of climate change mitigation policies is highly dependent on the design of those policies. Carbon taxes tend to be regressive if no revenue recycling mechanism is in place. For carbon taxes to minimise these effects, they need to incorporate compensatory measures targeted directly at low-income households. Subsidy schemes, feed-in-tariffs (FITs) and standards tend to disproportionately benefit high-income individuals and households. Public investment and direct procurement for climate mitigation are associated with progressive socioeconomic impacts. Climate adaptation policies tend to have progressive impacts on quality of life and regressive impacts on access to services and affordability of housing. Low-income communities, women and ethnic minorities are likely to bear more of the costs of urban adaptation and to be at higher risk of displacement. Mainstream decision-making processes on adaptation can exacerbate existing spatial inequalities.

Fourteen **EU-level climate policy instruments** were analysed to identify whether they recognise the socioeconomic impacts and dimensions of inequality identified in the existing literature.

Overall, the analysis found that the majority of EU climate policy instruments demonstrate limited recognition and narrow understanding of the negative socioeconomic impacts that could arise from their implementation, particularly in relation to the respective dimensions of inequality. Nevertheless, EU climate policy instruments generally recognise their positive socioeconomic impacts. In both cases, the recognition of positive or negative impacts mainly concerns employment and, to a lesser extent, other types of impacts.

Twelve **EU funds** were reviewed to assess the extent to which they cover the same socioeconomic impacts and inequality dimensions as climate action policies. Three funding instruments were found to target the potential impacts of climate action policies directly, while the remainder could target the various impacts indirectly, given the broad scope of their objectives and actions. Overall, employment impacts were covered most frequently. All of the inequality dimensions are covered by most funds, albeit indirectly, through the inclusion of general requirements for equality and inclusion in their horizontal principles and conditions. In addition, the EU funds have broad objectives and can target different groups of vulnerable stakeholders, such as energy-poor and/or transport-poor households or the unemployed.

In the **five Member States** analysed (Austria, Greece, the Netherlands, Slovakia, Spain) the socioeconomic impacts associated with climate change mitigation and adaptation policies were assessed to varying degrees in the policy-making process. The socioeconomic impacts most frequently assessed include Gross Domestic Product (GDP) and economic development, job loss/creation, disposable income, and public health. Assessment is usually ad hoc and there is no standardised methodology.

The types and objectives of measures adopted to address the socioeconomic impacts of climate mitigation are similar across countries and mainly consist of: 1) providing support towards improving energy efficiency and renovating buildings, and 2) increasing energy access. Given the higher exposure and/or vulnerability to climate hazards of certain groups, national adaptation strategies and plans highlight the need to account for existing disadvantages when developing adaptation measures/plans. However, they do not provide any quantification of the impacts associated with adaptation policies.

The analysis points to a **general gap** in that there is limited systemic examination of the social impacts of climate action policies at both EU and Member State level, including rather limited recognition of impacts on certain dimensions of inequality, such as ethnicity or race. Nevertheless, the gaps identified do not point to an urgent need to introduce new policy instruments or funds. A more appropriate avenue for action is to improve the understanding of climate action policies' socioeconomic and inequality impacts and to strengthen the use of existing instruments and funds to address those impacts. **A number of recommendations** are proposed to improve the recognition of climate policies' socioeconomic impacts and boost the potential of EU funds to support measures to mitigate these impacts. The following recommendations are proposed in relation to 1) horizontal aspects, 2) design, implementation and assessment of policy instruments, and 3) use of EU funds:

Horizontal aspects:

- Promote further research into the impacts of climate policies and raise awareness of the issue;
- Promote improvement of data quality;
- Build up the administrative and technical capacity of different stakeholders; and
- Ensure that there is more collaboration and involvement of relevant stakeholders in the entire policy-making process;

Design, implementation and assessment of policy instruments:

- Provide guidance on how to assess the social impacts of climate policies and establish clear EU-wide definitions, such as for 'vulnerable consumers' and 'energy/transport poverty'; and
- Provide guidance on how to consistently assess the social impacts of climate policies throughout the policy cycle.

Use of EU funds:

- Increase efforts to reach the final recipients of EU funds (especially when they are not eligible beneficiaries);
- Make the disbursement of EU funds conditional on clearly assessing and addressing the social impacts of climate policies;
- Ensure that the horizontal principles of EU funds contribute to reducing inequalities during the implementation of funding programmes;
- Ensure complementarity between different EU funds; and
- Assess the performance of existing EU funds.

INTRODUCTION

Policy context

To limit the increase in global temperature to well below 2°C – and preferably 1.5°C, above pre-industrial levels – in accordance with the Paris Agreement, the concentration of greenhouse gases (GHG) in the atmosphere must be stabilised by 2050¹. Climate action policies play a key role in this extensive transformation. The European Green Deal (EGD), launched in 2019, identifies the fight against climate change as a top priority for the European Union (EU) and recognises the environmental and social implications of continuous economic expansion².

Climate change mitigation and adaptation policies are necessary to prevent further escalation of the climate crisis and to adapt to the repercussions of past carbon emissions. The Intergovernmental Panel on Climate Change (IPCC) defines climate change mitigation as a ‘human intervention to reduce emissions or enhance the sinks of greenhouse gases’. Adaptation is defined as ‘in human systems, the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects’³. The EU has put in place a variety of climate action policies covering different sectors, as well as mitigation or adaptation objectives. Through actions in energy, transport and other sectors, Member States are expected to reduce GHG emissions and improve their resilience to the impacts of climate change. Multiple EU funds are available to support Member States and stakeholders to implement these policies and transition to a low-carbon, green economy.

Climate change policies can result in both positive and negative socioeconomic impacts. It is now clear that if climate change policies at the required level of ambition are to be adopted and implemented successfully, policymakers need to seriously consider and respond to their socioeconomic effects. There is growing consensus at EU level and among many Member States that the green transition must be a just transition.

Objectives of the study

The EU is determined to address climate change and while these policies target long-term environmental, social and economic benefits, their effects are not equally distributed and their impacts can worsen existing social inequalities. This has been acknowledged in the academic literature and by stakeholders and civil society organisations (CSOs) for some time, with an understanding that there is need for policy action to address the negative social impacts of climate change policies. A range of efforts, extending from EU-level policies and funds directly targeting a just transition, to the integration of these issues into policies and plans within Member States leading to support measures at local and regional level, have been put in place to tackle the social inequalities resulting from climate action policies. The European Parliament has been particularly vocal in drawing attention to the need to ensure more just distribution of the costs and benefits of action on climate change⁴.

¹ Sabato, S., Mandelli, M. and Jessoula, M., 2022, *Towards an EU eco-social agenda? From Europe 2020 to the European Green Deal*, Chapter 9 in *Towards Sustainable Welfare States in Europe* (pp.199-219), Edward Elgar. Available at: <https://doi.org/10.4337/9781839104633.00021>.

² Ibid.

³ IPCC, 2018, *SR1.5 Glossary*. Available at: https://www.ipcc.ch/site/assets/uploads/2018/11/sr15_glossary.pdf.

⁴ For example, in Resolution of 15 January 2020 on the European Green Deal, Resolution of 17 December 2020 on a strong social Europe for just transitions, and Resolution of 21 January 2021 on the access to decent and affordable housing for all.

This study aims to provide policymakers in the European Parliament with a solid assessment of the extent to which policy frameworks at EU and national level are equipped to tackle the social inequalities produced by climate change action (e.g. the negative effects on workers and households most vulnerable to the green transition). It also suggests some recommendations for use by the European Parliament in future policy debates (e.g. possible revisions of EU instruments and funds). More specifically, the study aims to analyse the effectiveness of policy design at EU level and in the Member States in tackling social inequalities related to climate change policy, as well as to identify gaps and areas for further action.

Methodological approach

The data collection and analysis underpinning the study were organised in three parts. Each combined a literature review/document screening, stakeholder interviews and triangulation analysis to draw out findings and conclusions. The methods used in the study are described below.

The limitations to this approach reflect its scope. The selection of particular EU policy instruments and funds (Part 2) and a number of Member States (Part 3) for analysis means that the findings are representative, but not exhaustive. A further limitation is that the scope concentrates on the design of EU policy instruments and funds, looking at their implementation to a lesser extent. This could be an area for further research.

Part 1: Climate policies and impact on inequality

The objectives of Part 1 were two-fold: 1) Identify and map the major climate change policies at EU and Member State level, including mitigation and adaptation; and 2) Provide an understanding of these policies' impacts on social (in)equalities, including the cost of inaction. The study team gathered, assessed and analysed relevant primary and secondary sources, including both quantitative and qualitative studies. They prioritised overview/review studies for the first objective – the mapping of major climate change policies – given the large, mature literature on this topic. Efforts and resources were focused more on the second objective – the understanding of these policies' social impacts. The typology presented in Table 2 summarises the findings. A keyword search strategy was used to scan relevant academic databases to identify the relevant literature on the socioeconomic impacts of climate action policies, with the search progressively refined (from more general keyword combinations such as mitigation policy + social impact to more targeted combinations such as climate adaptation + displacement + gender + inequality). More literature was identified by reviewing the bibliographies of the most relevant studies. After an initial screening of the available literature, more than 90 journal articles and reports were selected for analysis using the qualitative data analysis software package NVivo. For each article, important information was identified and coded, such as types of mitigation and adaptation policies, whether or not the study discusses the social impacts given types of policies are likely to have, and any additional resources that may be useful for the study. The analysis was guided by the analytical framework presented in Section 1.1.

The list of references consulted for Part 1 is provided in the References section.

Part 2: EU funds and instruments to address negative impacts and ensure just transition

For the purposes of the study, an EU policy instrument is understood as an EU legislative or strategic document setting out objectives and actions to be achieved in relation to broader EU climate goals. An example of an EU policy instrument is the Energy Efficiency Directive (EED), which defines specific requirements and targets for achieving the broader climate goals of reducing GHG emissions by 2030 and reaching climate neutrality by 2050.

An EU fund is understood as a funding instrument that provides EU financing to different beneficiaries in order to implement concrete activities to deliver the objectives of EU legislation. For instance, the European Regional Development Fund (ERDF) can provide financing for projects that implement energy efficiency measures in buildings, which ultimately contribute to meeting the objectives of the EED. Consequently, this part of the study aimed to select specific EU policy instruments and EU funds and assess the extent to which they are designed to address the negative impacts of climate policies and/or inequalities created by those policies. As part of the gap analysis, the assessment considered whether additional EU instruments or funds are necessary.

The selection of EU policy instruments to cover was based on desk research, consideration of a typology of 'winners/losers' of climate policies⁵, and the following additional criteria:

- Link with EGD and long-term climate objectives – priority is given to instruments that are relevant for the implementation of the EGD and the achievement of EU 2030 and EU 2050 climate objectives;
- Variety of climate change mitigation and adaptation policies – the selection includes instruments that cover different mitigation measures, as well as adaptation. Policies that can indirectly contribute to mitigation of climate change effects are also considered (e.g. circular economy and resource efficiency); and
- Variety of sectors and scope – the selection includes policy instruments that cover different sectors, as well as horizontal instruments that target issues more broadly (e.g. from a strategic or governance point of view).

Similarly, the selection of the most relevant EU funds to cover was based on desk research, the initial typology of 'winners/losers' of climate policies, and the following additional criteria:

- Variety of climate inequalities targeted – the selection covers funds that target different types of inequalities and/or just transition, both directly and indirectly. Funds were selected so as to cover inequalities related to environment and health, labour market, education sector and energy market;
- Variety of stakeholders targeted – the selection covers funds that target different types of stakeholders and different groups of 'winners' or 'losers' of climate policies; and
- Variety of funding mechanisms – the selection covers EU funds that are different in their management (shared vs directly/indirectly managed at EU level), forms of financing provided (grants vs loans or other financing), types of beneficiaries that can access funding (open to all, or for particular groups), geographical coverage (all Member States/regions or particular areas), and sectoral coverage.

For each of the selected EU policy instruments and funds, the relevant legislative or strategic documents (directive, regulation, etc.) were collected from the EUR-Lex database⁶. For the EU funds, relevant guidance document(s) (from the fund's webpage or the European Commission's website), explanatory or other document(s) prepared by the European Parliament, the European Economic and Social Committee (EESC), or social partners (i.e. employers' organisations and trade unions) were also compiled.

⁵ Ludden, V., Le Den, X., Colaiacomo, E., Finello, F. and Landes, F., 2021, *Social impacts of climate mitigation policies and outcomes in terms of inequality*, Final Report, Ramboll. Available at: https://ramboll.com/-/media/files/rm/rapporte/r/social-impacts-of-climate-mitigation-policies-and-outcomes-in-terms-of-inequality/eea_just_transition_final-report_31_march21_revised-clean.pdf?la=en.

⁶ EUR-Lex database available at: <https://eur-lex.europa.eu/homepage.html>.

The documents were then screened using key words and the agreed typology to determine whether they include the negative impacts of climate policies and any potential measures for addressing them. The screening focused on legislative and strategic documents – rather than their implementation – in order to determine the potential for EU policy instruments and funds to tackle inequalities associated with climate action policies and identify gaps to inform the design of new or revised policies. The literature review was complemented by several interviews with European Commission officials and EU stakeholders to discuss the choice of focus in each fund, potential challenges or risks with the implementation of the funds, and the process and consultations that underpinned the establishment of the funds. Based on the document review and interviewees' feedback, the extent to which EU policy instruments and EU funds address social inequalities associated with climate policy was assessed.

The list of legislative and other documents consulted and the list of interviewees in Part 2 is provided in the References section.

Part 3: Member State approaches: country case studies

Part 3 sought to identify and analyse examples of policies and legislation addressing the social impact of climate change mitigation and adaptation policies in a select number of Member States. The case studies analysed how five countries assess and address the (potential) social impacts of climate change mitigation and adaptation policies, how they identify and target vulnerable groups, and if and how they consult affected stakeholders. In consultation with the European Parliament, five countries (Austria, Greece, the Netherlands, Slovakia, Spain) were selected for in-depth review. The countries were selected based on a review of their National Energy and Climate Plans (NECPs), National Adaptation Plans (NAPs), and/or National Adaptation Strategies (NASs): these documents were reviewed for references to key inequality dimensions (class, gender, race, ethnicity, age, (dis)ability) and socioeconomic impacts (e.g. increased access to services, decreased disposable income, etc.). More information on the inequality dimensions and socioeconomic impacts is provided in Section 1.1. The country selection also sought to achieve a geographical balance. Desk research for each country included further review of government reports, academic articles and media sources, while in-depth interviews were held with government officials and representatives of civil society, consulting firms and institutes involved in impact assessments. The list of references and interviewees for Part 3 of the study is provided in the References section.

Climate adaptation policies tend to have progressive impacts on quality of life and regressive impacts on access to services and affordability of housing. Low-income communities, women and ethnic minorities are likely to bear more of the costs of urban adaptation and to be at higher risk of displacement. Mainstream decision-making processes on adaptation can exacerbate existing spatial inequalities.

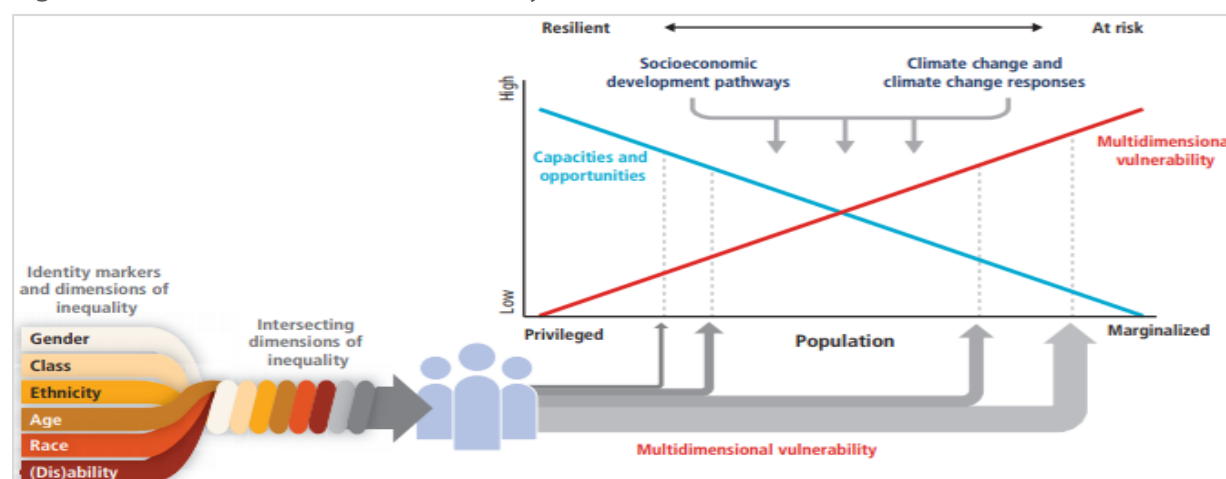
The climate adaptation policies typology is that used by the European Environment Agency (EEA) in its seminal report, 'Rationale, approach and added value of Key Types of Measures for adaptation to climate change'⁸.

The first three columns in Table 2 present the types and sub-types of mitigation and adaptation policies covered here, together with examples. As mitigation and adaptation policies are fundamentally different, they are maintained as separate categories, each with its own types and sub-types. Using well-established and commonly used typologies ensures that the study is aligned with EU institutions' and Member States' categorisation and reporting on climate action policies.

1.1.2. Typology of social impacts

All types of climate change mitigation and adaptation policies listed in Table 2 can have both positive and negative socioeconomic impacts; *who* in the population is impacted and *how* depends primarily on their socioeconomic position in society. Several intersecting dimensions – such as gender, class, ethnicity, age, race, (dis)ability – impact individuals' or social groups' ability to adapt to and mitigate climate change. These inequality dimensions intersect in varied and multiple ways, positioning some people at higher mitigation and adaptation risks while providing others with mitigation or adaptation privilege. This intersectionality of inequalities is their key defining feature, and it indicates that inequalities not only intersect, but mutually reinforce each other, resulting in the so-called Matthew effect⁹, i.e. self-reinforcing paths of (dis)advantage. As a result, existing inequalities in education attainment, income and health increase. Intersecting dimensions of inequality are drivers of multidimensional vulnerability, and people's vulnerability to climate change and climate change policies increases when there are limitations to their capabilities¹⁰ and opportunities to adapt and adjust¹¹. Figure 1 shows how several such identity markers define that vulnerability and, consequently, the individuals' and social groups' adaptive and mitigative capacity.

Figure 1: Multidimensional vulnerability



Source: IPCC, 2014.

⁸ Leitner, M., Dworak, T., Lourenco, T., Lexer, W., Prutsch, A. and Vanneuville, W., 2020, *Rationale, approach and added value of Key Type of Measures for adaptation to climate change*, ETC/CCA, Bologna.

Available at: https://doi.org/10.25424/cmcc/key_type_of_measures_for_adaptation_to_climate_change_2020.

⁹ DiPrete, T.A. and Eirich, G.M., 2006, 'Cumulative advantage as a mechanism for inequality: a review of theoretical and empirical developments', *Annual Review of Sociology*, 32, pp. 271–297. Available at: <https://doi.org/10.1146/annurev.soc.32.061604.123127>.

¹⁰ Sen, A.K., 1999, *Development as freedom*, Oxford University Press, New York.

¹¹ IPCC, 2014, *Climate Change 2014 – Impacts, Adaptation and Vulnerability: Part B: Regional Aspects*, Working Group II Contribution to the IPCC Fifth Assessment Report, Cambridge University Press, Cambridge. Available at: <https://doi.org/10.1017/CBO9781107415386>.

The study team reviewed literature that assessed the socioeconomic impacts of climate change mitigation and adaptation policies on access to services, disposable income and consumption, employment, environmental quality of life, and social quality of life. Table 1 describes these types of impacts and provides examples.

Table 1: Types of socioeconomic impacts of policies

Type of impact	Description	Example
Access to services	Policies can affect the price of relevant services, which can affect citizens/households' access to those services. They can also directly extend or reduce access to services via planning or investment initiatives	Increased access to public transport because of enhancement of the fleet
Disposable income and consumption	Policies can affect the price of goods and services, which impacts individuals/households' disposable income and expenditure for these goods. This corresponds to the direct impact of price developments	Higher energy prices decrease disposable income and/or affect consumption of energy
Employment	Policies can affect the price of goods and services or the types of goods and services produced. This has broader impacts on employment, including reallocation of employment across sectors and access to jobs	Job loss due to the phasing-out of carbon-intensive industries
Environmental quality of life	Policies can have an impact on the overall experience of life, including the natural and living environment	Improvement of air quality
Social quality of life	Policies can have an impact on the overall experience of life, including health status and access to healthcare services, housing conditions, education, and social relations	Improvement of heating efficiency of buildings and reduced respiratory diseases

Source: Authors' own elaboration, 2023.

1.2. Climate action policies in the Member States

The landscape of climate change mitigation and adaptation policies in place in the Member States was mapped using the PaM database and policy overview studies. Annex 3 presents an overview of the major climate action policies in the Member States. It is not an exhaustive mapping as new policies are continuously adopted and others are reformed or removed.

1.3. Social impacts of climate action policies

Table 2 summarises the findings on the social impacts of climate action policies. The following two subsections present the findings for climate change mitigation and adaptation policies, by types and sub-types of policies. Table 2 contains some mitigation and adaptation policies that are not discussed in detail because no research on their impacts on inequality was identified.

Table 2: Social impacts of climate mitigation and adaptation policies

Legend:

Progressive impact	Inconclusive evidence	Regressive impact	No evidence identified
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Type of climate policy				Inequality dimension						Type of socioeconomic impact				
Mitigation/ Adaptation	Type of instrument	Type of policy	Examples	Class	Age	(Dis)ability	Ethnicity	Gender	Race	Access to services	Disposable income and	Employment	Environmental quality of life	Social quality of life
Climate mitigation policy	Economic	Taxes/levies	Carbon, energy taxes											
		Subsidies schemes	Subsidies for energy audits, retrofits, installation of solar panels											
		FITs	FITs to support the installation of solar panels											
		Subsidised loans												
		Tradeable permits												
		Public investments	Infrastructure expansion											
		Direct procurement												
		Charges and fees												

Type of climate policy				Inequality dimension						Type of socioeconomic impact				
Mitigation/ Adaptation	Type of instrument	Type of policy	Examples	Class	Age	(Dis)ability	Ethnicity	Gender	Race	Access to services	Disposable income and	Employment	Environmental quality of life	Social quality of life
	Regulatory	Standards	Efficiency standards											
		Trade policy	Trade restrictions to reduce imports from countries with less stringent climate policies											
		Emission trading schemes												
		Coal phase-out policies												
		Other regulation	Zoning restrictions, land-use restrictions											
	Hybrid	Certificates	Tradeable white certificates											
		Feebates												
	Research, education and information	Education and training												
		Capacity												
		Financing of research and statistics												
		Advice programmes	Energy or home renovation advice											

Type of climate policy				Inequality dimension						Type of socioeconomic impact				
Mitigation/ Adaptation	Type of instrument	Type of policy	Examples	Class	Age	(Dis)ability	Ethnicity	Gender	Race	Access to services	Disposable income and	Employment	Environmental quality of life	Social quality of life
	Planning	Waste												
		Renewable planning and deployment	Renewable energy projects designed to feed into the electricity grid											
		Transport plan												
Climate adaptation policy	Governance and institutional	Policy instruments	Creation/revision of policies or regulations											
		Management and planning	Mainstreaming adaptation into other sectors, technical rules/codes/standards											
		Coordination, cooperation and networks	Ministerial coordination formats, stakeholder networks											
	Economic and finance	Financing and incentive instruments	Incentive mechanisms, funding schemes											
		Insurance and risk- sharing instruments	Insurance schemes and products, contingency funds for emergencies											
	Physical and technological	Grey options	New physical infrastructures, rehabilitation/upgrade/replacement of physical infrastructures											
		Technological options	Early warning systems, hazard/risk mapping, service/process applications											
	Nature- based solution s	Green options	Green infrastructure, natural and/or semi-natural land use											

Type of climate policy				Inequality dimension						Type of socioeconomic impact				
Mitigation/ Adaptation	Type of instrument	Type of policy	Examples	Class	Age	(Dis)ability	Ethnicity	Gender	Race	Access to services	Disposable income and	Employment	Environmental quality of life	Social quality of life
		Blue options	Blue infrastructure, natural and/or semi-natural water and marine area management											
	Knowledge and behavioural change	Information and awareness-raising	Research and innovation, communication and dissemination, decision support tools and databases											
		Capacity-building, empowering and lifestyle practices	Good practices, training and knowledge transfer, lifestyle practices and behaviours											

Source: Authors' own elaboration, 2023.

1.3.1. Climate change mitigation policies

Research on the social impacts of climate mitigation policies largely focuses on carbon taxation, with other types of policies explored to a lesser extent. Overall, the reviewed literature focuses on the distributional impacts of mitigation policies on income and consumption, along with some investigation of the effects of policies on employment. Simultaneously, social impacts are assessed along the low/high income dimension, while other inequality dimensions (e.g. gender, health, ethnicity) are considered to a far lower extent. The literature review shows that the socioeconomic impacts of climate mitigation policies are largely dependent on the specific policy design and context of the policy itself¹². In this respect, redistribution mechanisms built into the policy can play an important role in mitigating the regressive social impacts associated with climate mitigation policies.

a. Carbon taxes

Carbon taxes are the type of climate mitigation policy whose socioeconomic impacts are most researched. A carbon tax is a tax on the use of fossil fuels (e.g. an excise duty on petrol/gasoline) which aims to discourage the use of fossil fuels. This subsection summarises the impacts of carbon taxes, breaking down the impacts into regressive and progressive.

Regressive impacts

The majority of the studies reviewed found that carbon taxes tend to be **regressive if no revenue recycling mechanism is in place**. One study investigating carbon taxes in France found that they are generally regressive but those effects can be somewhat improved when sufficient compensation measures are used¹³. The French government estimated that their annual lump-sum payment scheme – which provides households with a fixed credit, independent of energy consumption – would generate positive effects for low-income households, but this compensation scheme may not protect households unable to pay for their basic energy needs¹⁴. The compensation measure was taken to respond to the yearly costs on households from the carbon tax introduced as part of the *Contribution Climat Energie*, which entered into force in 2010. High-income households are likely to benefit more from such a measure because they are more likely to be able to invest in insulation and energy efficiency renovations. In France, there is also evidence of **unequal distribution between rural and urban populations** regarding **transport compensation measures**, with the compensation likely to be insufficient for vulnerable groups living in rural areas and in need of greater support¹⁵. This supports findings from other studies that people living in areas with poor access to public transport are disproportionately affected by higher energy prices, in an example of the intersectionality of vulnerabilities¹⁶. Unequal distribution in relation to higher carbon and energy taxes is also found for people working in energy-intensive sectors, such as chemicals, pulp, paper and plastics, who are disproportionately impacted due to their sectors being more negatively affected by the transition.

¹² Schaffrin, A., 2013, 'Who pays for climate mitigation? An empirical investigation on the distributional effects of climate policy in the housing sector', *Energy and Buildings*, 59, pp. 265-272. Available at: <https://doi.org/10.1016/j.enbuild.2012.12.033>.

¹³ Schiellerup, P., Chiavari, J., Bauler, T., Grancagnolo, M., 2009, *Climate change mitigation policies and social justice in Europe. An exploration of potential conflicts and synergies*, King Baudouin Foundation. Available at: <https://ieep.eu/publications/climate-change-mitigation-policies-and-social-justice-in-europe/>.

¹⁴ Ibid.

¹⁵ Ibid.

¹⁶ Cabrita, J. and Quefelec, S., 2021, *Exploring the social challenges of low carbon energy policies in Europe*. Available at: <https://www.eea.europa.eu/publications/exploring-the-social-challenges-of/download>.

The effects may have geographical variation due to differences in starting points for carbon dioxide (CO₂) reductions within countries and regions¹⁷. For example, regions highly dependent on the oil refining industry are likely to be more affected than regions with a more diverse industry.

An analysis of the Swedish carbon tax on transport fuel between 1999 and 2012 found that both the annual income and lifetime income, as well as the underlying distribution of income, impact the distributional burden of a carbon tax¹⁸. Those effects are regressive when measured against annual income but progressive when lifetime income is used. However, the results indicate an **overall rise in income inequality**¹⁹. A study on the United States (US) and Denmark found that in the US, energy taxes are regressive when they consider only direct effects and the outcomes are examined relative to current income; however, when outcomes are examined against expenditure and indirect effects are taken into account (e.g. goods and services experiencing price changes due to using energy in production), **the effects tend to be neutral**²⁰. In Denmark, analysis of environmental taxes such as transport fuels and CO₂ shows that the **effects on household income are regressive** and the **burden of cost is higher for rural households** than urban households²¹.

An empirical analysis conducted in 34 Organisation for Economic Co-operation and Development (OECD) countries between 1995 and 2011 found no statistically significant relationship between income inequality and the share of environmental tax revenue, although the findings varied depending on the taxed activity and whether there was a mechanism in place for redistributing that tax revenue²². For example, the analysis found that in countries where tax revenues are used to (somewhat) reduce the burden of tax on income and labour, the relationship between energy taxes and inequality in income sources is negative. Tax revenue from other environmental taxes, such as air pollution and waste taxes, has a negative relationship with income inequality, while tax revenues from motor vehicles and other tax revenues from transport do not seem to have a significant relationship with income inequality²³.

Overall, the distributional effects of energy taxes tend to vary depending on the energy category. **Taxes on electricity and heating tend to be regressive** to some extent, while motor fuel taxes are generally progressive (see below)²⁴.

Taxes on residential heating generally have regressive effects, although the studies take different positions on whether heat taxes are more or less regressive than electricity taxes²⁵.

¹⁷ Ibid.

¹⁸ Andersson, J. and Atkinson, G., 2020, *The distributional effects of a carbon tax: The role of income inequality*, Centre for Climate Change Economics and Policy Working Paper 378/Grantham Research Institute on Climate Change and the Environment Working Paper 349, London School of Economics and Political Science, London. Available at: <https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2020/09/working-paper-349-Andersson-Atkinson.pdf>.

¹⁹ Ibid.

²⁰ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 113006. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

²¹ Ibid.

²² Oueslati, W., Zipperer, V., Rousselière, D. and Dimitropoulos, A., 2016, Exploring the relationship between environmentally related taxes and inequality in income sources: An empirical cross-country analysis, OECD Environment Working Papers, No. 100, OECD Publishing, Paris. Available at: <http://dx.doi.org/10.1787/5jm3mbfzkrzp-en>.

²³ Ibid.

²⁴ Ibid.

²⁵ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

Downstream taxes²⁶ on home energy are regressive if the revenue is not redistributed to citizens, chiefly because the use of home energy is distributed rather evenly across income deciles, i.e. low-income households have far higher expenditure on home energy as a proportion of their income²⁷. Upstream²⁸ carbon emission pricing schemes such as carbon taxes or cap and trade schemes impact both downstream energy prices and all goods and services that use energy in their production. When upstream mitigation policies achieve greater emissions coverage, they tend to **generate additional regressive effects**. However, other studies found that the regressive effects of upstream mitigation policies are weaker than downstream policies if companies targeted by upstream policies are not able to directly pass on the price increase to consumers to the same extent²⁹.

Studies have generally found taxes on gasoline to be regressive. In Italy, however, when a carbon tax was introduced in 1999, it was found to have had a disproportionately negative effect on high-income households, which were more likely to own a car and therefore were more impacted by the increased price of transport fuel³⁰. By contrast, a study analysing 21 OECD countries found road-fuel taxes to be generally progressive³¹. Another study found gasoline taxes to be **progressive for lower-income households but regressive for higher-income households**. Overall, the literature suggests mixed results on the effects of carbon prices on road fuel³². Evidence from a 2004 study suggests that **subsidies for new vehicles generate more regressive effects than gasoline taxes**, as a gasoline tax has regressive effects only when a certain income level is exceeded (many lower-income households do not own vehicles or reduce their driving in response to increasing prices). Subsidies for new vehicles benefit higher-income households because they are more likely to buy new cars³³. Similarly, subsidy reforms are not always more progressive than carbon pricing instruments³⁴.

Progressive impacts

The studies generally found that achieving an equitable climate policy and generating progressive impacts requires **compensatory measures to be targeted directly to low-income households**, instead of using lump-sum tax recycling schemes³⁵. This would allow for part of the tax revenue to be used for other purposes. For example, it was found that using revenue from environmental taxes such

²⁶ Downstream carbon taxes are taxes levied on the consumers of energy (e.g. households, businesses).

²⁷ Büchs, M., Bardsley, N. and Duwe, S., 2011, 'Who bears the brunt? Distributional effects of climate change mitigation policies', *Critical Social Policy*, 31(2), pp. 285-307. Available at: <https://doi.org/10.1177/0261018310396036>.

²⁸ Upstream carbon taxes are taxes levied on producers of energy (e.g. coal suppliers, oil refineries).

²⁹ Ibid.

³⁰ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

³¹ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 113006. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

³² Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

³³ Ibid.

³⁴ Ohlendorf, N., Jakob, M., Minx, J.C., Schröder, C. and Steckel, J.C., 2021, 'Distributional impacts of carbon pricing: A meta-analysis', *Environmental and Resource Economics*, 78, pp. 1-42. Available at: <https://doi.org/10.1007/s10640-020-00521-1>.

³⁵ Temursho, U., Weitzel, M. and Vandyck, T., 2020, Distributional impacts of reaching ambitious near-term climate targets across households with heterogeneous consumption patterns, JRC121765, Publications Office of the European Union, Luxembourg. Available at: <http://dx.doi.org/10.2760/89463>.

as carbon pricing reduces overall labour costs when the revenue is used for a tax shift away from labour taxation, creating progressive effects on employment³⁶.

A study analysing the impacts of the EU emission trading system (ETS) found that the policy could generate progressive effects for employment (i.e., employment growth) when taxation on labour is reduced using permit revenues³⁷.

In addition, a study examining the distributional effects of different revenue recycling schemes in the US found that the potentially regressive impacts of carbon taxes can be offset by using revenue recycling schemes. Such schemes have a more positive effect on inequality when direct rebates are included, compared to using all revenues to reduce payroll taxes³⁸.

An analysis of 21 OECD countries found that **taxes on transport fuels tend to have progressive distributional effects** when using expenditure as an income measure, i.e. as a proxy for lifetime income instead of available actual income. By contrast, using current income found progressive effects in some countries and slightly regressive effects in others. Countries with lower GDP per capita tend to have more progressive distributional effects of transport fuel taxes, independent of the income measure³⁹. **Compared to carbon and energy taxes, transport fuel taxes were found to be generally more progressive**, particularly in less wealthy countries⁴⁰. These support other studies' findings that revenue recycling is a key factor in determining the distributional effects. This means that environmental taxes need to be designed for the specific country context, particularly when it comes to using tax revenue to prevent harmful effects for income distribution and other social outcomes⁴¹. In terms of measures to reduce emissions from transport, studies show that **taxes on personal transport tend to be progressive**. This is because lower-income households take fewer flights and are less likely to own a car compared to higher-income households. However, **motoring/road taxes tend to be regressive**, as lower-income households spend significantly more of their income on motoring fuel. **The level of public transport provision also influences the distributional effects of motoring taxes**: studies in the US found motoring taxes to be regressive due to a high dependency on cars⁴².

b. Other types of climate mitigation policies

This subsection summarises the social impacts of mitigation policies other than carbon taxes. While these were less frequently investigated, it is still possible to gain some insights.

³⁶ Griffin, M., György, E., Jakšić, K. and Siebern-Thomas, F., 2019, *Towards a greener future: Employment and social impacts of climate change policies*, in European Commission (2019), *Employment and Social Developments in Europe*, Chapter 5, pp.170-209. Available at: <https://ec.europa.eu/social/BlobServlet?docId=21357&langId=en>.

³⁷ Chateau, J., Saint-Martin, A. and Manfredi, T., 2011, *Employment impacts of climate change mitigation policies in OECD: A general-equilibrium perspective*, OECD Environment Working Papers, No. 32, OECD Publishing, Paris. Available at: <http://dx.doi.org/10.1787/5kq0ps847h8q-en>.

³⁸ García-Muros, X., Morris, J. and Paltsev, S., 2022, 'Toward a just energy transition: A distributional analysis of low-carbon policies in the USA', *Energy Economics*, 105, p.105769. Available at: <https://doi.org/10.1016/j.eneco.2021.105769>.

³⁹ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

⁴⁰ Ibid., p. 12.

⁴¹ Ibid.

⁴² Büchs, M., Bardsley, N. and Duwe, S., 2011, 'Who bears the brunt? Distributional effects of climate change mitigation policies', *Critical Social Policy*, 31(2), pp. 285-307. Available at: <https://doi.org/10.1177/0261018310396036>.

Subsidy schemes

Existing evidence on the social impacts of subsidies shows inconclusive results. However, a tendency towards overall regressive impacts was found in higher-income countries, where equity issues were more prominently analysed. The literature shows that **subsidies disproportionately benefit higher income groups**, which tend to be able to invest in/purchase the subsidised goods (e.g. solar panels, electric vehicles, house retrofits), while lower income groups lack the capital to participate in such subsidy schemes⁴³. There is evidence that this is true in Lithuania, Germany, Belgium, Portugal, the United States, and Australia.

Thus, while subsidies are found to be efficient from an energy efficiency point of view, in the absence of mechanisms to target or support low-income households, they may exacerbate pre-existing inequalities⁴⁴.

Feed-in-tariffs

FITs⁴⁵ were mainly assessed in the context of policies supporting the use of renewable energy technologies, where they were largely linked to **regressive impacts, particularly in terms of income inequality and electricity affordability**. This was mainly due to the electricity surcharge through which FITs were financed: as lower-income households normally spend a higher share of their income on energy, they bear a proportionally greater burden for the surcharge. Research also found that **high-income households tended to benefit disproportionately from FITs**, as they can more easily afford the installation/use of renewable energy technologies⁴⁶. However, several studies highlighted the progressive impacts of FITs: in local Japanese communities where FIT supported mega-solar plants, indicators of social equity improved, along with a burden distribution that minimised the gap between rich and poor⁴⁷, while in Spain, consumer savings due to the merit-order effect outweighed the overall costs of a wind energy FIT⁴⁸.

⁴³ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>; Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, Vol. 28.

Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf; Lekavičius, V., Bobinaitė, V., Galinis, A. and Pažeraitė, A., 2020, 'Distributional impacts of investment subsidies for residential energy technologies', *Renewable and Sustainable Energy Reviews*, 130, p.109961. Available at: <https://doi.org/10.1016/j.rser.2020.109961>.

⁴⁴ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>; Lekavičius, V., Bobinaitė, V., Galinis, A. and Pažeraitė, A., 2020, 'Distributional impacts of investment subsidies for residential energy technologies', *Renewable and Sustainable Energy Reviews*, 130, p.109961. Available at: <https://doi.org/10.1016/j.rser.2020.109961>.

⁴⁵ FITs are policy mechanisms offering long-term contracts at above-market prices to producers of renewable energy.

⁴⁶ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>; Böhringer, C., García-Muros, X. and González-Eguino, M., 2022, 'Who bears the burden of greening electricity?', *Energy Economics*, 105, p.105705.

Available at: <https://doi.org/10.1016/j.eneco.2021.105705>.

⁴⁷ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>; Chapman, A. and Fraser, T., 2019, 'Japan's mega solar boom: quantifying social equity expectations and realities at the local scale', *Sustainability Science*, 14, pp. 355-374.

⁴⁸ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

Public investment

Public investment programmes generally appear to produce positive social outcomes, especially in low-income countries (where most of the research was conducted). Progressive impacts mainly consisted of **reduced inequality and poverty, increased electricity affordability and access**⁴⁹.

Nevertheless, the distributional consequences of public investment also depend on each specific investment project and on the economic context, which may cause the investment to have regressive impacts, for instance on marginalised communities⁵⁰.

Direct procurement

An earlier literature review⁵¹ found that **direct procurement is mainly associated with positive social outcomes**. In particular, renewable energy or energy efficiency procurements increase energy affordability and access, and reduce poverty. These outcomes are mainly registered in low-income countries.

Other identified positive outcomes include the creation of employment opportunities (in particular from energy efficiency retrofit programmes), reduced income equality, improved subjective well-being, community cohesion, gender equality, procedural justice, and access to non-energy services⁵².

Standards

Standards (mandates and regulations intending to discourage the purchase of high-carbon goods and services) were found to have regressive impacts, as they **disproportionately benefit higher-income groups**. For instance, in the case of vehicle energy standards, lower-income households may be less willing/able to invest in a more expensive, although more efficient, car (even at a discounted rate), whereas higher-income households tend to have a preference for more efficient vehicles regardless of price⁵³. Overall, standards emerge as regressive across different sectors (e.g. automotive, vehicle, household appliances, construction), due to the fact that they tend to fall more heavily on less-frequent users and do not allow for progressive revenue recycling schemes⁵⁴.

Certificates

Positive social impacts were attributed to policies aimed at improving the energy performance of buildings through certificates. Notably, energy performance certificates in the EU are found to have a **positive impact on employment**, leading to the creation of new jobs for certifiers and inspectors, as

⁴⁹ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, Vol. 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf; Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, *What are the social outcomes of climate policies? A systematic map and review of the ex-post literature*, *Environmental Research Letters*, 15(11), p.113006. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

⁵⁰ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, Vol. 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

⁵¹ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, 'What are the social outcomes of climate policies? A systematic map and review of the ex-post literature', *Environmental Research Letters*, 15(11), p. 10. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

⁵² Ibid.

⁵³ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, Vol. 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

⁵⁴ Ibid.

well as (potentially) for low-skilled workers in the construction sector⁵⁵. Similarly, building energy codes in California (US) have positive impacts on **increased energy efficiency** of low-income household homes, despite reducing floor space and property values.

Other regulations/policies

The social impacts of other types of climate change mitigation policies (e.g. phase-outs, trade policy, planning and deployment of renewables) have been explored to a lesser extent.

In general, policies that contribute to an increase in the price of energy, fuel or other essential goods tend to be associated with regressive social impacts, as lower-income households normally spend a higher share of their budget on essential costs.

This is the case for **emissions trading schemes**, for example. Similarly, the implementation of a **trade policy** that imposes restrictions in order to reduce imports from countries with less-stringent climate policies negatively impacts low-income households, which spend a larger fraction of their income on traded goods⁵⁶. At the same time, the owners of production factors might benefit from undertaking the production of substitutes for carbon-intensive imports and there may also be employment benefits⁵⁷.

Coal phase-out policies are linked to negative social impacts due to the inability of some households to switch to other energy sources, job losses, or community conflict among those supporting/opposing the transition⁵⁸. The European **phase-out of incandescent light bulbs** was associated with potential negative health effects for people suffering from light-related medical diseases, as well as potential neurological problems in relation to compact fluorescent lamps (which were supposed to replace the light bulbs)⁵⁹. Some negative employment effects were also identified in terms of lost jobs in the bulb production sector and increased production costs for relevant producers⁶⁰.

Finally, evidence on the social impacts of **renewable planning and deployment** points to negative social impacts on livelihoods and poverty in connection with these projects. These negative outcomes were mainly uncovered by research on involuntary resettlement policies linked to hydropower dam reservoir flooding, linked to uncompensated losses and costs for local communities. For example, the building of renewable plants meant that local communities had to resettle or lost the land holdings necessary for their subsistence. Similarly, literature on large wind and solar energy projects reports that investors took advantage of weak regulatory contexts to minimise compliance costs or inadequately compensate rural and vulnerable communities for their land. On the other hand, a number of studies report positive impacts, with improved employment opportunities and electricity access⁶¹.

⁵⁵ Schiellerup, P., Chiavari, J., Bauler, T., Grancagnolo, M., 2009, *Climate change mitigation policies and social justice in Europe. An exploration of potential conflicts and synergies*, King Baudouin Foundation. Available at: <https://ieep.eu/publications/climate-change-mitigation-policies-and-social-justice-in-europe/>.

⁵⁶ Zachmann, G., Fredriksson, G. and Claeys, G., 2018, *The distributional effects of climate policies*, Bruegel, Blueprint Series, Vol. 28. Available at: https://www.bruegel.org/sites/default/files/wp_attachments/Bruegel_Blueprint_28_final1.pdf.

⁵⁷ Ibid.

⁵⁸ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, *What are the social outcomes of climate policies? A systematic map and review of the ex-post literature*, Environmental Research Letters, 15(11), p.113006. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

⁵⁹ Schiellerup, P., Chiavari, J., Bauler, T., Grancagnolo, M., 2009, *Climate change mitigation policies and social justice in Europe. An exploration of potential conflicts and synergies*, King Baudouin Foundation. Available at: <https://ieep.eu/publications/climate-change-mitigation-policies-and-social-justice-in-europe/>.

⁶⁰ Ibid.

⁶¹ Lamb, W.F., Antal, M., Bohnenberger, K., Brand-Correa, L.I., Müller-Hansen, F., Jakob, M., Minx, J.C., Raiser, K., Williams, L. and Sovacool, B.K., 2020, *What are the social outcomes of climate policies? A systematic map and review of the ex-post literature*, Environmental Research Letters, 15(11), p.113006. Available at: <https://doi.org/10.1088/1748-9326/abc11f>.

1.3.2. Climate change adaptation policies

Research is scarce on the social impacts of adaptation policies and the distribution of their costs and benefits. Most of the literature explores how certain population groups are more vulnerable to climate change impacts or more exposed to climate hazards, and how adaptation measures can be designed to take this into account. For instance, measures aimed at preventing the negative impacts of heatwaves can target older people, who may not perceive high temperatures as dangerous for their health. Such **measures address the inherent differential vulnerability to climate impacts. These measures are the main way in which Member States are integrating principles of justice into their national adaptation plans and strategies.**

The EEA reports that ‘around one-third of national adaptation strategies and national health strategies in EEA-38 countries explicitly include actions on identifying groups that are vulnerable to the health impacts of climate change’⁶².

However, this study seeks to understand how the costs and benefits of adaptation measures themselves are distributed, and whether that distribution is uneven and exacerbates existing inequalities (e.g. environmental or housing inequality). **Practical evidence on such impacts in the 27 Member States of the EU (EU-27) is scant. This is because adaptation monitoring is limited and the social outcomes of adaptation policies are rarely considered.** In practice, monitoring processes tend to prioritise the assessment of environmental outcomes⁶³. The EEA Expert Group on Just Resilience has noted that indicators for monitoring, reporting, and evaluating progress in implementing just resilience should be a further area of research⁶⁴.

Where evidence is available, it is often sporadic examples at local level, mostly in the global south or the US. This is not surprising, as the local level is ‘the bedrock of adaptation’⁶⁵, and local authorities (e.g. regions and municipalities) play a crucial role in implementing national adaptation strategies⁶⁶. These are the examples that are provided in the following sections.

Many climate adaptation measures consist of technological interventions to reduce exposure of buildings and infrastructures to climate- and weather-related hazards. The main direct benefits are in reducing the damage caused by the climate risk. Beyond this, in the academic literature, local-level adaptation measures are generally associated with **progressive impacts on quality of life** (often called ‘co-benefits’ of adaptation, such as improved air quality in cities and health benefits), and **regressive impacts on access to services and affordability of housing, often leading to gentrification**. Similar to mitigation measures, social impacts are mainly assessed along the **low-income/high-income dichotomy**, while other inequality categories (e.g. gender, health, ethnicity) are considered to a lesser extent. Here again, different types of policies can have both regressive and progressive social impacts, depending on the specific policy design.

⁶² EEA, 2022, Towards ‘just resilience’: leaving no one behind when adapting to climate change.

Available at: <https://www.eea.europa.eu/publications/just-resilience-leaving-no-one-behind/towards-just-resilience-leaving-no>.

⁶³ EEA, 2020, *Urban adaptation in Europe: how cities and towns respond to climate change*, Publications Office of the European Union, Luxembourg. Available at: https://www.eea.europa.eu/publications/urban-adaptation-in-europe/at_download/file.

⁶⁴ Breil, M., Zandersen, M., Pishmisheva, P., Pedersen, A.B., Romanovska, L., Coninx, I., Rogger, M. and Johnson, K., 2021, ‘Leaving No One Behind’ in *Climate Resilience Policy and Practice in Europe – Overview of Knowledge and Practice for Just Resilience*, European Environment Agency. Available at: https://www.eionet.europa.eu/etc/etcccca/products/etcccca-reports/tp_2-2021/@download/file/tp_2-2021.pdf.

⁶⁵ EU Adaptation Strategy 2021.

⁶⁶ EEA, 2022, Towards ‘just resilience’: leaving no one behind when adapting to climate change.

Available at: <https://www.eea.europa.eu/publications/just-resilience-leaving-no-one-behind/towards-just-resilience-leaving-no>.

Across policy instruments, the literature identifies key mechanisms through which inequality is recreated. A key mechanism relates to **pre-existing power imbalances in decision-making** among population groups. Some groups, such as migrants, ethnic minorities, and low-income households, are almost universally less involved in decision-making processes and have fewer channels for being heard. Where climate adaptation measures are designed and implemented through mainstream processes such as existing planning processes and regulatory mechanisms, these tend to favour 'elite interests'; these measures can then exacerbate power inequalities in decision-making and reinforce systemic injustice⁶⁷.

In addition, as these mainstream processes reflect the values of elite societies (e.g. private property, individuality, market value), communities organised around different principles (e.g. indigenous communities) can be further disadvantaged⁶⁸.

Management and planning

Urban land use and spatial planning are one of the main tools of mainstream adaptation action at local level. This is one of the most studied types of adaptation measures in the literature. The review shows that several co-benefits are associated with the implementation of spatial planning tools for adaptation, including improved business opportunities, increased perception of safety, improved biological diversity, improved recreational value, and positive health effects such as reduced morbidity, improved air quality or increased well-being⁶⁹. On the other hand, **these measures also have the potential to increase house prices, foster gentrification and displacement, and affect mobility and safety of certain population groups, thereby exacerbating existing (spatial) inequalities**. More specifically, "spatial planning" carries a high risk of disadvantage to marginalised ethnic and low-income groups⁷⁰. Other studies also point to the potential for these measures to reinforce **gender-based inequalities**⁷¹. Although these potential regressive impacts may be considered in the design of the measures themselves, sources reveal that **issues of equity and social justice are rarely considered in planning and actions**⁷².

Land use planning can have a regressive impact when infrastructure investments, land use regulations or the creation of protected areas disproportionately affect or displace low-income and minority communities, or when plans protect economically valuable and already privileged areas at the expense of disadvantaged neighbourhoods⁷³. These processes have been defined as acts of commission and

⁶⁷ Malloy, J.T. and Ashcraft, C.M., 2020, 'A framework for implementing socially just climate adaptation', *Climatic Change*, 160(1), pp.1-14. Available at: <https://dx.doi.org/10.1007/s10584-020-02705-6>; Breil, M., Downing, C., Kazmierczak, A., Mäkinen, K. and Romanovska, L., 2018, *Social vulnerability to climate change in European cities – state of play in policy and practice*, European Environment Agency. Available at: https://www.eionet.europa.eu/etcs/etc-cca/products/etc-cca-reports/tp_1-2018/@download/file/TP_1-2018.pdf.

⁶⁸ Marino, E., 2018, 'Adaptation privilege and voluntary buyouts: Perspectives on ethnocentrism in sea level rise relocation and retreat policies in the US', *Global Environmental Change*, 49, pp.10-13. Available at: <https://doi.org/10.1016/j.gloenvcha.2018.01.002>.

⁶⁹ Asplund, T. and Hjerpe, M., 2020, 'Project coordinators' views on climate adaptation costs and benefits—justice implications', *Local Environment*, 25(2), pp. 114-129.

⁷⁰ New, M., Reckien, D., Viner, D., Adler, C., Cheong, S.M., Conde, C., Constable, A., de Perez, E.C., Lammel, A., Mechler, R., Orlove, B. and Solecki, W., 2022, 'Decision-making options for managing risk', in *Climate Change 2022: Impacts, Adaptation, and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge and New York. Available at: <https://www.ipcc.ch/report/ar6/wg2/about/how-to-cite-this-report/>.

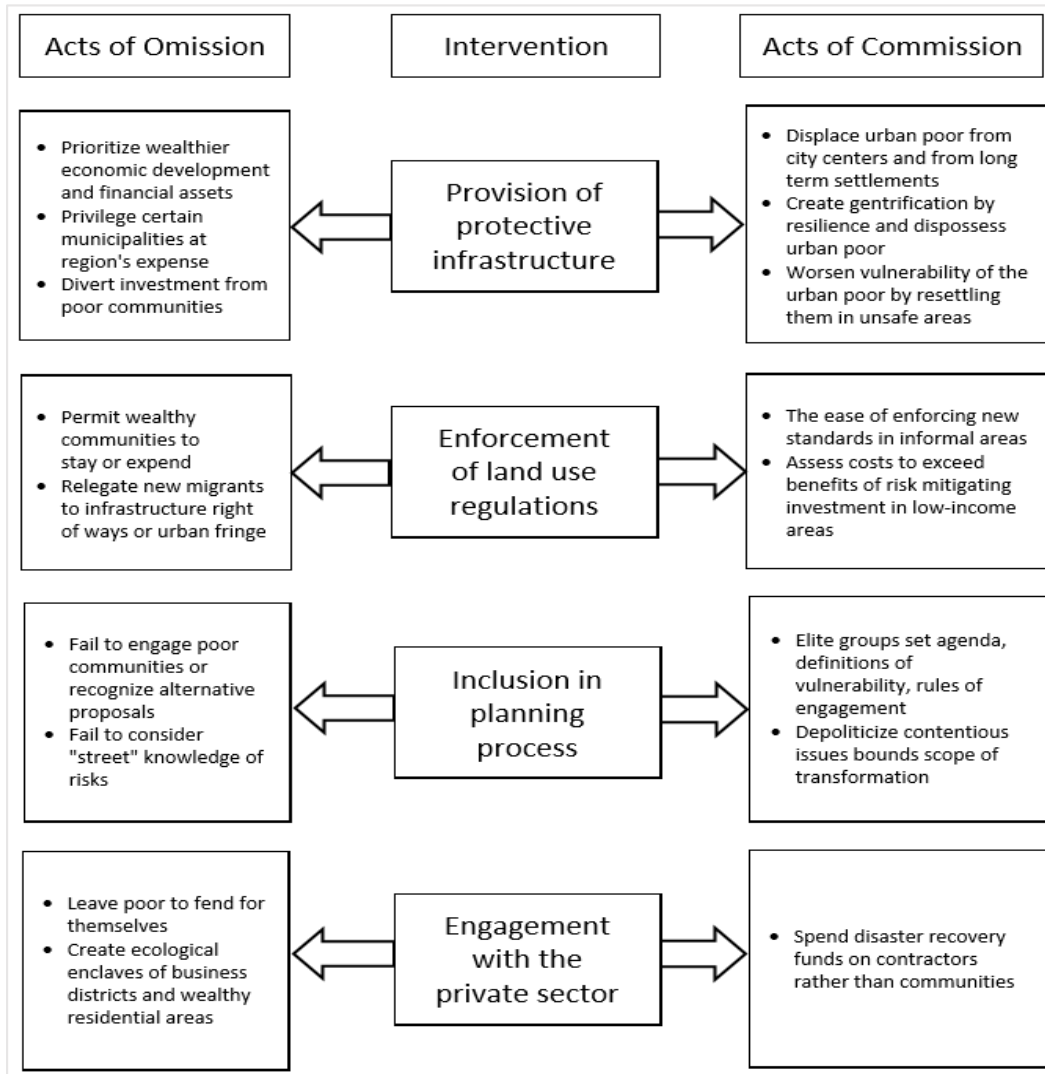
⁷¹ Björnberg, K.E. and Hansson, S.O., 2012, 'Gendering local climate adaptation', *Local Environment*, 18(2), pp. 217-232. Available at: <https://doi.org/10.1080/13549839.2012.729571>.

⁷² EEA, 2022, Towards 'just resilience': leaving no one behind when adapting to climate change. Available at: <https://www.eea.europa.eu/publications/just-resilience-leaving-no-one-behind/towards-just-resilience-leaving-no>.

⁷³ Angelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., Reeve, K. and Teicher, H., 2016, 'Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south', *Journal of Planning Education and Research*, 36(3), pp. 333-348. Available at: <https://doi.org/10.1177/0739456X16645166>.

acts of omission⁷⁴: acts of commission take place when interventions negatively affect or displace poor communities, while acts of omission protect and prioritise elite groups at the expense of the urban poor, as outlined in Figure 2⁷⁵.

Figure 2: Types of land use planning inequities associated with urban climate change adaptation interventions



Source: Anguelovski et al., 2022.

In the context of urban adaptation planning, poor populations often bear the burden of relocation⁷⁶. Examples from Manila (Philippines) and Medellín (Colombia) reveal that land use

⁷⁴ Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., Reeve, K. and Teicher, H., 2016, 'Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south', *Journal of Planning Education and Research*, 36(3), pp. 333-348. Available at: <https://doi.org/10.1177/0739456X16645166>.

⁷⁵ Asplund, T. and Hjerpe, M., 2020, 'Project coordinators' views on climate adaptation costs and benefits – justice implications', *Local Environment*, 25(2), pp. 114-129. Available at: <https://doi.org/10.1080/13549839.2020.1712340>.

⁷⁶ Malloy, J.T. and Ashcraft, C.M., 2020, 'A framework for implementing socially just climate adaptation', *Climatic Change*, 160(1), pp. 1-14. Available at: <https://dx.doi.org/10.1007/s10584-020-02705-6>.

regulations and evictions, implemented to adapt specific neighbourhoods to climate change, led to the displacement and relocation of low-income communities rather than wealthier ones⁷⁷.

These processes are more often triggered when the lack of public funding for adaptation leads to reliance on private funding. In this context, private funding-led adaptation might lead to the prioritisation of the interests of elite groups, at the expense of disadvantaged groups, which remain excluded⁷⁸.

Unless issues of justice are hardwired in the design of land use planning for adaptation, initiatives to promote resilience 'may systematically reproduce socio-spatial inequalities and injustice that have persisted in our cities for the last century'⁷⁹.

Women are disproportionately affected by climate change impacts, but the literature suggests that **women may also bear more of the costs of urban adaptation, unless their interests are specifically considered**⁸⁰. As women and men use public space differently, measures that affect the urban landscape might have a differential impact between genders. For instance, women tend to prefer cities planned to facilitate different types of activities in the same local area: work, domestic care and leisure. Measures that favour the separation of different spheres of life (e.g. separation between residential and workplace neighbourhoods) make it more difficult to combine these activities traditionally associated with women and also increase the travel burden. In addition, women tend to be more fearful of crime in public spaces, affecting their use of those spaces. Adaptive actions that involve relocating bus stops, bicycle paths and other infrastructure, for example to avoid flooding, might impact the way women use public space, unless their perception of safety and security is specifically considered in the redesign of public space⁸¹.

Insurance and risk-sharing

A potential regressive effect was identified in a study reviewed for insurance products in areas considered at high risk for specific climate hazards, e.g. flooding. **Insurance products are an important tool for post-disaster relief but when premiums are based on risk they might become too expensive for poor households to purchase.** They might therefore decide not to purchase the insurance, putting them at risk after the flooding, as they will not have resources to rebuild or repair the damage. This might **exacerbate existing inequalities** between poorer and richer communities. In the EU, 'flood insurance unaffordability is estimated to be highest in high-risk areas of Poland and Portugal, followed by several regions in Croatia, Germany and the Baltic States'⁸².

Green options

Green options, such as the creation or improvement of new green infrastructure and land-use interventions, are usually **associated with a number of co-benefits, including environmental and**

⁷⁷ Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., Reeve, K. and Teicher, H., 2016, 'Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south', *Journal of Planning Education and Research*, 36(3), pp. 333-348. Available at: <https://doi.org/10.1177/0739456X16645166>.

⁷⁸ Malloy, J.T. and Ashcraft, C.M., 2020, 'A framework for implementing socially just climate adaptation', *Climatic Change*, 160(1), pp. 1-14. Available at: <https://dx.doi.org/10.1007/s10584-020-02705-6>.

⁷⁹ Ibid.

⁸⁰ Björnberg, K.E. and Hansson, S.O., 2012, 'Gendering local climate adaptation', *Local Environment*, 18(2), pp. 217-232. Available at: <https://doi.org/10.1080/13549839.2012.729571>.

⁸¹ Ibid.

⁸² EEA, 2022, Towards 'just resilience': leaving no one behind when adapting to climate change.

Available at: <https://www.eea.europa.eu/publications/just-resilience-leaving-no-one-behind/towards-just-resilience-leaving-no>.

aesthetic benefits⁸³, as well as **social cohesion, improved health** (e.g. reduced morbidity and mortality from chronic diseases) and **well-being** (e.g. improved mental health)⁸⁴.

Negative impacts (i.e. costs) of the implementation of green options include '**green gentrification**'⁸⁵, **increased maintenance costs for private and public owners** (e.g. possibly higher water bills associated with watering new trees in their streetscape), and **negative health impacts** (e.g. allergies and asthma)⁸⁶.

The distribution of the benefits and costs of green options is uneven across population groups.

Traditionally, **communities with lower socioeconomic status or those with a high proportion of immigrants and ethnic minorities have less access to high-quality green (and blue) spaces**, compared to wealthier neighbourhoods⁸⁷. Unless green adaptation options are designed to address this pre-existing inequality, they risk reproducing patterns of inequality in cities. Evidence shows that environmental improvements such as urban greening can make neighbourhoods more aesthetically attractive, increasing housing costs and property values⁸⁸. This can push away current inhabitants unable to cope with increased prices. In this context, 'green gentrification' is defined as the 'processes started by the implementation of an environmental planning agenda related to green spaces that lead to the exclusion and displacement of politically disenfranchised residents'⁸⁹.

Blue options

Studies on the social impacts of blue options typically address the implementation of measures to mitigate flood risk or to adaptation to sea-level rise in coastal areas. Evidence from specific case studies shows that blue options can be associated with a **negative impact on housing affordability, triggering gentrification and the displacement of low-income groups**⁹⁰. This phenomenon can be exacerbated by the fact that wealthier groups that own vulnerable assets in coastal areas tend to be the most vocal in resilience policy-making and can therefore skew decisions towards adaptation options that favour their interests, with the aim of reducing the expenses and losses they would incur by using public investments⁹¹. Three examples were found in the literature assessing impacts of blue options in preventing water-related risks and in the aftermath of a water-related event.

In France, two measures were implemented to address flood risk in the coastal city of Le Havre: 1) a new municipal regulation that required a minimum level of 4 metres above mean sea level for

⁸³ Kim, S.K., Bennett, M.M., van Gevelt, T. and Joosse, P., 2021, 'Urban agglomeration worsens spatial disparities in climate adaptation', *Scientific Reports*, 11(1), p. 8446. Available at: <https://doi.org/10.1038/s41598-021-87739-1>.

⁸⁴ Breil, M., Zandersen, M., Pishmisheva, P., Pedersen, A.B., Romanovska, L., Coninx, I., Rogger, M. and Johnson, K., 2021, 'Leaving No One Behind' in *Climate Resilience Policy and Practice in Europe – Overview of Knowledge and Practice for Just Resilience*, European Environment Agency. Available at: https://www.eionet.europa.eu/etcs/etc-cca/products/etc-cca-reports/tp_2-2021/@download/file/tp_2-2021.pdf.

⁸⁵ Ibid.

⁸⁶ Ambrey, C., Byrne, J., Matthews, T., Davison, A., Portanger, C. and Lo, A., 2017, 'Cultivating climate justice: green infrastructure and suburban disadvantage in Australia', *Applied Geography*, 89, pp. 52-60. Available at: <https://doi.org/10.1016/j.apgeog.2017.10.002>.

⁸⁷ EEA, 2022, *Who benefits from nature in cities? Social inequalities in access to urban green and blue spaces across Europe*. Available at: <https://www.eea.europa.eu/publications/who-benefits-from-nature-in>.

⁸⁸ Liotta, C., Kervinio, Y., Levrel, H. and Tardieu, L., 2020, 'Planning for environmental justice-reducing well-being inequalities through urban greening', *Environmental Science & Policy*, 112, pp. 47-60. Available at: <https://doi.org/10.1016/j.envsci.2020.03.017>.

⁸⁹ Barcelona Laboratory for Urban Environmental Justice and Sustainability, 2023, *Critical Sustainability Studies – Our published studies on Green Gentrification*. Available at: <https://www.bcnuej.org/green-gentrification/>.

⁹⁰ Gould, K.A. and Lewis, T.L., 2021, 'Resilience gentrification: environmental privilege in an age of coastal climate disasters', *Frontiers in Sustainable Cities*, 3, p. 687670. Available at: <https://doi.org/10.3389/frsc.2021.687670>.

⁹¹ Breil, M., Zandersen, M., Pishmisheva, P., Pedersen, A.B., Romanovska, L., Coninx, I., Rogger, M. and Johnson, K., 2021, 'Leaving No One Behind' in *Climate Resilience Policy and Practice in Europe – Overview of Knowledge and Practice for Just Resilience*, European Environment Agency. Available at: https://www.eionet.europa.eu/etcs/etc-cca/products/etc-cca-reports/tp_2-2021/@download/file/tp_2-2021.pdf.

dwellings, and specific requests for the flood safety of car parks; and 2) a redevelopment of the harbour front, guided by specific architectural and landscape recommendations to maintain a coherent urban profile. Compliance with both measures translated into budgetary surcharges and high building costs. The building regulation caused permanent residents living in underground spaces, mainly low-income groups, to leave their houses. Conversely, the need for financing for the new redevelopment led new (wealthier) social groups to enter the housing market, triggering a gentrification process⁹².

Another example from the US shows how blue options can be implemented with different intensity in different areas of the same city, both before and after an extreme (climate-related) event. These differences in implementation can be more or less intentional, but tend to negatively affect neighbourhoods inhabited by low-income groups or minority ethnic groups. Limited efforts were made to upgrade the flood-protection infrastructure in low-income black neighbourhoods in New Orleans, with these communities then suffering the most damage from Hurricane Katrina, as well as the most significant recovery challenges⁹³.

Another source analysing post-disaster recovery in coastal communities in the US and the Caribbean shows similar impacts on inequality. In most cases, the recovery consists of rebuilding and implementing 'technological fixes' to reduce or avoid possible impacts of hazards. These structural interventions tend to upgrade climate-vulnerable neighbourhoods, increasing the value of housing. This in turn leads to '**resilience** **gentrification**', with the displacement of local populations and the arrival of wealthier settlers, which are the only ones able to afford the resilient housing. When implemented in highly stratified societies – and in the absence of special considerations of the needs of disadvantaged communities – blue options fuelled by private investments can reinforce pre-existing patterns of economic inequality and existing privilege structures⁹⁴.

1.4. Cost of inaction

The study did not identify any research assessing the cost of not considering or addressing the social impacts of climate change mitigation and adaptation policies. This is in part due to the early stage of the academic literature in this area and the lack of monitoring of these impacts. However, insights from the broader literature on social and economic inequality may be useful.

1.4.1. Worsening social outcomes and eroded social cohesion

The well-established body of literature on inequality shows that increased inequality leads to lower economic growth, worse health and education outcomes at the aggregate level, and undermines social trust⁹⁵ and cohesion. Many mitigation and adaptation policies tend to increase inequality, unless redistribution measures are built in at the design stage.

⁹² Ibid.

⁹³ Anguelovski, I., Shi, L., Chu, E., Gallagher, D., Goh, K., Lamb, Z., Reeve, K. and Teicher, H., 2016, 'Equity impacts of urban land use planning for climate adaptation: Critical perspectives from the global north and south', *Journal of Planning Education and Research*, 36(3), pp. 333-348. Available at: <https://doi.org/10.1177/0739456X16645166>.

⁹⁴ Gould, K.A. and Lewis, T.L., 2021, 'Resilience gentrification: environmental privilege in an age of coastal climate disasters', *Frontiers in Sustainable Cities*, 3, p. 687670. Available at: <https://doi.org/10.3389/frsc.2021.687670>.

⁹⁵ Rothstein, B. and Uslaner, E.M., 2005, 'All for all: Equality, corruption, and social trust', *World Politics*, 58(1), pp. 41-72. Available at: <https://doi.org/10.1353/wp.2006.0022>.

1.4.2. Lower public support for climate action policies

Studies⁹⁶ show that the perceived fairness of climate action is among the strongest predictors for people's support: the more climate change mitigation policies are perceived as fair, the more chance they have of being adopted and the more adequately they will be implemented. Addressing the socioeconomic impacts of these policies is therefore a necessary condition for successful climate change mitigation and adaptation.

1.4.3. Cost of inaction on climate change

A well-established body of evidence shows that if no action is taken on climate change, the consequences will be catastrophic. Extreme weather events (e.g. storms, droughts, floods) will continue to increase in frequency and severity, previously stable climate patterns will become unpredictable, biodiversity and ecosystems will be destroyed, coastal areas will be submerged by rising sea levels, and premature deaths will increase. The economic costs of climate crisis vary by region but are estimated to be up to a 20% decrease in global GDP if the planet reaches 2.2°C warming by 2050⁹⁷.

⁹⁶ Eriksson, L., Garvill, J. and Nordlund, A.M., 2006, 'Acceptability of travel demand management measures: the importance of problem awareness, personal norm, freedom, and fairness', *Journal of Environmental Psychology*, 26(1), pp. 15-26. Available at: <https://doi.org/10.1016/j.jenvp.2006.05.003>; Kallbekken, S. and Sælen, H., 2011, 'Public acceptance for environmental taxes: Self-interest, environmental and distributional concerns', *Energy Policy*, 39(5), pp. 2966-2973. Available at: <https://doi.org/10.1016/j.enpol.2011.03.006>.

⁹⁷ Winter, D. and Kiehl, M., 2022. *The global economic costs of climate change inaction*, Oxford Economics. Available at: <https://www.oxfordeconomics.com/resource/the-global-economic-costs-of-climate-inaction/>.

2. EU FUNDS AND INSTRUMENTS TO ADDRESS NEGATIVE IMPACTS AND ENSURE A JUST TRANSITION

KEY FINDINGS

Fourteen EU-level climate policy instruments were analysed to identify whether they discuss the socioeconomic impacts and dimensions of inequality presented in Part 1 of this study. Overall, the analysis found that the majority of EU climate policy instruments demonstrate a limited recognition and narrow understanding of the negative socioeconomic impacts that could arise from their implementation, particularly in relation to their respective dimensions of inequality. Nevertheless, EU climate policy instruments generally recognise their positive socioeconomic impacts. In both cases, the recognition of positive or negative impacts mainly concerns employment and, to a lesser extent, other types of impacts.

Twelve EU funds were reviewed to assess the extent to which they cover the same socioeconomic impacts and inequality dimensions of climate action policies. Three funding instruments were found to directly target the potential impacts of climate action policies, while the remainder could target the various impacts indirectly, given the broad scope of their objectives and actions. Overall, employment impacts were most often covered. All inequality dimensions are covered by most funds, albeit indirectly, though the inclusion of general requirements for equality and inclusion in their horizontal principles and conditions. In addition, the EU funds have broad objectives and can target different groups of vulnerable stakeholders, such as energy-poor and/or transport-poor households or the unemployed.

2.1. Understanding and scope

Building on the understanding and definitions provided in the Introduction, the following sections address the overall research questions and the EU instruments and funds reviewed.

2.1.1. Impacts of climate policies

A starting point for the analysis was to develop research questions (see Box 1) and a list of key words to use in screening policy instrument and fund documentation (see Annex 1), based on the typology of impacts and inequalities of climate policies defined in Part 1.

Box 1: Research questions for EU policy instrument and fund screening

EU policy instruments:

- Are potential negative impacts of climate policies discussed in the legislation of the instrument? (If yes, which ones and to what extent? Are any measures for addressing the negative impacts discussed?)
- Are potential positive impacts of climate policies discussed in the legislation of the instruments? (If yes, which ones?)

EU funds:

- How do the funds function (e.g. objectives, geographical and sectoral coverage, actions, eligible beneficiaries and accessing financing)?
- Who are the final target beneficiaries and how can the targeted stakeholders benefit from the funds? Are there potential issues with reaching the target groups?
- Are all main types of climate action policy impacts and dimensions of inequalities targeted by the objectives, actions or other aspects of the funds (e.g. pre-conditions, horizontal principles)?
- Are there any gaps? What can explain the gaps?
- What was/is the role of different types of stakeholders in the establishment and management of the fund? Were all stakeholders (e.g. employers' organisations and trade unions) consulted?

Source: Authors' own elaboration, 2023.

2.1.2. Selected EU policy instruments

Table 3 presents the EU policy instruments selected for screening based on the initial research and the criteria presented in the methodological approach (e.g. linked to the EGD, targeting adaptation or mitigation, and covering different sectors). For each policy instrument, the principal legislative document was reviewed using the key words to assess the extent to which the impacts of climate policies are addressed. Additional documents such as position papers were also reviewed. The documents reviewed are presented in the References section.

It is important to acknowledge the potential limitations of this approach. The decision to solely concentrate on a selection of 14 climate or climate-related policy instruments may have inadvertently introduced a bias that restricts the generalisability of the findings to the broader spectrum of EU climate policies. In addition, as the focus is on the design of EU policies, the screening focused on the legislative and strategic documents rather than the implementation of the policy instruments. Although beyond the scope of this study, examining the implementation of the EU climate policy instruments in practice could provide further insights into their ability to address inequalities.

Table 3: Selected EU policy instruments reviewed

Policy instrument*	EGD	Mitigation/ adaptation	Sectors
Energy Governance Regulation (Regulation (EU) 2018/1999)	Yes	Both	Horizontal/strategic
EU Adaptation Strategy (COM(2021) 82 final)	Yes	Adaptation	Horizontal/strategic
Renewable Energy Directive (RED) (Directive (EU) 2018/2001)	Yes	Mitigation	Energy
Energy Efficiency Directive (EED) (Directive (EU) 2018/2002)	Yes	Mitigation	Energy
Energy Performance of Buildings Directive (EPBD) (Directive (EU) 2018/844)	Yes	Mitigation	Buildings
CO ₂ emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631)	Yes	Mitigation	Transport
CO ₂ emission standards for heavy-duty vehicles (Regulation (EU) 2019/1242)	Yes	Mitigation	Transport
Emission Trading System (ETS) (Directive 2003/87/EC)	Yes	Mitigation	Production, energy, transport, etc. (ETS sectors)
Effort Sharing Regulation (ESR) (Regulation (EU) 2018/842)	Yes	Mitigation	Agriculture, etc. (non-ETS sectors)
Land Use, Land Use Change and Forestry (LULUCF) Regulation (Regulation (EU) 2018/841)	Yes	Mitigation	Land use, forestry (non-ETS sectors)
REPower EU Plan (COM(2022) 230 final)	Yes	Mitigation	Horizontal/strategic
Circular Economy Action Plan (CEAP) (COM(2020) 98 final)	Yes	Mitigation	Horizontal/strategic
EU Ecolabel (Regulation (EC) 66/2010)	Yes	Mitigation	Products
European Climate Law (Regulation (EU) 2021/1119)	Yes	Mitigation	Horizontal/strategic

Note: *The main legislative document is mentioned in the table; for a complete list of the accompanying and implementing documents screened, see References.

Source: Authors' own elaboration, 2023.

2.1.3. Selected EU funds

Table 4 presents the EU funds selected for screening, based on the initial research and the criteria presented in the methodological approach (e.g. management, forms of financing, eligible beneficiaries, geographical and sectoral coverage). For each fund, the principal legislative document and/or supporting information was reviewed using the key words to assess the extent to which the impacts of climate policies are covered. Additional documents such as position papers or stakeholder opinions were also consulted. The documents reviewed and the list of interviewees are presented in the References section.

This approach has similar limitations: concentrating on a selection of EU funds restricts the generalisability of the findings to all EU funds, while focusing on the underlying legislation provides insights into the design of the EU funds but not their practical implementation. Here again, a deeper dive into the implementation of different funds in practice could be beneficial, particularly for funds under shared management, where Member States have discretion in selecting the actual priorities and investments to support.

Table 4: Selected EU funds for review

Fund	Management	Fund manager	Main forms of financing	Eligible beneficiaries*	How to access the funds	Geographical coverage	Sectoral coverage
Just Transition Mechanism (JTM) Pillar 1 – Just Transition Fund (JTF)	Shared	Directorate-General for Regional and Urban Policy (DG REGIO) + Managing Authorities in Member States	Grants	Public bodies, private sector organisations (especially small and medium-sized enterprises (SMEs)), universities, associations, non-governmental organisations (NGOs), voluntary organisations, foreign firms	National Territorial Just Transition Plans (JTTPs) + apply through Managing Authorities	Regions in transition	Fossil fuel and carbon-intensive industries
JTM Pillar 2 – InvestEU	Indirect	European Investment Bank (EIB) and Implementing Partners (on behalf of Directorate-General for Economic and Financial Affairs (DG ECFIN))	Loans, guarantees, equity investments	Private sector organisations, large corporates, midcap companies, SMEs, public sector (type) entities, mixed entities, NGOs	National JTTPs + apply through Implementing Partners	Mainly regions in transition	Mainly (sustainable) infrastructure
JTM Pillar 3 – Public Sector Loan Facility (PSLF)	Direct	European Climate, Infrastructure and Environment Executive Agency (CINEA) (on behalf of DG REGIO)	Grants, loans	Public bodies or private entities entrusted with a public service mission	National JTTPs + call for proposals	Mainly regions in transition	Infrastructure
Social Climate Fund (SCF)	Direct	TBD	Grants, loans, guarantees, financial instruments	Public bodies of Member States	National Social Climate Plans	EU-27	Energy, transport, buildings
European Globalisation Adjustment Fund for Displaced Workers (EGF)	Shared	Directorate-General for Employment, Social Affairs and Inclusion (DG EMPL) + authorities in Member States	Grants	Public bodies of the Member States	Apply through Member State representative	EU-27	Any

Fund	Management	Fund manager	Main forms of financing	Eligible beneficiaries*	How to access the funds	Geographical coverage	Sectoral coverage
Recovery and Resilience Facility (RRF)**	Direct	DG ECFIN + Recovery and Resilience Task Force	Loans, grants	Public bodies of Member States	National Recovery and Resilience Plans	EU-27	Energy, transport, infrastructure, etc.
REACT-EU**	Shared	DG REGIO + Managing Authorities in Member States	Grants	Public bodies, private sector organisations (especially SMEs), universities, associations, NGOs, voluntary organisations, foreign firms	Operational Programmes + apply through Managing Authorities	EU-27	Energy, transport, healthcare, etc.
European Social Fund Plus (ESF+)	Shared***	DG EMPL + Managing Authorities in Member States	Grants, financial instruments (e.g. Employment and Social Innovation (EaSI))	Public bodies, private sector organisations (incl. SMEs), universities, associations, NGOs, voluntary organisations, foreign firms	Operational Programmes + apply through Managing Authorities***	EU-27	Education, training, healthcare, etc.
European Regional Development Fund (ERDF)	Shared	DG REGIO + Managing Authorities in Member States	Grants, financial instruments	Public bodies, private sector organisations (incl. SMEs), universities, associations, NGOs, voluntary organisations, foreign firms	Operational Programmes + apply through managing authorities	EU-27	Energy, transport, business support, environment, research and innovation, public services, employment, education etc.
Erasmus+	Direct/Indirect	European Education and Culture Executive Agency (EACEA) + national agencies (on behalf of Directorate-General for Education, Youth, Sport and Culture (DG EAC))	Grants	Public and private entities (mainly universities, training centres, companies)	Annual work programme + apply through an organisation (e.g. university, training centre, company)	EU-27 and partner countries	Education, training, sport
LIFE	Direct/Indirect	CINEA (on behalf of Directorate-General for Environment (DG ENV))	Grants	Public bodies, NGOs, universities and research institutes	Call for proposals and tenders based on	EU-27 and partner countries	Environment, climate, energy

Fund	Management	Fund manager	Main forms of financing	Eligible beneficiaries*	How to access the funds	Geographical coverage	Sectoral coverage
					multiannual work programmes		
Horizon Europe	Direct/Indirect	CINEA, European Health and Digital Executive Agency (HaDEA), European Research Executive Agency (REA) (on behalf of Directorate-General for Research and Innovation (DG RTD))	Grants	Public and private entities (mainly universities and research institutes)	Call for proposals and tenders based on multiannual work programmes	EU-27 and partner countries	Research and innovation

Notes: *Eligible beneficiaries are entities that can directly apply and receive funding. These are usually legal entities rather than individuals. In the analysis, a distinction is made between the eligible beneficiaries and the targeted final recipients (e.g. vulnerable groups), who can ultimately benefit from the support; **These funding instruments are temporary and were introduced in response to the COVID-19 crisis as part of the NextGenerationEU initiative; ***EaSI is a strand of ESF+. In the 2021-2027 programming period, it is under direct/indirect management.

Source: Authors' own elaboration, 2023.

2.2. Mainstreaming the impacts of climate policies in selected EU policy instruments

Following the results of Part 1, this section uses the typology of inequalities to analyse the extent to which EU climate policy instruments recognise and discuss their potential socioeconomic impacts and the different dimensions of inequality. Subsection 2.2.1 considers whether potential **negative impacts** are taken into account by EU-level climate policy instruments and whether mitigating measures are proposed to prevent the transition to a low-carbon economy exacerbating pre-existing inequalities. Subsection 2.2.2 looks at the extent to which the selected climate policy instruments highlight and discuss the **possibility of achieving a positive outcome** in relation to the typology of socioeconomic impacts and inequality dimensions. Together, these findings will lend insights into the extent to which considerations of inequalities and associated socioeconomic impacts have played a role in the EU climate policy-making process to date.

2.2.1. Mainstreaming negative impacts

As presented in Table 3, a total of 14 EU-level climate policy instruments were analysed to identify: (1) whether they discuss the negative socioeconomic impacts across relevant dimensions of inequality; (2) the depth and level of understanding of such impacts; and (3) if additional measures are proposed in order to mitigate the negative impacts identified. Overall, the analysis found that **the majority of EU climate policy instruments demonstrate a limited recognition and narrow understanding of the negative impacts that could arise from their implementation**, particularly in relation to inequality.

a. Common socioeconomic impacts and inequality dimensions discussed

To the extent that negative socioeconomic impacts or inequality dimensions are discussed, they are primarily concentrated on issues related to **employment** (57% of all policy instruments analysed), **disposable income and consumption** (43%), and **environmental quality of life** (36%).

For instance, when negative impacts on **employment** are identified in a policy instrument, the corresponding discussion often encompasses many recurring themes. When addressing the potential consequences of transition to a climate-neutral economy, policy instruments typically refer to the anticipated disruption of the labour market and current skill supply across a range of sectors. Suggested mitigating measures generally cite the need for re-skilling, training and education for the current workforce.

In cases where a policy instrument identifies a likely negative impact on **disposable income and consumption**, the discussion often centres on energy poverty. This is evident in several of the policy instruments, including the EPBD⁹⁸, the European Climate Law⁹⁹, the Energy Governance Regulation¹⁰⁰, and the EED¹⁰¹.

⁹⁸ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

⁹⁹ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').

¹⁰⁰ 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, amending Regulations (EC) No 663/2009 and (EC) 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

¹⁰¹ Directive (EU) 2018/2002 of the European Parliament and of the Council of 11 December 2018 amending Directive 2012/27/EU on energy efficiency.

When policy instruments cite disposable income and consumption as probable negative impacts, they typically incorporate more general discussions of affordability challenges for lower to middle-income households, thereby recognising a class-based dimension of inequality.

In the policy instruments assessed, discussions of negative impacts in respect of **environmental quality of life** issues are generally imprecise and are the most generic. For instance, the Energy Governance Regulation recognises that the 'implementation of policies and measures in the areas of energy and climate has an impact on the environment', as well as the need for Member States to respond with mitigating measures¹⁰². However, the nature of such environmental impact is left vague and unexplored. By contrast, the policy instruments do not include any discussion of inequality dimensions of ethnicity or race. Table 5 presents the full results of the assessment of climate policy instruments across the typology of negative socioeconomic impacts and inequality dimensions.

Examining the results more closely, the analysis of EU-level climate policy instruments shows that **10 of the 14 climate policy instruments (71%) discuss at least one negative impact as an expected outcome**, while the remaining four do not discuss negative impacts of any kind. However, among the 10 policy instruments that highlight at least one negative impact of their implementation, the level of depth is categorised as 'indirect' for the significant majority (8 out of 10). Only two of the policy instruments clearly and 'directly' discuss the negative impacts that would result from their implementation.

Table 5: Typology of negative impacts, by EU policy instrument

Legend:

Policy instrument*	Direct discussion of impacts					Indirect discussion of impacts					No discussion of impacts				
	Socioeconomic impacts					Inequality dimensions									
	Access to services	Disposable income and consumption	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Total			
Energy Governance Regulation (Regulation (EU) 2018/1999)												4			
EU Adaptation Strategy (COM(2021) 82 final)												5			
RED (Directive (EU) 2018/2001)												2			
EED (Directive (EU) 2018/2002)												3			
EPBD (Directive (EU) 2018/844)												0			
CO ₂ emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631)												4			

¹⁰² 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, amending Regulations (EC) No 663/2009 and (EC) 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

Legend:

Direct discussion of impacts	Indirect discussion of impacts					No discussion of impacts						
	Socioeconomic impacts					Inequality dimensions						
Policy instrument*	Access to services	Disposable income and consumption	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Total
CO ₂ emission standards for heavy-duty vehicles (Regulation (EU) 2019/1242)												2
ETS (Directive 2003/87/EC)												1
ESR (Regulation (EU) 2018/842)												0
LULUCF Regulation (Regulation (EU) 2018/841)												1
REPower EU Plan (COM(2020) 230 final)												4
CEAP (COM(2020) 98 final)												0
EU Ecolabel (Regulation (EC) 66/2010)												0
European Climate Law (Regulation (EU) 2021/1119)												5
Total	1	6	8	5	1	1	1	4	0	4	0	31

Note: *The main legislative document is mentioned in the table; for a complete list of the accompanying and implementing documents screened, see References.

Source: Authors' own elaboration, 2023.

Eight of the 10 policy instruments that include a direct or indirect discussion of its negative impacts identify measures to address such impacts (see Table 6). Often, in the case of policy instruments resulting in a negative impact to employment, mitigating measures proposed include existing programmes such as the European Social Fund Plus (ESF+), as well as a more general suite of policy measures related to investments in re-skilling, upskilling, and jobseeking initiatives for adversely affected sectors and regions.

It is useful at this point to establish a clearer understanding of the distinction between policy instruments containing a direct or indirect discussion of likely socioeconomic impacts across different dimensions of inequality. For instance, the European Climate Law has a direct discussion of negative impacts on employment as a likely outcome of the policy instrument¹⁰³. This categorisation is based on statements within the preamble (recital 18) of its regulatory text, stating that 'The risk of carbon leakage remains in respect of those international partners that do not share the same standards of climate

¹⁰³ Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999 ('European Climate Law').

protection as those of the Union'¹⁰⁴. After clearly identifying the challenge posed by climate neutrality to European industries due to international competitiveness, the Regulation proposes mitigating measures, stating that 'The Commission therefore intends to propose a carbon border adjustment mechanism for selected sectors, to reduce such risks'¹⁰⁵.

By comparison, the majority of EU climate policy instruments identify and describe negative socioeconomic impacts more generally. For example, the preamble (recital 12) of the Regulation on setting CO₂ emissions performance standards for new passenger cars and vans¹⁰⁶ states that 'It is important, therefore, to take into account the social effects of such transition [to zero-emission mobility] throughout the whole automotive value chain and to address proactively the implications on employment'¹⁰⁷. It recognises that the policy instrument will likely result in a socioeconomic impact on employment. Unlike the European Climate Law, however, the negative nature of that impact can only be presumed and no causal link is drawn between its implementation and the expected socioeconomic impact. Instead, the negative implication of the policy instrument must be inferred from the context of frequently cited challenges posed by electrification of the automotive sector, such as the risk of displacement of workers amid the transition to developing zero-emission vehicles. Table 6 provides an overview of the 14 climate policy instruments, outlining where the negative socioeconomic impacts are discussed and whether any mitigation measures are proposed.

¹⁰⁴ Ibid, p. 4.

¹⁰⁵ Ibid, p. 4.

¹⁰⁶ Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011.

¹⁰⁷ Ibid, p. 15.

Table 6: Assessment of EU climate policy instruments and discussion of negative impacts

EU policy instrument*	Are negative impacts discussed?	Depth of discussion?	Which socioeconomic impacts and inequality dimensions?	Where in the document?	Mitigating measures proposed?
Energy Governance Regulation (Regulation (EU) 2018/1999)	Yes	Indirect	Environmental quality of life; employment; disposable income and consumption; gender	Preamble; Articles 3, 8 and 15; Annex I – Part 1; Annex IX – Parts 1 and 2	Yes
EU Adaptation Strategy (COM(2021) 82 final)	Yes	Direct	Employment; gender; age; (dis)ability; class	Objectives – 9.	Yes
RED (Directive (EU) 2018/2001)	Yes	Indirect	Environmental air quality; disposable income and consumption	Articles 4, 15 and 33	No
EED (Directive (EU) 2018/2002)	Yes	Indirect	Disposable income and consumption; class; employment	Preamble; Article 7	Yes
EPBD (Directive (EU) 2018/844)	No	Absent	N/A	N/A	N/A
CO ₂ emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631)	Yes	Indirect	Employment; gender; class; disposable income and consumption	Preamble; Article 15	Yes
CO ₂ emission standards for heavy-duty vehicles (Regulation (EU) 2019/1242)	Yes	Indirect	Employment; gender	Preamble	Yes
ETS (Directive 2003/87/EC)	Yes	Indirect	Employment	Articles 3(d) and 10	Yes
ESR (Regulation (EU) 2018/842)	No	Absent	N/A	N/A	N/A
LULUCF Regulation (Regulation (EU) 2018/841)	Yes	Indirect	Environmental quality of life	Preamble	No
REPower EU Plan (COM(2022) 230 final)	Yes	Indirect	Employment; disposable income and consumption; class; environmental quality of life	Introduction; Actions (1, 3, and 4)	Yes
CEAP (COM(2020) 98 final)	No	Absent	N/A	N/A	N/A
EU Ecolabel (Regulation (EC) 66/2010)	No	Absent	N/A	N/A	N/A
European Climate Law (Regulation (EU) 2021/1119)	Yes	Direct	Employment; environmental quality of life; social quality of life; disposable income and consumption; access to services	Preamble; Articles 4 and 5	Yes

Notes: N/A = not applicable; *The main legislative document is mentioned in the table; for a complete list of the accompanying and implementing documents screened, see References.

Source: Authors' own elaboration, 2023.

b. Stakeholders' perspectives on the negative impacts of EU climate policy instruments

This study's finding that the dominant majority of EU climate policy instruments demonstrate a limited recognition and narrow understanding of the negative impacts that could arise from their implementation aligns with the perspective of several stakeholders, particularly in relation to employment, disposable income and consumption, and the inequality dimension of class. The absence of identification of negative impacts of climate policy instruments on specific dimensions of inequality, such as race and gender, could potentially be attributed to a lack of sufficient research on such phenomena within the literature¹⁰⁸.

Recently, stakeholders¹⁰⁹ have suggested that the policy framework of the EGD has an insufficiently developed social dimension. For example, there is a lack of alignment between climate policy instruments (with an expected negative impact on employment) and social policy instruments (that typically have the necessary funding and coverage capacity to ensure that workers are not adversely impacted by the transition to a climate neutral economy)¹¹⁰. The policy toolbox proposed by the Council Recommendation for ensuring a fair transition¹¹¹ has been criticised for its lack of legal force, while insufficient detail on the labour market and social policy initiatives proposed to mitigate the negative impacts of moving towards a climate neutral economy will not ensure a fair transition¹¹². Some stakeholders¹¹³ have suggested that in order to mitigate negative social impacts and avoid exacerbating existing inequalities, coordination must be improved between EU-level climate policy instruments and social policies, rather than the current fragmentation that sees them as two disparate policy domains. As part of the European Commission's consultation process for a fair transition towards climate neutrality, stakeholders representing CSOs proposed a 'social ring-fencing' of all climate policy instruments and funds. This would strengthen coherence and alignment of all climate measures, ensuring that vulnerable households (including those experiencing poverty) are not negatively impacted by the transition¹¹⁴.

Another concern is that EU climate policy instruments do not adequately consider the distributional and social impacts – positive and negative – at the depth or consistency required to deliver outcomes that are consistent with a fair and just transition¹¹⁵. This reflects the results of the assessment presented in Tables 5 and 6, where negative impacts are discussed in only 10 of the 14 climate policy instruments, with eight of those discussions being indirect.

¹⁰⁸ Gore, T., Stainforth, T., Urios, J. and Iannazzone, S., 2022, Social justice priorities in the Fit for 55 package: Recommendations for MEPs and Member States to address social impacts in ETS II, SCF, EPBD, EED and CO2/cars, Institute for European Environmental Policy. Available at: <https://ieep.eu/publications/social-justice-priorities-in-the-fit-for-55-package/>.

¹⁰⁹ Akgüç, M., Arabadjieva, K. and Galgóczi, B., 2022, *Why the EU's patchy 'just transition' framework is not up to meeting its climate ambitions*, European Trade Union Institute. Available at: <https://www.etui.org/publications/why-eus-patchy-just-transition-framework-not-meeting-its-climate-ambitions>.

¹¹⁰ Ibid.

¹¹¹ COM(2021) 801 final.

¹¹² SOLIDAR, 2022, *EU Member States commit to action for a Just Transition towards climate neutrality in new Council Recommendation*, SOLIDAR Foundation. Available at: <https://www.solidar.org/en/news/eu-member-states-commit-to-action-for-a-just-transition-towards-climate-neutrality-in-new-council-recommendation>.

¹¹³ Markkanen, S. and Borbála Zálnoky, K., 2022, *How to maximise the social benefits of climate action*, Climate Action Network (CAN) Europe. Available at: https://caneurope.org/content/uploads/2022/05/01_The-social-benefits-of-climate-action_14.pdf.

¹¹⁴ European Anti-Poverty Network (EAPN), 2022, *Social and Labour Aspects of the Just Transition Towards Climate Neutrality. Position paper*. Available at: <https://www.eapn.eu/social-and-labour-aspects-of-the-just-transition-towards-climate-neutrality-eapn-position-paper/>.

¹¹⁵ Gore, T., Stainforth, T., Urios, J. and Iannazzone, S., 2022, Social justice priorities in the Fit for 55 package: Recommendations for MEPs and Member States to address social impacts in ETS II, SCF, EPBD, EED and CO2/cars, Institute for European Environmental Policy. Available at: <https://ieep.eu/publications/social-justice-priorities-in-the-fit-for-55-package/>; Akgüç, M., Arabadjieva, K. and Galgóczi, B., 2022, *Why the EU's patchy 'just transition' framework is not up to meeting its climate ambitions*, European Trade Union Institute. Available at: <https://www.etui.org/publications/why-eus-patchy-just-transition-framework-not-meeting-its-climate-ambitions>.

2.2.2. Mainstreaming positive impacts

In addition to the discussions of negative impacts in the previous subsection, the same 14 EU climate policy instruments were assessed for the extent to which they highlight and discuss the possibility of achieving a positive outcome in relation to the typology of socioeconomic impacts and dimensions of inequality developed in this study. Similar to the previous exercise, this assessment reviewed the same legislative, regulatory and strategic documents (see References) and found that **EU climate policy instruments generally recognise their positive socioeconomic impacts, despite a more limited understanding of their effect on several dimensions of inequality**¹¹⁶. However, policy instruments that identify positive outcomes are mostly confined to a narrow range of socioeconomic impacts and dimensions of inequality.

a. Common socioeconomic impacts and inequality dimensions discussed

The discussion of positive outcomes within the EU climate policy instruments was limited to seven socioeconomic impacts and inequality dimensions (see Table 7). Primarily, the identification and discussion of positive outcomes are most common to issues of **employment** (64% of all policy instruments analysed), **disposable income and consumption** (57%), and **environmental quality of life** (50%). Interestingly, this set of issues is also the most discussed in terms of negative impacts. In general, this suggests that the 14 climate policy instruments primarily address their potential impact in terms of a limited set of negative and positive outcomes, which pertain to issues of employment, disposable income and consumption, and environmental quality of life.

Looking in more detail at the cases where positive outcomes were identified, instances in which positive outcomes in relation to **employment** are discussed tend to focus on thematically similar issues, such as the potential for job creation and expansion of certain sectors that are central to the transition to a climate neutral economy. For instance, in describing its potential benefits, the EPBD claims that ‘efforts to increase the energy performance of buildings’ has ‘great potential to create jobs in the Union, in particular in small and medium-sized enterprises’¹¹⁷. Similar versions of this statement are made by several of the policy instruments, including the CEAP¹¹⁸, the Energy Governance Regulation¹¹⁹, and REPowerEU Plan¹²⁰, all of which describe their job creation potential.

When a climate policy instrument outlines its expected positive impact on **disposable income and consumption**, the ensuing discussion typically focuses on specific measures or the introduction of provisions to alleviate energy affordability issues facing lower to middle-income households, demonstrating recognition of a class-based dimension to inequality. In many cases, these discussions are in the context of alleviating energy poverty. For example, in order to achieve greater decarbonisation of the EU building stock, the EPBD emphasises the need for Member States to ‘promote equal access to financing, [...] for energy-poor consumers, for social housing’¹²¹.

¹¹⁶ ‘Positive outcomes’ refers to all socioeconomic impacts and dimensions of inequality contained within the typology of inequalities, unless specified otherwise.

¹¹⁷ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, p. 76.

¹¹⁸ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Circular Economy Action Plan, COM(2020) 98.

¹¹⁹ 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.

¹²⁰ Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, REPowerEU Plan, COM(2022) 230.

¹²¹ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, p. 76.

The Energy Governance Regulation¹²² incorporates reporting mechanisms requiring Member States to report on the number of households in energy poverty, as well as their advancements towards meeting national targets for reducing its prevalence.

Table 7: Typology of positive outcomes, by EU policy instrument

Legend:

Discussion of positive outcomes	No discussion of positive outcomes											
	Socioeconomic impacts					Inequality dimensions						
Policy instrument*	Access to services	Disposable income and consumption	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Total
Energy Governance Regulation (Regulation (EU) 2018/1999)												4
EU Adaptation Strategy (COM(2021) 82 final)												3
RED (Directive (EU) 2018/2001)												4
EED (Directive (EU) 2018/2002)												5
EPBD (Directive (EU) 2018/844)												5
CO ₂ emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631)												1
CO ₂ emission standards for heavy-duty vehicles (Regulation (EU) 2019/1242)												1
ETS (Directive 2003/87/EC)												3
ESR (Regulation (EU) 2018/842)												1
LULUCF Regulation (Regulation (EU) 2018/841)												3
REPower EU Plan (COM(2022) 230 final)												1
CEAP (COM(2020) 98 final)												5
EU Ecolabel (Regulation (EC) 66/2010)												0

¹²² 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.

Legend:

Discussion of positive outcomes	No discussion of positive outcomes											
	Socioeconomic impacts					Inequality dimensions						
Policy instrument*	Access to services	Disposable income and consumption	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Total
European Climate Law (Regulation (EU) 2021/1119)												2
Total	3	8	9	7	4	0	0	6	0	1	0	38

Note: *The main legislative document is mentioned in the table; for a complete list of the accompanying and implementing documents screened, see References.

Source: Authors' own elaboration, 2023.

The climate policy instruments' discussion of positive outcomes in terms of **environmental quality of life** focus mainly on the likely improvements to environmental quality in general, as well as more specific discussions of how such policy instruments will lead to improvements in water, soil and air quality. For example, the EU Adaptation Strategy promotes the use of nature-based solutions, stating that they will 'boost the supply of clean, fresh water and reduce risk of flooding'¹²³. In addition, the Regulations on CO₂ emission performance standards for new passenger cars¹²⁴ and heavy-duty vehicles¹²⁵ highlights reduced air pollution as a likely co-benefit. Similar expected air quality benefits from improved energy efficiency are also highlighted as a positive outcome of the EED¹²⁶.

Overall, this assessment found that **13 of the 14 climate policy instruments (93%) identify at least one positive outcome**, with the exception being the EU Ecolabel Regulation, which did not identify any positive outcomes.

Table 8 presents the full results of the assessment of climate policy instruments, including where positive socioeconomic impacts are discussed.

¹²³ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, *Forging a climate-resilient Europe – the new EU Strategy on Adaptation to Climate Change*, COM(2021) 82, p. 1.

¹²⁴ Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019 setting CO₂ emission performance standards for new passenger cars and for new light commercial vehicles, and repealing Regulations (EC) No 443/2009 and (EU) No 510/2011.

¹²⁵ Regulation (EU) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO₂ emission performance standards for new heavy-duty vehicles and amending Regulations (EC) No 595/2009 and (EU) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC.

¹²⁶ Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

Table 8: Assessment of EU climate policy instruments and their discussion of positive impacts

EU policy instrument*	Are positive impacts discussed?	Which socioeconomic impacts and inequality dimensions?	Where in the document?
Energy Governance Regulation (Regulation (EU) 2018/1999)	Yes	Environmental quality of life; employment; disposable income and consumption; class	Preamble; Article 24
EU Adaptation Strategy (COM(2021) 82 final)	Yes	Environmental quality of life; social quality of life; employment	Objectives-9.
RED (Directive (EU) 2018/2001)	Yes	Employment; access to services; disposable income and consumption; class	Articles 6, 18, 21, 22, and 28
EED (Directive (EU) 2018/2002)	Yes	Disposable income and consumption; class; employment; access to services; environmental quality of life; social quality of life	Preamble; Article 7
EPBD (Directive (EU) 2018/844)	Yes	Disposable income and consumption; class; access to services; employment; social quality of life	Preamble; Article 2a
CO ₂ emission performance standards for new passenger cars and vans (Regulation (EU) 2019/631)	Yes	Environmental quality of life	Preamble
CO ₂ emission standards for heavy-duty vehicles (Regulation (EU) 2019/1242)	Yes	Environmental quality of life	Preamble
ETS (Directive 2003/87/EC)	Yes	Employment; class; disposable income and consumption	Article 10
ESR (Regulation (EU) 2018/842)	Yes	Disposable income and consumption	Preamble
LULUCF Regulation (Regulation (EU) 2018/841)	Yes	Class; disposable income and consumption; environmental quality of life	Preamble
REPower EU Plan (COM(2022) 230 final)	Yes	Employment	Objectives – 3.
CEAP (COM(2020) 98 final)	Yes	Employment; social quality of life; disposable income and consumption; class; gender	Actions: 5. Making circularity work for people, regions and cities
EU Ecolabel (Regulation (EC) 66/2010)	No	N/A	N/A
European Climate Law (Regulation (EU) 2021/1119)	Yes	Environmental quality of life; employment	Preamble

Notes: N/A = not applicable. *The main legislative document is mentioned in the table; for a complete list of the accompanying and implementing documents screened, see References.

Source: Authors' own elaboration, 2023.

b. Stakeholders' perspectives on the positive outcomes of EU climate policy instruments

This assessment reveals a key observation in relation to EU climate policy instruments: while they acknowledge their positive socioeconomic impacts, particularly on employment, disposable income and consumption, and environmental quality of life, their positive impact on many other dimensions of inequality is left largely unexplored. This finding broadly corresponds with the viewpoints of multiple relevant stakeholders.

A common criticism of EU climate policy instruments is the limited extent to which they identify and address negative impacts, and this also applies to their consideration of positive outcomes¹²⁷. In the context of climate adaptation policies specifically, it has been suggested that the social impacts of climate change are spatially uneven, highlighting the need for climate policy instruments to consider not only the cost-effectiveness of such measures but also the equitable distribution of their impact¹²⁸.

These perspectives suggest that achieving policy outcomes that are in line with the principles of a fair and equitable transition requires a thorough comprehension of the positive results that would ensue from climate policy measures associated with the EGD.

2.3. Coverage of the impacts of climate action policies in selected EU funds

This section examines the coverage of positive/negative impacts and social inequalities associated with climate action policies in a selection of 12 EU funds that can directly or indirectly address these effects and inequalities and ensure a fair transition. In addition to the typology provided in Part 1, the review of the EU funds indicates another dimension of inequality often recognised in the legal basis for EU funds – geography. The green transition must be inclusive and leave nobody behind, yet in many Member States, rural and remote regions often lack access to services or rely on traditional energy sources such as coal, which affects the environmental quality of life. These areas need to go through a transformation, with many EU funds thus targeting inequalities or impacts created by differences in the socioeconomic context of regions and/or urban and rural areas.

The review of the EU funds is broader than the screening of the EU policy instruments. While climate policy instruments have mitigating or adapting to climate change as their main objective, logically they are focused on this rather than other aspects. The EU funds, on the other hand, can target multiple policy objectives at the same time. By their nature, EU funds can also be more specific in how they address social inequalities and impacts of climate action policies by supporting particular objectives and types of actions. Depending on the fund, the objectives and actions can be more specific and concrete than the high-level objectives of policy instruments. EU funds are usually subject to horizontal principles or conditions that Member States and/or eligible beneficiaries must meet, which may cover different dimensions of inequality. Finally, EU funds reach specific beneficiaries, making it easier for funds to identify whether they target the groups most likely to be at risk of inequalities created or exacerbated by climate action policies. The development of national or regional implementing programmes for various funds are also often subject to public consultation requirements.

The following analysis includes not only an assessment of whether the EU funds cover the impacts and social inequality dimensions identified in Part 1 but also an assessment of the final recipients targeted

¹²⁷ Markkanen, S. and Borbála Zálnoky, K., 2022, *How to maximise the social benefits of climate action*, Climate Action Network (CAN) Europe. Available at: https://caneurope.org/content/uploads/2022/05/01_The-social-benefits-of-climate-action_14.pdf.

¹²⁸ Ciscar, J.C., Feyen, L., Ibarreta, D. and Soria, A., 2018, *Climate impacts in Europe*, JRC Science for Policy Report (JRC112769). Available at: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC112769/kjna29427enn_1.pdf.

and the stakeholders involved in consultation processes (keeping in mind that the stakeholders that ultimately benefit from the funds may not in all cases be direct eligible beneficiaries).

2.3.1. Coverage of impacts in the objectives, actions, and horizontal principles of the funds

This section focuses on the legal basis for each fund and the extent to which the impacts of climate action policies and the different inequality dimensions are covered in the objectives, eligible actions, or other areas of the legislation (primarily horizontal principles and conditions). Only three of the funds directly aim to address negative impacts of climate action policies – the JTM, SCF and European Globalisation Adjustment Fund for Displaced Workers (EGF). Other EU funds are less specific, but their objectives and actions are broad enough to allow issues such as just transition, energy poverty and other types of social inequalities linked to climate action policies to be targeted as part of more wide-ranging interventions. The analysis found that, overall, **the majority of the 12 EU funds indirectly or directly target the socioeconomic impacts arising from climate policies, and are at least generally/indirectly expected to cover all of the different dimensions of inequality discussed in this study.**

Table 9 presents the results of the assessment. Looking at socioeconomic impacts, most funds address employment impacts (10), followed by access to services, disposable income/affordability and social quality of life (nine), and environmental quality of life (eight). The majority cover most of the inequality dimensions, at least generally, through the use of horizontal principles or requirements to respect the Charter of Fundamental Rights of the EU and implement the European Pillar of Social Rights. Overall, inequalities linked to class/income are covered most (11 funds), followed by (dis)ability, age, ethnicity, gender, race, and geographical dimensions (10).

Table 9: Coverage of impacts and dimensions of inequality by EU fund

Legend:

Direct coverage	Indirect or general coverage					No discussion							
	Socioeconomic impact					Inequality dimension							Total
Fund	Access to services	Disposable income and consumption/affordability	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Geographical	
JTM Pillar 1 – JTF													12
JTM Pillar 2 – InvestEU													12
JTM Pillar 3 –PSLF													12
SCF													5
EGF													8
RRF													12

Legend:

Direct coverage	Indirect or general coverage					No discussion							
	Socioeconomic impact					Inequality dimension							Total
Fund	Access to services	Disposable income and consumption/affordability	Employment	Environmental quality of life	Social quality of life	(Dis)ability	Age	Class	Ethnicity	Gender	Race	Geographical	
REACT-EU													10
ESF+													11
ERDF													12
Erasmus+													8
LIFE													2
Horizon Europe													12
TOTAL	9	9	10	8	9	10	10	11	10	10	10	10	

Source: Authors' own elaboration, 2023.

a. Funds that directly target negative impacts of climate action policies

As a whole, the three pillars of the JTM address the socioeconomic impacts of climate policies in terms of access to services, disposable income and consumption, employment, environmental quality of life, and social quality of life. Nevertheless, the financing support is concentrated in certain geographical areas, based on the TJTPs prepared by Member States, risking a failure to adequately address negative impacts in other areas.

The **JTF** aims to invest in SMEs, the creation of new firms, research and innovation, and deployment of technology, as well as in systems and infrastructures for affordable clean and renewable energy, smart and sustainable local mobility, environmental rehabilitation, digitalisation, upskilling and re-skilling of workers, job-search assistance, and active inclusion of jobseekers based on the TJTPs. The results indicators for evaluation of funding programmes cover various socioeconomic impacts, including employment (e.g. jobs created in supported entities; participants engaged in job search), environmental quality of life (e.g. population benefiting from measures for air quality), and social quality of life (e.g. annual users of new or modernised public transport)¹²⁹. As such, the fund is **expected to cover all impacts of climate action policies assessed here**.

However, in terms of inequality dimensions, the JTF focuses **primarily on regional inequalities**. When preparing their TJTPs, Member States must pay particular attention to islands and outermost regions facing serious socioeconomic challenges deriving from the transition process¹³⁰.

¹²⁹ Regulation (EU) 2021/1056, Article 8, Annex III.

¹³⁰ Ibid, Article 6.

Other dimensions such as gender, age, class or (dis)ability are covered more **generally** by the horizontal enabling conditions underpinning several funds in the 2021-2027 financing period.

The Common Provisions Regulation (CPR)¹³¹ outlines horizontal enabling conditions for multiple EU funds (including JTF, ERDF and ESF+), which require Member States to have mechanisms in place to comply with the Charter of Fundamental Rights of the EU and a national framework for implementation of the United Nations Convention on the Rights of Persons with Disabilities (UNCPRD).

The JTF Regulation also explicitly refers to targeting citizens who are most vulnerable to the climate transition, jobseekers, citizens at risk of energy poverty, children, young people, older people, women, vulnerable groups that suffer disproportionately from the adverse effects of the transition, such as workers with disabilities, mining communities, and SMEs. It states that actions should follow the objectives of the European Pillar of Social Rights, which shows the importance of connecting the JTF to other social protection policies so as to ensure inclusion of those who are already furthest behind¹³².

InvestEU (JTM Pillar 2) supports projects that are of strategic importance to the EU, particularly in relation to the green and digital transitions, enhanced resilience, and strengthening strategic value chains. This includes energy and transport infrastructure (e.g. gas infrastructure and district heating), as well as the environment and resources, digital infrastructure, research and innovation, culture, tourism, defence, space, marine, economic diversification, and social infrastructure. The InvestEU Regulation explicitly states its aim to generate positive social impacts and enhance social inclusion by helping to increase employment across all regions, in particular among the unskilled and long-term unemployed, and to improve gender equality, equal opportunities, non-discrimination, accessibility, intergenerational solidarity, the health and social services sector, social housing, homelessness, digital inclusiveness, community development, the role and place of young people in society, as well as vulnerable people, including third-country nationals¹³³. The investment operations are screened to determine whether they have an environmental, climate or social impact. The methodology for assessing social impact requires 'estimating the social impact of projects, including on gender equality, on the social inclusion of certain areas or populations and on the economic development of areas and sectors affected by structural challenges such as the need to decarbonise the economy'¹³⁴. In addition, one of the main implementing partners for InvestEU is the EIB, which has a gender equality strategy and principles to ensure women's empowerment, applicable to all of its operations inside and outside the EU¹³⁵. As such, this financing instrument appears to target **all of the impacts of climate policies discussed here and indirectly covers all but one of the various dimensions of inequality considered**.

Similar to the JTF, the **PSLF** (JTM Pillar 3) aims to address serious social, economic and environmental challenges deriving from the transition in the territories identified in the TJTPs, primarily by facilitating the financing of projects in the public sector that do not generate sufficient streams of revenues to cover their investment costs¹³⁶. The PSLF Regulation explicitly recognises that inequalities need to be reduced, particularly in access to services and employment¹³⁷. Although the reduction of inequalities associated with other climate policy impacts are not explicitly mentioned in the legislation, it is

¹³¹ Regulation (EU) 2021/1060, Annex III and Annex IV.

¹³² Regulation (EU) 2021/1056, recitals 13-16; Interview with DG REGIO.

¹³³ Regulation (EU) 2021/523, Annex II, recital 22.

¹³⁴ Regulation (EU) 2021/523, Article 8(5-6).

¹³⁵ EIB, 2017, *The EIB Group Strategy on Gender Equality and Women's Economic Empowerment*. Available at: <https://www.eib.org/en/publications/eib-group-strategy-on-gender-equality>.

¹³⁶ Regulation (EU) 2021/1229, Articles 3 and 9.

¹³⁷ Ibid, recital 2.

expected that, in practice, public infrastructure investments **can address all types of impacts of climate policies**.

In the horizontal principles, the PSLF Regulation states that respect for fundamental rights and compliance with the Charter of Fundamental Rights of the EU, in particular gender equality, shall be ensured throughout the implementation process. Beneficiaries and the European Commission must avoid any discrimination based on gender, racial or ethnic origin, religion or belief, disability, or age throughout implementation, and where relevant, accessibility for people with disabilities will be given particular weight¹³⁸. This implies that **all inequality dimensions discussed in this study are covered at least generally**.

The **SCF** was specifically developed to support vulnerable households, micro-enterprises and transport users through measures and investments to increase the energy efficiency of buildings, decarbonise heating and cooling of buildings, and finance the switch to zero- and low-emission mobility and transport¹³⁹. It deals only with energy and transport poverty, while **directly targeting access to services, affordability/income and environmental and social quality of life impacts**. However, while the SCF was developed mainly as a corrective measure for the EU ETS, it is turning into something more general for addressing different impacts¹⁴⁰. According to the European Economic and Social Committee (EESC), the SCF will not provide sufficient financial support to responsibly address the socioeconomic effects of carbon pricing¹⁴¹. The SCF directly targets **inequality related to class/income and is also expected to indirectly target gender equality and non-discrimination**. The legislative proposal calls for gender equality, equal opportunities for all, and the accessibility rights of persons with disabilities to be upheld and promoted throughout the implementation of the fund¹⁴². In their Social Climate Plans, Member States must explain how the measures and investments will aim to address gender inequality¹⁴³.

The **EGF** focuses on a specific set of impacts, in particular those related to **employment** (unemployment, job loss, restructuring of enterprises, closure of businesses). Generally, when a company lays off over 200 workers – including as a result of climate action policies or the green transition – the EGF can be activated to provide personalised measures for the newly unemployed (e.g. help with looking for a job, career advice, education, training and retraining, mentoring and coaching, entrepreneurship and business creation), and training or subsistence allowances (e.g. allowances for carers, mobility and relocation allowances, and employers' recruitment incentives)¹⁴⁴. While the EGF directly targets employment impacts, the provision of allowances can help to address **disposable income and consumption impacts**. In addition, gender equality must be promoted throughout the implementation period and any discrimination based on gender, race, ethnicity, disability, and age in access to the EGF should be prevented¹⁴⁵, suggesting that **all inequality dimensions discussed here are directly covered, with the exception of geographical inequality**.

¹³⁸ Regulation (EU) 2021/1229, Article 4.

¹³⁹ Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8.2.2023), Article 6.

¹⁴⁰ Interview with European Trade Union Institute (ETUI).

¹⁴¹ Kattnig, T. and Mastantuono, A., 2021, *Social Climate Fund*, Opinion 2021-04774, EESC, paragraph 3.2.

Available at: <https://webapi2016.eesc.europa.eu/v1/documents/EESC-2021-04774-00-00-AC-TRA-EN.docx/content>.

¹⁴² Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8.2.2023), recital 19.

¹⁴³ Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8.2.2023), Article 4.

¹⁴⁴ Regulation (EU) 2021/691, Articles 4 and 7.

¹⁴⁵ Ibid, Article 10.

b. Funds that indirectly target negative impacts of climate action policies

Although not explicitly dedicated to addressing the social inequalities stemming from the impacts of climate policies, the following funds include objectives and actions that can, in practice, alleviate some of those inequalities. Some of the funds are also subject to certain conditions and horizontal principles that consider various dimensions of social inequality.

The **RRF** can target all types of socioeconomic impacts of climate action policies as its objective is to provide Member States with support for the reforms and investments set out in their Recovery and Resilience Plans.

These plans contain measures to achieve the objectives in areas such as the green transition, digital transformation, sustainable and inclusive growth, social and territorial cohesion, resilience, or education and skills¹⁴⁶. In the wake of the COVID-19 pandemic and the ongoing energy crisis, the RRF has become one of the main funds addressing short-term challenges. The RRF is therefore repurposed to support the energy and green transition with its social effects¹⁴⁷. The breadth of the RRF's scope suggests that it can **potentially indirectly cover all types of green transition impacts covered by this study**. Member States' national Recovery and Resilience Plans are required to explain how the measures will mitigate the social and economic impacts of the crisis and contribute to gender equality and equal opportunities for all (contributing to the implementation of the European Pillar of Social Rights)¹⁴⁸, suggesting that **all inequality dimensions considered in this study are at least indirectly targeted**.

REACT-EU indirectly addresses some of the impacts of climate action policies, **primarily access to (health) services, social quality of life** (via investments in infrastructure providing non-discriminatory basic services to citizens and active inclusion) and **employment** through access to the labour market and social systems for workers and the self-employed, and support to SMEs. This is in the context of helping the sectors most affected by the COVID-19 pandemic to recover, but also aiding Member States preparations for 'a green, digital and resilient recovery of the economy'¹⁴⁹. As REACT-EU encompasses existing Cohesion Policy funds from the 2014-2020 period, its implementation is based on the Operational Programmes developed in each region or Member State and the measures prioritised in each programme. It also means that the underlying Cohesion Policy funds are aiming to reduce regional disparities and their implementation is subject to the horizontal principles for ensuring gender equality and non-discrimination defined in the 2013 CPR¹⁵⁰.

Therefore, in terms of **inequality dimensions, they are all covered generally**. There is a particular focus on reaching disadvantaged groups and children and ensuring equal access to social services, prioritising gender equality, older people, persons with disabilities, ethnic minorities, and the homeless. It also encourages Member States to support people living in rural, border, less developed, insular, mountainous, sparsely populated and outermost regions, as well as in areas affected by industrial transition and depopulation¹⁵¹.

¹⁴⁶ Regulation (EU) 2021/241, Article 17.

¹⁴⁷ Interview with ETUI.

¹⁴⁸ Ibid., Articles 18 and 34.

¹⁴⁹ Regulation (EU) 2020/2221, recitals 5, 11-13.

¹⁵⁰ Regulation (EU) No 1303/2013.

¹⁵¹ Regulation (EU) 2020/2221, recitals 13-18 and Annex VIIa.

Among the long-standing EU funds (covering 2021-2027 in the current financing period), the **ERDF** and the **ESF+** are important sources of funding that can address the negative impacts and social inequalities of climate action policies. As part of the EU Cohesion Policy funds, they represent one of the most significant shares of the EU funding budget.

Their overarching objective is to improve cohesion and reduce disparities between regions in the EU. While the ERDF does this through investing in infrastructure, the environment, and social objectives (e.g. developing employment, education, social inclusion, and health infrastructure), the ESF+ works through primarily 'soft' measures linked to social inclusion, employment, education, and health.

The **ESF+** Regulation effectively addresses a variety of socioeconomic impacts and different forms of social inequality, thereby encompassing those associated with climate action policies. Objectives are designed to address specific social inequalities, such as gender, age, ethnicity, disability, and class.

In view of the wider scope of the ESF+, the aims focus on **employment**, for instance to enhance the effectiveness of labour markets and promote equal access to quality employment. In addition, measures to improve equal access to and quality of education and training are also linked to employment. The ESF+ promotes **social inclusion** through the eradication of poverty, **access to basic services** for vulnerable persons, and overall improvement of the **social quality of life**. Social, regional, health and educational inequalities are thus recognised as a major concern¹⁵².

The **ERDF** can support the same types of social interventions as the ESF+, thus it can indirectly target the negative impacts of climate change from the same angles of **employment**, **access to services**, **affordability/income disparity**, and **social quality of life**. In addition, it can invest in energy, transport, and the environment, including mitigating any potential negative impacts on **environmental quality of life**. Some of the main measures on energy and transport include investments in renewable energy, energy efficiency, and transport in the form of infrastructure, equipment, or research and innovation. The ERDF Regulation emphasises the possibility to alleviate energy poverty through measures improving energy efficiency¹⁵³.

Both funds are subject to horizontal principles (Article 9 CPR) and so-called enabling conditions (annexes to the CPR) that Member States must fulfil in order to obtain funding¹⁵⁴, suggesting that **these funds can target all dimensions of inequality**. The 2021 CPR¹⁵⁵ outlines the enabling conditions for ensuring that horizontal principles are respected, including requiring Member States to have mechanisms in place for compliance with the Charter of Fundamental Rights of the EU and a national framework for implementation of the UNCRPD. In addition, the CPR¹⁵⁶ emphasises the need to ensure non-discriminatory and transparent selection criteria, accessibility to persons with disabilities, gender equality and respect of the Charter of Fundamental Rights of the EU in the selection of operations.

¹⁵² Regulation (EU) 2021/1057, recitals 15-19 and Articles 3-4.

¹⁵³ Regulation (EU) 2021/1058, recitals 15, 16 and Articles 3-5.

¹⁵⁴ Regulation (EU) 2021/1060.

¹⁵⁵ Regulation (EU) 2021/1060, Annex III.

¹⁵⁶ Regulation (EU) 2021/1060, Article 73.

The CPR¹⁵⁷ sets out thematic enabling conditions applicable to specific objectives and funds, including:

- ERDF support for the low-carbon economy: the CPR requires Member States to have a national long-term renovation strategy to support the renovation of the national stock of residential and non-residential buildings, as well as an integrated national energy and climate plan required by the Energy Governance Regulation (including the elements asking for national objectives with regard to energy poverty); and
- ERDF and ESF+ support for social objectives: the CPR outlines thematic enabling conditions requiring Member States to have a strategic policy framework for active labour market policies in light of the employment guidelines, a national strategic policy framework for gender equality, a national or regional strategic policy framework for the education and training system, a national or regional strategic policy or legislative framework for social inclusion and poverty reduction, a national Roma inclusion strategic policy framework, and a national or regional strategic policy framework for health. These principles and enabling conditions, albeit general and not specific to the impacts or inequalities associated with climate action policies, have the potential to ensure that all interventions are inclusive and non-discriminatory.

Three other funds from the EU's long-term financial framework are also relevant, as their scope can include aspects linked to the negative impacts of climate action policies and social inequalities. The extent to which this occurs in practice will depend on the priorities defined in their (multi)annual work programmes, prepared by the relevant EU institutions.

Erasmus+ indirectly addresses **employment impacts** by promoting learning mobility and active participation of people in the areas of education, training, youth, and sport, thereby contributing to sustainable growth, quality jobs, and social cohesion and inclusion¹⁵⁸. The fund has the potential to support the development of new skills or provide training in relation to the positive and/or negative impacts of the green transition. It is purposely designed to benefit young people and people with fewer opportunities (due to economic, social, cultural, geographical or health reasons, migrant background, disability, educational difficulties, etc.), while ensuring the right to gender equality and non-discrimination. It explicitly states that, in some cases, people with fewer opportunities are less likely to participate for financial reasons, therefore their participation should be facilitated through targeted financial support (e.g. possible grant adjustments at national level)¹⁵⁹. It **generally targets all types of inequality dimensions**.

By contrast, the **LIFE** programme can **indirectly address only affordability impacts and environmental quality of life**, as it aims to protect, restore and improve the quality of the environment (air, water, soil), reverse biodiversity loss, tackle the degradation of ecosystems and contribute to climate change mitigation and adaptation. Under its strain of 'Clean Energy Transition', the programme supports actions in energy efficiency, which are expected to also tackle energy poverty. The Regulation also mentions that the programme has to reflect the principles of solidarity while making a material contribution to both economic development and social cohesion, as well as ensuring that the clean energy transition is addressed in a socially inclusive way¹⁶⁰.

¹⁵⁷ Regulation (EU) 2021/1060, Annex IV.

¹⁵⁸ Regulation (EU) 2021/817, Article 3 and Chapters II-IV., Article 15.

¹⁵⁹ Regulation (EU) 2021/817, recitals 19 and 64.

¹⁶⁰ Regulation (EU) 2021/783, Article 3, recitals 4 and 9.

Special focus is put on **geographical areas with specific needs or vulnerabilities** (e.g. with specific environmental challenges or natural constraints, trans-border areas, areas of high natural value and outermost regions)¹⁶¹, but **it does not explicitly target other dimensions of inequality**.

Horizon Europe implements projects that are in line with the objective to deliver scientific, technological, economic, and societal impact from investments in research and innovation.

It **can indirectly target all socioeconomic impacts of climate action policies covered here**, such as access to services (accessible transport and mobility), employment (equal pay without discrimination), disposable income and consumption (economic development, competitiveness), environmental quality of life (biodiversity, clean industries), and social quality of life (social inclusion, housing, health), as long as the projects addressing them focus on research and innovation¹⁶².

The Horizon Europe Regulation provides examples of award criteria for the selection of projects with an emphasis on gender equality, SMEs, and geographical diversity.

In addition, it states that the actions should aim to eliminate inequalities and promote equality and diversity in all aspects of research and innovation with regard to age, disability, race, and ethnicity, and all actions should respect the Charter of Fundamental Rights of the EU¹⁶³. This suggests that **all dimensions of inequalities are generally covered**.

2.3.2. Final recipients

Inequalities between population groups may be growing due to the transition to a low-carbon economy and the implementation of various climate action policies. For energy and transport poverty, for example, the accessibility and affordability of low-carbon technologies (e.g. heat pumps, solar panels, and electric cars) are uneven, and insufficient action is taken in that regard. As some people struggle to install solar panels, afford a personal car or even have housing, more urgent measures are needed to ensure access to housing and public transport¹⁶⁴. An important challenge is making sure that the funds effectively reach the final recipients who are negatively impacted so that they are included in the transition (in most cases, the targeted vulnerable groups are not direct eligible beneficiaries and benefit from the support indirectly, through intermediary institutions at national or regional level and the impacts of the investments, once implemented). Table 10 summarises the different types of vulnerable groups that can be final recipients of each of the selected EU funds.

¹⁶¹ Ibid, Article 14.

¹⁶² Regulation (EU) 2021/695, Article 3, Article 4 and Annex 1.

¹⁶³ Regulation (EU) 2021/695, recitals 53, 71 and Article 28.

¹⁶⁴ Interview with ETUI.

Table 10: Final recipients, by EU fund

Legend:

Direct targeting	Indirect targeting		Through horizontal principles		No targeting	
Fund	Vulnerable regions	Households in or at risk of energy poverty	Households in or at risk of transport poverty	SMEs	Unemployed	Other vulnerable groups*
JTM Pillar 1 – JTF						
JTM Pillar 2 – InvestEU						
JTM Pillar 3 – PSLF						
SCF						
EGF						
RRF**						
REACT-EU**						
ESF+**						
ERDF						
Erasmus+**						
LIFE						
Horizon Europe						

Notes: *Can include young people, older people, women, people with disabilities, people with migrant backgrounds or other racial/ethnic origin – these groups are usually covered indirectly by horizontal principles on equal treatment and opportunities for all; **These funds include actions that specifically target vulnerable young people.

Source: Authors' own elaboration, 2023.

Overall, stakeholders from vulnerable regions are targeted by the JTM and Cohesion Policy funds (including the JTF).

The former is particularly focused on regions at highest risk of negative impacts from the green transition, while the latter traditionally targets regional disparities in the EU. Vulnerable households at risk of energy and/or transport poverty and vulnerable micro-enterprises are directly targeted by the SCF.

The ERDF and the LIFE programme make explicit references to the potential to alleviate energy poverty through energy efficiency investments and are expected to target households at risk of energy poverty (although they do not specifically target transport poverty, it could be indirectly affected). A number of other funds (e.g. JTM, RRF, REACT-EU, Horizon Europe) do not explicitly discuss energy and/or transport poverty but include measures such as energy efficiency and development of clean mobility (which often includes public transport) that can be expected to have positive effects for energy-poor and/or transport-poor households. The unemployed are another vulnerable group explicitly targeted by several funds – the JTF and the EGF (which directly support people unemployed as a result of climate action policies) or the ESF+ and the ERDF (which target this group more generally). Finally, the latest crises have shown that SMEs are particularly vulnerable to changes, and are targeted by several of the funds, especially those supporting the recovery from the COVID-19 pandemic (RRF, REACT-EU) and the transition to a green economy (e.g. parts of JTM, ERDF and Horizon Europe).

While various types of vulnerable stakeholders are targeted by these EU funds, the extent to which they benefit from the support in practice remains to be seen. While the scope of the funds is broad enough to cover multiple impacts of climate action policies and vulnerable groups, there are some challenges and shortcomings in the design and implementation of the funds that can limit the potential benefits.

For instance, a number of funds are implemented based on national/regional plans (e.g. JTM, RRF) and programmes (e.g. REACT-EU, ESF+, ERDF), which means that vulnerable groups are reached only where relevant **measures are identified in the respective plans and programmes**. This means that if the relevant authorities do not recognise the specific risks to these groups or the potential negative impacts of climate action policies, appropriate measures might not be supported by the EU funds (irrespective of their scope). In particular, the scope of the TJTPs is overly narrow, being limited to fossil fuel and carbon-intensive regions¹⁶⁵. This excludes vulnerable groups in other regions not covered by the TJTPs. The EESC emphasises that investments should particularly target persons with disabilities, young people, and older people¹⁶⁶.

The RRF and REACT-EU are **temporary instruments** for the 2021-2024 period, designed to address the impacts of the COVID-19 and energy crises in the short term, as part of the NextGenerationEU initiative. This risks some interventions that contribute to addressing the impacts of climate action policies and target vulnerable groups might not be continued after the funding ends.

The short timeframe of NextGenerationEU poses challenges for optimal utilisation of the JTF. As it is partly linked to the recovery initiative, large parts of the JTF must be committed by end-2023. This is far quicker than the typical seven-year cycle of most funds financed through the multiannual financial framework. In addition, administrations of the most affected regions, which are usually simultaneously the weakest and poorest regions, might not have the **administrative capacity** to manage large amounts of funds adequately in a short timeframe¹⁶⁷. The European Committee of the Regions (CoR) requested that REACT-EU resources be spread until 2024 to allow managing authorities enough time and flexibility to implement a new programme, and to promote efficiency, effectiveness, and ease administrative burden¹⁶⁸. One potential issue of benefiting from the EGF might arise from the 12-week period for preparing and submitting an application. In this timeframe, the Member State needs to collect information on all workers who could be helped by the EGF¹⁶⁹. The deadline aims to reduce the time needed to reach displaced workers but could be too short for authorities with limited administrative capacity.

Member States' public bodies are expected to access SCF funding to target vulnerable households (especially households in energy poverty), vulnerable micro-enterprises, and vulnerable transport users (including in rural and remote areas), and to target women, children, people with disabilities, and single-parent families in particular¹⁷⁰.

¹⁶⁵ Interview with ETUI.

¹⁶⁶ Vitale, E. and Zahradník, P., 2020, *Just Transition Fund and amendments to the Common Provisions Regulation*, Opinion 2020-00499, European Economic and Social Committee, paragraphs 3.13 and 3.15.

Available at: <https://webapi2016.eesc.europa.eu/v1/documents/EESC-2020-00499-00-00-AC-TRA-EN.docx/content>.

¹⁶⁷ Interview with DG REGIO.

¹⁶⁸ European Committee of the Regions, 2020, *The REACT-EU package*, Opinion COR-2020-03318, recital 13. Available at: <https://webapi2016.cor.europa.eu/v1/documents/3T5AXJEHYTWU-1716777883-5228/download>.

¹⁶⁹ European Commission, 2021, *FAQ - European Globalisation Adjustment Fund for Displaced Workers (2021-2027)*, DG EMPL. Available at: <https://ec.europa.eu/social/BlobServlet?docId=23981&langId=en>.

¹⁷⁰ Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8.2.2023), Article 20, recital 19.

However, the EESC suggests **broadening the scope** of the SCF to vulnerable SMEs¹⁷¹, and clarifying that housing policy must provide adequate, accessible and long-term affordable housing for homeless people, young couples, single parents or families with many children, workers and the middle class in general¹⁷².

2.3.3. Involvement of stakeholders in the design and implementation of the funds

Public consultation and the involvement of social partners are typically required in designing and implementing EU funds. The majority of the shared management funds follow the partnership principle, which stipulates that implementation of the funds should build on a multi-level governance approach and ensure involvement of regional, local, urban and other public authorities, economic and social partners, research organisations and universities, and CSOs (e.g. environmental partners, NGOs, and bodies responsible for promoting social inclusion, fundamental rights, rights of persons with disabilities, gender equality and non-discrimination)¹⁷³. For the EGF, measures must be drawn up in consultation with the targeted beneficiaries, their representatives, or the social partners, as applicable. Clear information and guidance must also be provided to the social partners¹⁷⁴. For the ERDF, the CoR noted local and regional stakeholders' concerns about the centralisation of Cohesion Policy, and insisted that the partnership principle and multi-level governance are covered to ensure adequate participation of local and regional authorities in the preparation, implementation and evaluation of the funds¹⁷⁵.

Similarly, for funds that require the development of national/regional plans and programmes (e.g. PSLF, RRF, SCF), Member States are expected to consult different stakeholders and report on those consultation processes¹⁷⁶.

This can be further facilitated by the funds themselves: for example, DG REGIO facilitates the implementation of TJTPs through the Just Transition Platform, which was set up as a single access point for all stakeholders. Technical assistance is also put in place so that Member States can assist in setting up selection procedures and draw lessons for implementing the funds¹⁷⁷.

As part of the ESF+, Member States have to allocate resources to capacity-building among social partners and CSOs (training, networking, strengthening social dialogue) and to activities jointly undertaken by the social partners¹⁷⁸. The EESC encourages the Union and public authorities to make full use of the experience and capacity of the social partners and other CSOs operating at local, national and European level by involving them in designing, implementing, monitoring and evaluating the funding. In the ESF+ context, this means that public authorities should facilitate their access to the available resources. The EESC also believes that social partners and CSOs should be considered equal stakeholders in the monitoring committees, with voting rights and the possibility of exercising specific

¹⁷¹ Kattnig, T. and Mastantuono, A., 2021, *Social Climate Fund*, Opinion 2021-04774, European Economic and Social Committee, paragraph 3.20. Available at: <https://webapi2016.eesc.europa.eu/v1/documents/EEESC-2021-04774-00-00-AC-TRA-EN.docx/content>.

¹⁷² Ibid, paragraph 4.1.

¹⁷³ For example, as stated in Regulation (EU) 2021/1060, Article 8; Regulation (EU) 2021/1058, recital 8; or Regulation (EU) 2021/1056, recitals 18-19 and Annex II.

¹⁷⁴ Regulation (EU) 2021/691, Articles 7(4), 11(4) and 12(1).

¹⁷⁵ European Committee of the Regions, 2018, *European Regional Development Fund and Cohesion Fund*, Opinion COR-2018-03594, amendment 8. Available at: <https://webapi2016.cor.europa.eu/v1/documents/4HZEMHAC3EDJ-6-7922/download>.

¹⁷⁶ Regulation (EU) 2021/1229, recital 4; Proposal 2021/0206, recital 15 and Article 4(1); Regulation (EU) 2021/241, Article 18(4).

¹⁷⁷ Interview with DG REGIO.

¹⁷⁸ Regulation (EU) 2021/1057, Article 9.

steering functions¹⁷⁹. At the same time, the CoR highlights the key role of local and regional authorities in the drafting and implementation of EU funds, as do civil society and economic and social partners. This was emphasised in the opinions on the JTF¹⁸⁰, ESF+¹⁸¹, and SCF¹⁸².

However, with funds implemented through programmes and plans developed at national/regional level, **the organisation and effectiveness of the consultation process can vary by Member State**. For instance, the European Commission can check what Member States write in their programmes about how partners are involved in the implementation of the funds, and if they are not satisfied, they may challenge the managing authorities to address the issues. But the Commission cannot order Member States to involve specific stakeholders¹⁸³. As confirmed by the ETUI, actual involvement remains unclear and may depend on the Member State. Some countries with more experience in managing change and involving social partners in the design and implementation of the investments function adequately (e.g. Germany, France). In other cases, there is a procedure but the dialogue may not be meaningful, and/or opinions may not be taken into account. ETUI also mentioned that participation can be enhanced by increasing local administrative capacity¹⁸⁴.

In the case of the SCF, the final agreement on the legislative proposal outlines a process for Social Climate Dialogue between the European Parliament and the European Commission. In this process, twice a year, competent committees of the European Parliament may invite the Commission to discuss issues such as the plans submitted by Member States and the Commission's assessment of these plans, the fulfilment of milestones and targets of the plans¹⁸⁵. Nevertheless, stakeholders have suggested a more structured and meaningful civil dialogue, in which all relevant stakeholders are involved in determining how SCF resources are spent, and allocating more financing for capacity-building for CSOs¹⁸⁶. **For directly and indirectly managed EU funds, the consultation processes depend on the provisions and functioning of each fund**. For Erasmus+, for example, the European Commission chairs a committee of Member State representatives (mainly ministries), which meets to deal with sectoral issues.

Where appropriate, external experts, including representatives of the social partners, may be invited to participate in these meetings as observers¹⁸⁷. The LIFE programme involves relevant stakeholders and sectors in the development of multiannual work programmes and recognises the general importance of involving stakeholders in governance on environmental, climate change and related energy transition matters¹⁸⁸. Horizon Europe adheres to the principle of co-creation. It plans to actively engage and involve all societal actors (including citizens and CSOs) in its activities, such as co-designing and co-

¹⁷⁹ Balon, K. and Del Rio, C., 2018, *Proposal for a Regulation of the European Parliament and of the Council on the European Social Fund+*, Opinion 2018-02962, European Economic and Social Committee, paragraphs 1.6, 1.12 and 4.7.

Available at: <https://webapi2016.eesc.europa.eu/v1/documents/EESC-2018-02962-00-01-AC-TRA-EN.docx/content>.

¹⁸⁰ European Committee of the Regions, 2020, *Just Transition Fund*, Opinion COR-2020-00418, amendment 15 and recital 18, Available at: <https://webapi2016.cor.europa.eu/v1/documents/3T5AXJEHYTWU-565423274-7752/download>.

¹⁸¹ European Committee of the Regions, 2018, *European Social Fund Plus*, Opinion COR-2018-03597, amendment 19. Available at: <https://webapi2016.cor.europa.eu/v1/documents/4HZEMHAC3EDJ-6-8043/download>.

¹⁸² European Committee of the Regions, 2022, *Towards a socially fair implementation of the Green Deal*, Opinion COR-2021-04801, amendment 7. Available at: <https://webapi2016.cor.europa.eu/v1/documents/3TERTJPUQSXZ-1360169995-8345/download>.

¹⁸³ Interview with DG REGIO.

¹⁸⁴ Interview with ETUI.

¹⁸⁵ Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8.2.2023), Article 23(b).

¹⁸⁶ Social Platform, 2022, Policy paper on the Social Climate Fund.

Available at: https://www.socialplatform.org/wp-content/uploads/2022/06/social_climate_fund_position_june_2022.pdf.

¹⁸⁷ Regulation (EU) 2021/817, Article 34.

¹⁸⁸ Regulation (EU) 2021/783, recitals 10 and 15, and Article 18(5).

creating research and innovation agendas, content and processes that address citizen and civil society's concerns, needs and expectations, as well as making scientific knowledge and education publicly accessible¹⁸⁹.

In the case of InvestEU or strands providing support through loans and financial instruments, consultations and public participation are not typically a part of the decision-making process. Rather, investment decisions are taken by implementing partners such as the EIB, based on their own guidelines and principles. However, as the EIB is a public EU bank, stakeholders can indirectly influence such decisions, for example, through participating in certain public consultations (EIB's Climate Bank Roadmap, Energy Lending Policy, Transport Lending Policy, etc.), which shape the Bank's criteria for project selection and appraisal¹⁹⁰.

Overall, stakeholder involvement varies by fund and there may be different areas for improvement to strengthen the participation of all stakeholders in the design of EU funds and to ensure that vulnerable groups and relevant partners (e.g. young people, trade unions, local authorities) are adequately involved in the implementation of the funds at all governance levels.

2.4. Gap analysis

2.4.1. EU policy instruments

In assessing the extent to which 14 EU-level climate policy instruments recognise and discuss their socioeconomic impacts and possible exacerbation of inequality dimensions¹⁹¹, several key gaps were identified. These are summarised below, distinguishing between positive and negative impacts.

a. Negative impacts

Socioeconomic impacts: Aside from impacts related to employment, disposable income and consumption, and environmental quality of life (each of which is discussed directly or – typically – indirectly by the majority of the climate policy instruments), the two remaining impacts in the typology feature significantly less often. The acknowledgement and discussion of negative socioeconomic impacts on access to services and social quality of life are exceedingly rare considerations in the climate policy instruments.

This analysis suggests that the climate policies demonstrate a clear lack of recognition of negative impacts associated with access to services and social quality of life. In reviewing the negative socioeconomic impacts more broadly, the analysis points to a general lack of sufficient depth of discussion or understanding of the relationship between the implementation of climate policies and their negative impacts.

Inequality dimensions: Overall, inequality dimensions are rarely identified and discussed in the 14 climate policy instruments (class and gender are most commonly identified, but in less than one-third of the instruments). Considerations of how climate policies may negatively impact inequality dimensions of disability and age represent another notable gap, as both inequality dimensions are only acknowledged by the EU Adaptation Strategy as part of its discussion of the need to account for the adaptive capacity of different groups. The absence of considerations on how the climate policy instrument may impact ethnicity and race-based dimensions of inequality is the clearest gap.

¹⁸⁹ Regulation (EU) 2021/695, recitals 51, 7(11), and 8(4).

¹⁹⁰ EIB, 2023, *Public consultations*. Available at: <https://www.eib.org/en/about/partners/cso/consultations/index.htm>.

¹⁹¹ 'Negative impacts' or 'positive impacts' refer to socioeconomic impacts and inequality dimensions contained within the typology developed in this study.

Climate policy instruments: The extent to which negative impacts are identified and discussed varies quite significantly. Apart from the EU Adaptation Strategy and the European Climate Law, in which a discussion of five negative impacts are detected in both cases, the remaining instruments recognise fewer negative impacts. The absence of such considerations is most apparent in four climate policy instruments, in which only one or few negative impacts were detected. The EPBD, the ESR, EU Ecolabel, and the CEAP fail to include a direct or indirect discussion of the negative impacts likely to materialise from their implementation.

Mitigation measures: Of the 10 policy instruments that discuss their potential negative impacts, eight mention measures to address those impacts. Often, the mitigating measures aim to address negative employment impacts, for instance through investment and use of existing EU funds for training and jobseeking initiatives.

b. Positive outcomes

Socioeconomic impacts: Positive outcomes for access to services and social quality of life represent the largest gaps in the socioeconomic impacts in the typology developed for this study.

Inequality dimensions: Climate policy instruments' identification of positive outcomes related to dimensions of inequality as a result of their implementation is exceedingly rare. One exception is the inequality dimension of class, which is identified and discussed in nearly half of the climate policy instruments, although typically as part of a discussion on the socioeconomic impact of disposable income and consumption.

Climate policy instruments: There is significant variation among the climate policy instruments in the extent to which they consider the positive outcomes of their implementation. The gap was most apparent in the EU Ecolabel, which did not identify any positive outcomes, followed by the REPower EU Plan, ESR, and both CO₂ emissions performance standards (light-duty vehicles and heavy-duty vehicles), which identify only one positive outcome in accordance with the typology.

c. Are these EU policy instruments sufficient?

The analysis points to gaps in the recognition of socioeconomic impacts or effects on inequality dimensions within the EU climate action policies, particularly in relation to impacts on access to services, the social quality of life, and inequality dimensions such as disability, age, ethnicity or race. While it can be tempting to consider these existing policy instruments insufficient, a more relevant question might be to ask whether the climate action policies themselves are the correct instruments for identifying and addressing the socioeconomic impacts and inequalities considered in this study. After all, the primary objective of these policies is to promote climate action and contribute to the EU's long-term goal of climate neutrality. Hence, by design they do not aim to tackle social issues or inequalities and it may be unrealistic to expect social issues to be addressed in every climate or environmental policy. The primary objective of mitigation or adaptation policies is to mitigate the negative impacts of climate change or improve resilience, and reducing the potential regressive impacts of these policies may diminish their effectiveness in delivering these climate objectives.

For example, lump-sum transfers that increase disposable income of households may increase their consumption, with negative consequences for energy use and GHG emissions¹⁹².

¹⁹² Ludden, V., Le Den, X., Colaiacomo, E., Finello, F. And Landes, F. 2021, *Social impacts of climate mitigation policies and outcomes in terms of inequality*, Final Report, Ramboll. Available at: https://ramboll.com/-/media/files/rm/rapporteur/social-impacts-of-climate-mitigation-policies-and-outcomes-in-terms-of-inequality/eea_just_transition_final-report_31_march21_revised-clean.pdf?la=en.

Therefore, it is important to understand what the socioeconomic impacts of the climate action policies are at the design stage of the policy-making process and how they can be managed and mitigated with existing social policies and funds. It is even more critical to avoid working in silos and ensure greater integration across the domains of social policies and climate policies with greater cross-sectoral working (see Part 4 for recommendations).

2.4.2. EU funds

For the 12 EU funds analysed, the key gaps identified are in relation to the coverage of climate action policies' impacts and dimensions of inequality, along with certain other aspects. These are described in turn below.

a. Coverage of impacts

Socioeconomic impacts: The socioeconomic impacts of climate action policies are rarely explicitly identified by the EU funds and are mostly addressed indirectly. Nevertheless, all types of impacts within the scope of this study are covered by the funds in question.

Inequality dimensions: Many inequality dimensions and vulnerable stakeholder groups – including young people, older people, women, people with disabilities, and people with migrant backgrounds or other racial/ethnic origin – are covered only generally by the horizontal principles in the majority of EU funds. There is limited explicit information on how these funds will comprehensively address social inequalities and impacts of climate action policies on different groups of stakeholders.

Other aspects: The limited administrative capacity of some relevant authorities or potential beneficiaries is not adequately considered in funds with a short timeframe for implementation, such as those that fall under NextGenerationEU and a significant part of the JTF. Capacity-building among the authorities managing the funds and eligible beneficiaries preparing proposals to access the funds is important if the funds are to reach the intended final recipients. The temporary nature of funds such as the RRF and REACT-EU risks the assistance to certain vulnerable groups being discontinued after the funding ends. For shared management funds and funds relying on national/regional plans, funding is ultimately at the discretion of Member States and their proposed priorities. Although the EU funds can address the impacts of climate action policies and different dimensions of inequalities, the extent to which this happens in practice remains unclear. Similarly, consultation processes and their effectiveness differ by Member State and there may be areas for improvement.

Many funds only finance large-scale projects, rather than smaller ones. This is often the case with funds with a large loan component, such as the PSF and InvestEU.

b. Are these EU funds sufficient?

The analysis shows that the EU funds in this study have good coverage of socioeconomic impacts and inequality dimensions associated with climate action policies (as defined in Part 1). Although in many cases these aspects are covered indirectly and/or through broad provisions, there are no significant gaps that suggest that existing EU financing instruments are insufficient. Together, the 12 funds cover all types of impacts and minimise inequality effects.

Accordingly, it is more important to address how the EU funds are used to ensure that their potential is maximised and their benefits reach all targeted groups (see Part 4 for recommendations).

3. MEMBER STATE APPROACHES: COUNTRY CASE STUDIES

3.1. Key findings from the five case studies

KEY FINDINGS

The analysis shows that in all five of the Member States examined (Austria, Greece, the Netherlands, Slovakia, Spain) the socioeconomic impacts associated with climate change mitigation and adaptation policies were assessed in the policy-making process, albeit to varying degrees. The socioeconomic impacts most frequently assessed include GDP and economic development, job loss/creation, disposable income, and public health. Assessment is usually ad hoc and there is no standardised methodology.

The types and objectives of measures adopted to address the socioeconomic impacts of climate mitigation are similar across countries and mainly consist of: 1) providing support to improve energy efficiency and renovate buildings; and 2) increasing energy access.

Given certain groups' higher exposure and/or vulnerability to climate hazards, NASs and NAPs highlight the need to account for existing disadvantages when developing adaptation measures/plans. However, they provide no actual quantification of the impacts associated with adaptation policies.

3.1.1. Climate change mitigation policy

a. How are social impacts assessed?

The social impacts associated with certain pieces of climate change mitigation policy were assessed in all five analysed Member States, albeit to varying degrees. Most often, such an assessment was carried out as part of an ad hoc analysis of the broader estimated impacts of a specific policy, such as the NECP or the Just Transition Plan, commissioned by the relevant national ministry to external consultants, national or international organisations or institutes. For instance, the Slovak Ministry of Environment relied on the internal Institute for Environmental Policy to assess the social impacts of the 'Fit for 55' package; Spain commissioned an external think tank to undertake a modelling study on the expected impacts of the NECP; and the World Bank and other non-governmental research institutes played an important role in conducting research and analysis on the basis of Greece's Just Transition Development Plan. In the Netherlands, both the Climate Agreement and the Climate Plan 2021-2030 include an assessment of the impacts of mitigation measures.

In some countries (e.g. Austria, Slovakia), a general regulatory impact assessment (RIA) procedure is legally required for all pieces of legislation under adoption. In Slovakia, while these assessments cover the social impacts of such policies, the methodologies and types of impacts considered vary depending on the ministry in charge.

The socioeconomic aspects that Member States most frequently consider when assessing the impacts of mitigation policies include **GDP and economic development, job loss/creation, disposable income, and public health.**

In addition, **energy poverty** is regularly measured and monitored across all Member States, albeit in different ways. The research for these case studies identified no other regularly monitored indicators of the social impacts of climate change mitigation policies.

b. How are social impacts addressed?

Overarching similarities emerged across the case studies in the types and objectives of policy measures adopted to address the social impacts of climate mitigation. On the one hand, **Just Transition Plans have been put in place by most countries to support the regions most affected by coal phase-out strategies and targets, or transition of heavy industries** (Greece, the Netherlands, Slovakia, Spain)¹⁹³. As the plans were developed for the JTM, and in line with the requirements set by the European Commission, they are territorial, target coal-dependent regions, and accompanied by an assessment of the socioeconomic impacts associated with coal phase-out plans. Provision of financial aid, creation of new jobs, re-skilling, worker relocation, transformation of heating systems and maintenance of access to energy sources in these regions (which often rely on coal as their main source of power) are the most common actions foreseen in the respective TJTPs. This suggests that when Member States are required to assess the socioeconomic impacts of climate action policies to access EU funding and are given resources to conduct these assessments (e.g. through technical assistance provided by the Directorate-General for Structural Reform Support (DG REFORM) to develop the territorial plans), they are more likely to address and mitigate the negative impacts.

On the other hand, **targeted actions or plans have been adopted to address the issue of energy poverty in all Member States considered**. In this respect, policy measures primarily aim to: 1) provide support towards improving energy efficiency and renovating buildings; and 2) increase energy access (e.g. through allowances aimed at improving energy affordability). In certain cases, measures to ensure the provision of basic social assistance are also considered to address energy poverty (e.g. Slovakia). However, the extent to which these measures specifically target, or actually reach, the most vulnerable groups varies between countries. For instance, in Greece, energy poverty-related measures typically target energy-vulnerable or low-income groups, whereas in Slovakia, some programmes are universal, open to all citizens, and include a small number of specific conditions or additional benefits for low-income groups.

The development of these overarching policies (in particular, NECPs and TJTPs) was often supported by external actors, such as national research institutes, consultancies and think tanks, or international and European organisations. Slovakia benefitted from technical assistance provided by the European Commission through the Initiative for Coal Regions in Transition, in the development of its TJTP for the Upper Nitra region. The analysis shows that such support helps Member States to address the social impacts of climate policy, especially in situations when they do not have the resources and/or capacity to do so. At the same time, as required by the JTM, efforts were made to involve relevant stakeholders and the general public throughout the adoption process, via public consultations, workshops, communication activities, and/or dedicated events.

In some countries, public consultation is mandatory for the adoption of some or all of the major pieces of legislation (e.g. Greece, Slovakia). In addition, ensuring the involvement of stakeholders and partners in the development process of the TJTPs is required by the European Commission in the context of the JTM. However, the analysis shows that public consultations are not always carried out comprehensively, and since there is often no public record of how the consultations were carried out, it is difficult to assess the degree to which they were simply pro forma.

¹⁹³ In Austria, areas of coal mining are no longer significant in the TJTP region, or in Austria overall, because the exit from coal production occurred some time ago and was eased by EU initiatives such as RECHAR, the EU programme that provided grants to re-develop depressed mining areas.

Overall, no evidence on the effectiveness of the policy measures was found in the research conducted for the case studies. As most of these measures have only recently been adopted (in particular, the TJTPs), their impacts in mitigating the socioeconomic consequences of climate mitigation policy have likely not been observed or measured yet.

3.1.2. Climate change adaptation policy

a. How are social impacts assessed?

Climate vulnerability risk assessments (CVRAs) represent a crucial first step in the development of adaptation policies that consider their social impacts. CVRAs typically analyse exposure and vulnerability for each identified risk, including by assessing current socioeconomic conditions such as population density or age structure, institutional capacity to cope with a specific risk, etc. They allow policy makers to identify and prioritise adaptation options that reduce the risks identified. The EU Climate Law requires Member States to adopt NASs, developed on foot of an assessment of climate vulnerabilities and risks. The Netherlands produced a CVRA in 2015 that only considers the health impacts from climate hazards. In Greece, all regional adaptation plans are required to include a vulnerability assessment, which takes certain socio-demographic factors into account. Not all of the five Member States have a national procedure in place for such assessments (e.g. Slovakia).

Little evidence emerged on an assessment of the socioeconomic impacts of adaptation policy.

The **NASs/NAPs generally recognise the expected differential impacts of climate change on certain socioeconomic groups**, such as older people, women, and people with respiratory diseases, but not the impacts that the adaptation measures themselves can have on these groups. Given their higher exposure and/or vulnerability to climate hazards, NASs and NAPs tend to stress the need to consider or assess such disadvantages when developing adaptation measures/plans.

The **NASs and NAPs provide little to no quantification of the impacts associated with adaptation policies**. This likely reflects the fact that these national strategies/plans are broad frameworks, providing general guidance and principles to be followed in the implementation of adaptation measures at regional and local level. As such, they generally do not identify any specific concrete measures. Even where concrete measures are identified in the NAPs, they do not appear to consider social impacts.

Overall, stakeholder involvement in the development of national adaptation policy is lower than in mitigation policy. In Austria and Greece, stakeholders were involved at different stages of the process, but little information was found on the outcome of such consultations. In Greece, stakeholder and public awareness of adaptation policy seemed lower compared to mitigation policy, prompted the planning of workshops and capacity-building activities (since the adoption of the NAS) so as to ensure more informed consultations during the revision of the strategy.

b. How are social impacts addressed?

No evidence of actions to address social impacts of adaptation measures at the national level was identified in the case studies. This is unsurprising, as in most cases adaptation measures are implemented at local (e.g. municipal) level, which was beyond the scope of the case studies and no examples were mentioned by interviewees.

3.2. Lessons from the case studies

The key findings and insights from the five case studies allowed for some lessons to be drawn.

Firstly, **EU policy, legal requirements and funds emerge as an important driver** of the inclusion of social considerations in national climate action policy and design of just transition measures. Indeed, most of the policy measures identified are associated with specific EU provisions (e.g. a requirement to report on energy poverty within the NECP Regulation¹⁹⁴) and co-financed with EU funds. Notably, EU funds and support emerge as a particularly precious resource for some Member States, particularly in instances of lack of resources or technical capacity at national level.

The case studies revealed **significantly greater progress in climate change mitigation (compared to adaptation) in respect of addressing policy-related social impacts**. Mitigation policy has reached a higher degree of development (compared to adaptation), which likely led to higher visibility and a greater understanding of the associated impacts. The targets set at EU and national level are also more stringent in the area of climate mitigation. By contrast, action on climate change adaptation is more recent, making it more challenging for Member States to identify associated impacts.

Finally, while research reveals some progress in accounting for social vulnerabilities in the drafting and assessment of climate policies, and in acknowledging the emergence of their social impacts, **there is no systematic and widespread approach to measuring and addressing social impacts in the Member States**.

¹⁹⁴ NECP Regulation. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2299&from=EN>.

4. CONCLUSIONS AND RECOMMENDATIONS

KEY FINDINGS

The analysis points to a general gap in that there is limited systematic examination of the social impacts of climate action policies at EU or Member State level, with rather limited recognition of the impacts on certain dimensions of inequality such as ethnicity or race. At EU level, climate policy instruments show limited recognition of their potential impacts on access to services and social quality of life. The EU funds, on the other hand, have broad mandates that suggest they can cover all socioeconomic impacts of climate policies and all types of inequality dimensions examined here. In the five Member States analysed, there is some recognition of the social impacts of climate action policies but they are not systemically taken into account in the policy-making process.

These gaps do not suggest an urgent need to introduce new policy instruments or funds. Rather, a more appropriate avenue for action is to improve the understanding of climate action policies' socioeconomic and inequality impacts, and strengthen the use of existing instruments and funds in addressing such impacts. A set of 10 recommendations are proposed in relation to:

- 1) horizontal aspects;
- 2) the design, implementation and assessment of policy instruments; and
- 3) the use of EU funds.

4.1. Synthesis of findings and overall gap analysis

The research points to some important gaps that somewhat explain the (still) limited recognition of climate policies' impacts on socioeconomic aspects and dimensions of inequality. A general gap is the limited systematic examination of the social impacts of climate action policies at EU and Member State level, including rather limited recognition of impacts on certain dimensions of inequality such as ethnicity or race. Common definitions have only recently emerged for concepts such as 'energy poverty' or 'vulnerable consumer', which can aid understandings of the dimensions of the impacts and ensure that relevant policies and funds target the right groups of stakeholders. For example, the Commission proposal for the recast of the Energy Efficiency Directive (EED)¹⁹⁵ and the provisional agreement on the Social Climate Fund (SCF)¹⁹⁶ include these common definitions.

At EU level, there is limited recognition of climate action policies' negative impacts beyond the impacts on employment and disposable income, while the understanding of their positive impacts similarly centres on their impacts on employment, income and environmental quality of life, with impacts on the social quality of life or access to services less recognised. The potential impacts on class inequalities are somewhat recognised, but climate action policy impacts on disability, age, ethnicity or race do not seem to be acknowledged.

¹⁹⁵ Proposal 2021/0203 (COD). Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021PC0558>.

¹⁹⁶ Proposal 2021/0206, Provisional Agreement Resulting from Interinstitutional Negotiations (8 February 2023). Available at: [https://www.europarl.europa.eu/RegData/commissions/envi/inag/2023/02-08/CJ39_AG\(2023\)742302_EN.pdf](https://www.europarl.europa.eu/RegData/commissions/envi/inag/2023/02-08/CJ39_AG(2023)742302_EN.pdf).

Most of the EU funds examined target, directly or indirectly, the potential socioeconomic impacts of climate policies and inequality dimensions covered in this study, albeit in a general manner through the consideration of horizontal principles.

In theory, the scope of the EU funds allows them to target different vulnerable groups, but this has yet to be examined in practice, especially for those funds that rely on Member State or regional implementation programmes to define specific national or regional priorities.

In the five Member States analysed, very little appears to be done: despite some recognition of the social impacts of climate action policies, these are not systematically taken into account in the policy-making process. Although the consideration of social impacts is usually part of standard impact assessment practices, there are no comprehensive assessments showing the actual outcomes of current climate policies. Nor is there a standardised methodology to guide the assessment of those social aspects. Stakeholder consultations take place at Member State level on both policies and funding programmes, but the extent to which they have an impact on the policies or funds in practice is not clear. For instance, Member States do not always record whether and how stakeholder feedback was taken into account in the final versions of programming or policy documents. The analysis in the case studies shows that if stakeholder consultations are conducted, the social impacts of climate action policies are more likely to be addressed. This is especially true if the consultations are rigorous and comprehensive. The review of the National Energy and Climate Plans (NECPs) and past assessments suggest that energy poverty is insufficiently covered in the NECPs (despite a requirement in the Energy Governance Regulation)¹⁹⁷, and even when it is recognised there is little operationalisation or concrete measures. Nevertheless, good practices (e.g. consultations, assessments) often seem to be linked to the use of EU funding as mandatory requirements, suggesting that the funding leverages the consideration of socioeconomic impacts, e.g. just transition aspects. Finally, Member States often have insufficient administrative and/or technical capacity to identify the socioeconomic impacts of climate policies or their effects on inequality.

4.2. Policy recommendations

While the gaps identified point to several different avenues for action, the following recommendations focus on what is within the remit of the European Parliament and its role in the EU decision-making process. The particularities of existing EU policies or funds (e.g. shared management practices) were taken into account in order to outline recommendations that are feasible and likely acceptable to different stakeholders.

The gap analysis highlights some areas which EU policy instruments and funds can better address, but did not show an urgent need to introduce any new policy instrument or fund. Rather, there is a strong need to improve the implementation of existing instruments, including improving the outreach of EU funds, and strengthening links with social policies. The climate action policies are likely to entail some potentially negative socioeconomic impacts and it is crucial that these impacts are recognised and mitigated early on, including using various EU funds to finance such measures. Consequently, a number of recommendations are proposed to improve the recognition of climate policies' socioeconomic impacts and boost the potential of EU funds to support measures to mitigate these impacts.

¹⁹⁷ Bouzarovski, S., Thomson, H., Cornelis, M., Varo, A. and Guyet, R., 2020, *Towards an inclusive energy transition in the European Union: Confronting energy poverty amidst a global crisis*, EU Energy Poverty Observatory, Publications Office of the European Union, Luxembourg. Available at: <https://op.europa.eu/en/publication-detail/-/publication/4a440cf0-b5f5-11ea-bb7a-01aa75ed71a1/language-en>.

The following recommendations are proposed in relation to 1) horizontal aspects, 2) design, implementation and assessment of policy instruments, and 3) use of EU funds.

Horizontal aspects:

- Promote further research into the impacts of climate policies and raise awareness of the issue.** Much remains to be understood in terms of the long-term impacts or particular effects on different dimensions of inequality. For example, there is no research on the impact of climate change mitigation policies on racial inequality in the EU. This is illustrated by the lack of research on the climate and climate policy impacts on Europe's only indigenous population, Sami people across Scandinavia, in spite of protests around wind and hydro power development, and displacement. Further assessments are necessary to determine the extent to which EU policy instruments and funds address the negative impacts of climate policies in practice during their implementation. While addressing social issues in every climate or environmental policy is not feasible – to do so would likely compromise their effectiveness to fulfil their primary objectives¹⁹⁸— identifying the social inequalities and social impacts associated with climate policies is necessary before the most appropriate approaches for addressing these issues can be determined (in some cases there may even be synergies with existing social policies). Some EU funds have diverse objectives covering both climate/environmental aspects and social issues, and it is important to understand the extent to which the impact of climate investments (i.e. those supporting climate policies) could be mitigated through other investments targeting social impacts;
- Promote improvement of data quality.** The poor quality of available data is a large barrier to better understanding the social dimensions of energy poverty and other related issues. There are no dedicated household surveys on climate or energy; all EU-wide monitoring of energy poverty is done on the basis of EU Statistics on Income and Living Conditions (EU-SILC), and to a lesser extent, Household Budget Surveys (HBS), which were created for other purposes and only provide a partial picture. Not only do these surveys do a disservice to understanding energy poverty, transport poverty, etc., but they are also limited in their handling of socio-demographic data.
- Build up the administrative and technical capacity of different stakeholders.** The assessments suggest that there may be challenges in effectively managing and implementing the EU funds at local level, or in assessing the various impacts of climate policies. There should be increased investment in building administrative and technical capacity at local level, for instance through training and the use of technical assistance available under different EU funds;
- Ensure that there is more collaboration and involvement of relevant stakeholders in the entire policy-making process.** Consultation and involvement of different stakeholders, including local and regional authorities, social partners (i.e. trade unions, employer organisations), civil society organisations and private sector actors in the design, implementation and assessment of policies and funds is a good practice that should be encouraged. Wide stakeholder involvement at the design stage can ensure that the right stakeholders and beneficiaries are targeted by the policies and funding programmes. Involvement of stakeholders in the oversight and monitoring of funds can ensure fair and

¹⁹⁸ For example, Ludden, V., LeDen, X., Colaiacomo, E., Finello, F. and Landes, F., 2021, *Social impacts of climate mitigation policies and outcomes in terms of inequality*, Final Report, Ramboll. Available at: https://ramboll.com/-/media/files/rm/rapporteur/social-impacts-of-climate-mitigation-policies-and-outcomes-in-terms-of-inequality/eea_just_transition_final-report_31march21_revised-clean.pdf?la=en.

transparent allocation. Collaborations could be useful to help establish partnerships and provide incentives to encourage private sector investment. Finally, stakeholder involvement can boost the sense of ownership among different stakeholder groups and improve the acceptability of policies and measures.

Design, implementation and assessment of policy instruments:

- **Provide guidance on how to assess the social impacts of climate policies and establish clear EU-wide definitions, such as for ‘vulnerable consumers’ and ‘energy/transport poverty’.** The lack of clear, EU-wide definitions and assessment guidelines may be a potential cause of the funds not reaching the relevant stakeholders or Member State policy makers not mapping and assessing the social impacts of their climate actions. The recent Commission proposals for a recast of the EED and SCF introduce common definitions of vulnerable households and energy poverty. Defining concepts at EU level is essential to provide a common understanding and framework for policy makers, researchers, and practitioners to address the issue and measure progress across the EU. Common definitions can facilitate the development of effective policies and targeted interventions to address the root causes and enable cross-country comparisons and learning. It is of utmost importance that the final versions of these definitions are sufficiently concrete for Member States to use in impact assessments for their climate action policies; and
- **Provide guidance on how to consistently assess the social impacts of climate policies throughout the policy cycle.** Good practices already exist at EU level; for example, the European Commission’s Better Regulation Guidelines¹⁹⁹ were strengthened to take better account of environmental impacts (via the ‘do no significant harm’ principle²⁰⁰) and social impacts (via consideration of the European Pillar of Social Rights²⁰¹) in the development of all policies. Encouraging Member States to adopt similar approaches or to consider these principles more consistently in their policy-making processes can provide the necessary basis for comprehensive assessments of social and climate issues, both in the development of policies (through impact assessments) and the monitoring and evaluation of policies (through ex-post evaluations). There are many examples of mainstreaming guidance for other issues, especially environment/sustainability and gender (including existing work by the European Parliament²⁰²), which can serve as a useful starting point.

Use of EU funds:

- **Increase efforts to reach the final recipients of EU funds (especially when they are not eligible beneficiaries).** The assessments indicate that while some funds and programmes are explicitly designed to target vulnerable groups, there may be challenges in reaching them effectively. For example, individuals cannot access EU funds directly but can usually receive support through national or regional agencies, authorities or other actors that can be direct fund beneficiaries (e.g. an employment agency can benefit from EU funding and use it to organise training for individuals, who can be understood as the final recipients but

¹⁹⁹ European Commission, 2021, *Better Regulation Guidelines and Toolbox*. Available at: https://commission.europa.eu/law/law-making-process/planning-and-proposing-law/better-regulation/better-regulation-guidelines-and-toolbox_en.

²⁰⁰ This principle stipulates that EU policies should not lead to significant negative impacts on the climate and/or environment.

²⁰¹ The Toolbox emphasises that EU policies should not undermine efforts to build ‘a fairer Europe’ and respecting the principles of the European Pillar of Social Rights.

²⁰² Clancy, J. and Feenstra, M., 2019, *Women, Gender Equality and the Energy Transition in the EU*, Policy Department for Citizens’ Rights and Constitutional Affairs, European Parliament.

Available at: [https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL_STU\(2019\)608867_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2019/608867/IPOL_STU(2019)608867_EN.pdf).

not direct beneficiaries of the funding). Increased efforts should be made to identify and engage with vulnerable groups directly, including outreach through local organisations and authorities, to ensure the targeted final recipients of EU funds are aware of and informed about the support measures available. This could involve targeted information campaigns, as well as partnerships with those that have existing relationships with these groups.

Outreach efforts should be complemented with actions that aid final recipients receive the available support (e.g. help to self-identify as potential beneficiaries if relevant or aid to complete application forms);

- **Make the disbursement of EU funds conditional on clearly assessing and addressing the social impacts of climate policies.** EU funds seem to leverage the adoption of many good practices, such as stakeholder consultations, impact assessments or ex-post evaluations. One potential avenue to systematise the consideration of climate policies' negative impacts and effects on inequality could be to link it to access to EU funding, for example by requiring Member States or other stakeholders to carry out assessments and explicitly consider social inequalities in their climate actions. The Cohesion Policy funds already establish thematic enabling conditions that aim to ensure that the EU climate and environment acquis is adequately implemented in all Member States before funding can be granted, and similar approaches could be adopted in other funding instruments. Links can also be made with the consideration of Better Regulation principles, such as 'do no significant harm' and the respect for the European Pillar of Social Rights;
- **Ensure that the horizontal principles of EU funds contribute to reducing inequalities during the implementation of funding programmes.** The EU funds covered in this study include horizontal principles on gender equality, inclusivity and access for all, as well as respect for the Charter of Fundamental Rights of the EU and the European Pillar of Social Rights. These principles can serve as a basis for targeting different dimensions of inequality exacerbated by the implementation of climate policies. The horizontal principles could become award criteria for operations (as suggested by the EU legislation for some funds), or monitoring indicators, thereby providing practical guidance for tackling inequalities. However, this is at the discretion of each fund manager and, especially for shared management funds, it is crucial that all relevant institutions recognise the importance of upholding the horizontal principles in all steps of implementation and monitoring. Examples of good practices or even stronger EU legal requirements could help to ensure that the horizontal principles are respected and bring about real change in the social inequalities created or exacerbated by the implementation of climate actions;
- **Ensure complementarity between different EU funds.** The EU funds together cover all socioeconomic impacts of climate action policies and can target all dimensions of inequality. Even EU funds with a narrower scope can be complemented by broader or differently specialised funds to finance diverse actions. It is crucial that the different instruments are used in a synergistic manner. While broadening the scope of specific funds can be helpful, it is not the only possibility for improvement. For instance, while the Just Transition Fund (JTF) strictly targets specific regions, complementary actions by the European Regional Development Fund (ERDF), the European Social Fund+ (ESF+) or SCF could help to address just transition needs in other regions not covered by the JTF. This would require Member States to carry out strategic needs assessment and measure design as early as the programming stage of different funding programmes and plans (e.g.

Operational Programmes, Territorial Just Transition Plans and Social Climate Plans). Guidance on good practices can be provided at EU level, with suggestions on elements of different funding programmes that may be complementary; and

- **Assess the performance of existing EU funds.** As the recognition of the just transition needs grows, more attention is given to targeting the most vulnerable groups, leading to the establishment of EU-level funds such as the JTF and SCF. These are recent instruments and their implementation should be studied carefully to understand the extent to which they deliver on their objectives in practice. Mid-term and ex-post evaluations in the coming years would be useful opportunities to analyse the extent to which aspects such as involvement of stakeholders, targeting of final recipients or complementarity with other EU funds are implemented in practice.

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List of organisations interviewed about EU funds

Organisation	Type	Relevant EU fund	Date of interview
DG REGIO	Directorate-General of the European Commission	JTM Pillar 1 – JTF	17 February 2023
European Trade Union Institute (ETUI)	Think tank	SCF, RRF, JTM Pillar 1 – JTF	24 February 2023
DG REGIO	Directorate-General of the European Commission	JTM Pillar 3 – PSLF	1 March 2023

List of organisations interviewed about Member State approaches

Organisation	Type	Country	Date of interview
Federal Ministry for Social Affairs, Health, Care and Consumer Protection; Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology; Federal Ministry for Finance; Federal Ministry for Agriculture, Regions and Tourism; and the City of Vienna	Government	Austria	2 March 2023 (written feedback)
Joanneum Research	Consulting	Austria	28 February 2023
Ministry of Environment and Energy	Government	Greece	2 March 2023
Ministry of Environment and Energy	Government	Greece	2 March 2023
Ministry of Environment and Energy	Government	Greece	2 March 2023
General Secretariat of Energy	Government	Greece	3 March 2023
The Green Tank	Civil society	Greece	28 February 2023
Ministry of Environment and Energy	Government	Greece	13 March 2023
Climate Adaptation Services	Adaptation consulting	The Netherlands	29 February 2023
National Institute for Public Health and the Environment	Government	The Netherlands	8 March 2023
Netherlands Environmental Assessment Agency	Government	The Netherlands	16 March 2023
Slovak Environment Agency	Government	Slovakia	24 February 2023
Carpathian Development Institute	Consulting	Slovakia	21 February 2023
Ministry of Environment	Government	Slovakia	24 February
Priatel'ia Zeme-CEPA	Civil society	Slovakia	28 February 2023
Regulatory Office for Network Industries	Government	Slovakia	28 March 2023 (written feedback)
ICATALIST / European Scientific Advisory Board on Climate Change	Consulting	Spain	29 February 2023
EU Climate Pact-- Spain	Civil society	Spain	15 March 2023

ANNEX 1: KEY WORDS FOR EU POLICY INSTRUMENT AND EU FUND SCREENING

Type of socioeconomic impact	Related key search words for screening
<i>Access to services</i>	Access to services; access; services; accessibility; availability; barrier
<i>Disposable income and consumption</i>	Income; consumption; poverty; goods; services; household; consumer; living standards; spending; afford; financial; expenditure; price; cost
<i>Employment</i>	Employment; employed; employee; employer; labour; work; skill; train; education; job; sector; industry; industries; rights; hire; hiring; opportunities; occupation; SME
<i>Environmental quality of life</i>	Environment; nature; natural; air quality; water quality; soil quality; preservation; preserve; pollute; pollution; conservation; conserve; ecosystem; wildlife
<i>Social quality of life</i>	Social quality of life; well-being; quality of life; social; living standards; health; education; transportation; housing; conditions; services
Inequality dimensions	Related key words searched for screening
<i>(Dis)ability</i>	Disability; disabled; vulnerable; physical; mental
<i>Age</i>	Age; young; youth; old; senior; retire; elderly
<i>Class</i>	Class; social; economic mobility; household; lower; middle; income; vulnerable; poverty; affordability; wage; economic disparities; economic disparity; financial; social safety; economic security
<i>Ethnicity</i>	Ethnicity; ethnic; background;
<i>Gender</i>	Gender; women; men; sex; inclusive
<i>Race</i>	Race; background; representation

ANNEX 2: CASE STUDIES

AUSTRIA

Introduction – climate and socioeconomic context

Austria faces several pressures related to climate change, with a reduction in surface area and volume of glaciers since 1980, reduced duration of snow cover in recent decades, and a rise in average temperature by more than 1°C over the past century²⁰³. The main climate change challenges for Austria include the consequences of heat waves and natural hazards such as flooding and landslides²⁰⁴.

Austria's climate mitigation policies are based on the National Energy and Climate Plan (NECP), which is mandated by the EU's binding climate and energy legislation for 2030. Austria published the NECP in December 2019 for the 2021-2030 period and it covers five dimensions: decarbonisation, energy efficiency, security of energy supply, internal energy market, and research, innovation and competitiveness. Federal and provincial working groups were established in July 2018, and they developed proposals for measures at sectoral level. In November 2018, the National Committee on Climate Change (composed of representatives from various institutions and social groups²⁰⁵) was also consulted, as per the Climate Protection Act.

The main adaptation policies in place are based on the most recent Austrian Strategy for Adaptation to Climate Change (NAS), which was first adopted in 2012 and revised in 2017. The NAS contains concrete recommendations in 14 areas: agriculture, forestry, water resources and management, tourism, energy, construction and housing, protection from natural hazards, disaster management, health, ecosystem/biodiversity, transport infrastructure, spatial planning, business/industry/trade, and cities (urban green and open spaces)²⁰⁶.

Eurostat provides two key indicators of Austria's reliance on GHG emissions for the development of its economic activity. The first is energy intensity, i.e. the amount of energy consumed per EUR (thousands) GDP. Austria has been well below the EU-27 energy intensity average²⁰⁷ since 2000, although this gap has reduced gradually over time.

The second indicator corresponds to the GHG emission intensity of energy consumption²⁰⁸, which expresses how many tones of CO₂ equivalent are emitted per unit of energy consumed. At the beginning of the 21st century, the GHG intensity of energy increased for Austria, in contrast with the EU-27 average tendency of decreasing GHG intensity in energy. By 2020, however, Austria had caught up with the EU-27 average and achieved the same relative reduction of 20% compared to 2000²⁰⁹.

²⁰³ Climate-ADAPT, 2021, *Austria*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/austria>.

²⁰⁴ Seebauer, S., Lückl, A., Köberl, J. and Kulmer, V., 2021, *Soziale Folgen des Klimawandels in Österreich* (Social consequences of climate change in Austria).

²⁰⁵ Federal Ministry of Sustainability and Tourism, 2019, *Integrated National Energy and Climate Plan for Austria*, p. 55. Available at: https://energy.eceuropa.eu/system/files/2020-03/at_final_necp_main_en_0.pdf.

²⁰⁶ Federal Ministry for Sustainability and Tourism, 2017, *The Austrian strategy for adaptation to climate change*, p. 29. Available at: https://climate-adapt.eea.europa.eu/en/metadata/publications/national-adaptation-strategy-austria/austrianadaptationstrategy_context_final_25092013_v02_online.pdf.

²⁰⁷ Eurostat, 2023, *Energy intensity (NRG_IND_EI)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/NRG_IND_EI_custom_4976459/default/?lang=en.

²⁰⁸ Eurostat, 2023, *Greenhouse gas emissions intensity of energy consumption (SDG_13_20)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_13_20/default/?lang=en.

²⁰⁹ Ibid.

Given that the Austrian economy is not energy intensive and that the development of GHG intensity of energy is in line with the EU-27 average, it can be concluded that Austria's economy is not heavily reliant on GHG emissions.

Austria has a small open economy, with fairly equal export and import of goods and a high surplus in the balance of trade in services²¹⁰. As a result of the COVID-19 pandemic, Austria experienced a 6.3% decline in real GDP growth in 2020, leading to a surge in unemployment²¹¹. Decisive policy action saw Austria's economy recover well, although labour and skills shortages remain²¹². In 2022, Austria's GDP per capita was EUR 38,360, compared to the EU-27 average of EUR 28,810 per capita²¹³. The tertiary sector accounts for the largest share (over two-thirds) of Austria's GDP, with most of the remaining share from secondary production. The tourism industry has a significant share in Austria's Gross Value Added (GVA)²¹⁴.

Austria performs better than the EU-27 average on the AROPE indicator²¹⁵, with a rate of 17.3% in 2021, compared to 21.7% for the EU-27²¹⁶. The rate has remained relatively stable in Austria since it began to be measured in 2015. In 2021, a higher share of women (18.1%) were at risk, compared to men (16.4%).

Energy poverty is low, with Austria ranking third among the EU-27 in 2021. At that time, 1.7% of households were incapable of keeping their home adequately warm (EU-27 average of 6.9%, with Bulgaria performing worst, at 23.7%)²¹⁷.

Key findings – addressing the social impacts of climate action policy

Climate change mitigation

Austria **does not have a mandatory or systematic assessment in place for social impacts of climate policies**. In general, an impact assessment must be carried out for new legislation, including its social impact, but the assessment does not have to follow a specific methodology²¹⁸. The Austrian federal government is committed to becoming climate neutral by 2040 and to combating poverty. In 2020, the Ministry of Social Affairs, Health, Care and Consumer Protection commissioned a **study on the social consequences of climate change**. The study examined approximately 300 measures in federal and state-level climate protection and adaptation strategies, including the NAS (see below) and state-level plans in Vienna, Styria and Vorarlberg²¹⁹.

²¹⁰ Climate-ADAPT, 2021, *Austria*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/austria>.

²¹¹ International Monetary Fund, 2021, *Austria: Selected issues*, Staff country reports. Available at: [https://www.elibrary.imf.org/configurable/content/journals\\$002f002\\$002f2021\\$002f204\\$002farticle-A001-en.xml?tac=journals%24002f002%24002f2021%24002f204%24002farticle-A001-en.xml](https://www.elibrary.imf.org/configurable/content/journals$002f002$002f2021$002f204$002farticle-A001-en.xml?tac=journals%24002f002%24002f2021%24002f204%24002farticle-A001-en.xml).

²¹² OECD, 2021, *Austria: boost labour supply and foster green and digital transitions to optimise the recovery*, says OECD. Available at: <https://www.oecd.org/newsroom/austria-boost-labour-supply-and-foster-green-and-digital-transitions-to-optimize-the-recovery.htm>.

²¹³ Eurostat, 2023, *Real GDP per capita (SDG_08_10)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table.

²¹⁴ Climate-ADAPT, 2021, *Austria*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/austria>.

²¹⁵ Eurostat, 2021, *Glossary: At risk of poverty or social exclusion (AROPE)*. Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_\(AROPE\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPE)).

²¹⁶ Eurostat, 2023, *Persons at risk of poverty or social exclusion by age and sex (ILC_PEPS01N)*. Available at: [https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N\\$DEFAULTVIEW/default/table](https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N$DEFAULTVIEW/default/table).

²¹⁷ Eurostat, 2021, *Inability to keep home adequately warm – EU-SILC survey (ILC_MDES01)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_MDES01_custom_1485289/default/table?lang=en.

²¹⁸ Input received from the Federal Ministry of Social Affairs, Health, Care and Consumer Protection.

²¹⁹ Seebauer, S., Lückl, A., Köberl, J. and Kulmer, V., 2021, *Soziale Folgen des Klimawandels in Österreich* (Social consequences of climate change in Austria), p. 56.

The study selected 11 measures for further examination of their social impact, including policy measures in housing, spatial planning, energy, consumption, mobility and protection against natural hazards.

For mitigation, the measures assessed included the introduction of thermal energy building standards, promotion of thermal energy building renovation, energy communities as part of the Union's 'Clean energy for all Europeans' package, energy consultations, green electricity subsidy and green electricity flat rate, CO₂ tax on heating and motor fuels, promotion of e-cars, and promotion of decentralised power generation with photovoltaics (PV).

The social impacts of the selected measures were assessed for seven **vulnerability characteristics**: low income, people over the age of 65 and young children under the age of five, people with severe health restrictions, migration background, gender, and low level of education. The focus was largely on low income, people over 65, people with health restrictions, migration background and low level of educational attainment. Overall, the findings showed that the most common social impact of the policies was a **negative impact on social inclusion**, namely for people over the age of 65, people with a migration background and people with a low level of education, and a **positive impact on cost burden** for low-income households²²⁰. A positive impact was also found for people with health problems, in terms of heat stress and immission load²²¹.

The social impact of subsidies for building renovation, and building standards compliance was largely the same: a **negative impact for social inclusion** of people over 65 and people with a migration background, and **negative for displacement**²²² for low-income households. The impacts were **positive for cost burden, immission load and heat stress, for all groups**²²³. The social impact of subsidies for PV systems was negative for social inclusion for people over 65, with a migration background, or a low level of education. A particular issue was that for renters, the building owner has to agree to the installation of a PV system²²⁴. In addition, the distribution of PV grants follows a 'first-come, first-served' approach, with grant funds rapidly depleted. Consequently, insufficient and slower access to funding information aggravated existing inequalities. To target socioeconomically disadvantaged groups effectively, funding must be allocated based on income levels and tailored to the needs of less socially included groups²²⁵.

The social impacts of **energy consultation**, such as awareness-raising and advice provided by the Klimaaktiv initiative²²⁶, had a **positive impact on cost burden** for low-income households.

²²⁰ Social inclusion refers to the fact that in order to benefit from the measure, the individuals affected require unrestricted participation, including access to housing alternatives and governmental programmes, information presented in a clear and comprehensive language, familiarity with the official language and formal application procedures, prior knowledge of energy technology, and no physical, mental or sensory limitations. The impact on cost burden refers to the measure resulting either in additional ongoing expenses related to energy, mobility, housing, or consumption, or cost savings due to reduced expenses or increased income for the affected individuals.

²²¹ Heat stress refers to health issues resulting from high temperatures indoors and outdoors at their home. Immission load refers to the health of those affected by cold living conditions, mould growth, and levels of soot, fine dust and exhaust gases inside and outside their homes.

²²² Displacement may occur where improvements to the living space and living environment cause previous residents to be moved into cheaper and inferior living conditions or areas.

²²³ Seebauer, S., Lückl, A., Köberl, J. and Kulmer, V., 2021, *Soziale Folgen des Klimawandels in Österreich* (Social consequences of climate change in Austria), p. 64.

²²⁴ Ibid., p. 75.

²²⁵ Ibid, p. 76.

²²⁶ Klimaaktiv is a key component of the Austrian climate strategy that aims to promote and introduce environmentally friendly technologies and services. It focuses on maintaining high quality standards while educating and training professionals, providing advice, and collaborating with a broad network of partners. Available at: https://www.klimaaktiv.at/english/about_klimaaktiv.html.

However, if advisory services only respond to requests by the target groups rather than offering outreach programmes to hard-to-reach groups (e.g. those who have difficulty paying energy bills or referred by social workers), or if the advice is not tailored to the cultural, linguistic and residential contexts of those affected, it can **create access barriers and limit social inclusion**²²⁷.

The green electricity subsidy costs levied on households were generally regressive: the cost burden decreased for households with higher incomes and there was a negative impact for social inclusion.

Overall, the study acknowledged that the majority of climate strategies implemented by federal and state governments in Austria aim to achieve a climate policy that is deemed 'socially acceptable', but this objective typically lacks specificity and concrete implementation options for policy measures²²⁸.

The NECP takes into account just transition aspects, such as cushioning the social impact of the phasing-out of liquid fossil fuels and the impacts of the planned policies and measures on social conditions more broadly²²⁹. However, the plan lacks further detail on the impacts of the planned objectives, policies and measures, particularly the social, employment and income distribution impacts. There is little detail on how the impacts of specific planned transition measures are distributed beyond their effect on employment gains, or the effectiveness of the mitigating measures for low-income households²³⁰.

The NECP addresses energy poverty to a large extent. Its approach to addressing the issue includes providing information on existing and potential measures and support instruments put forward by the federal government and provinces, as well as some of their expected outcomes and impacts. These measures include minimum income instruments, housing subsidies and building support. For example, Austria aims to phase out liquid fossil fuels by replacing approximately half of the current 700,000 oil-fired heating systems with energy systems that use renewable energy or efficient district heating. The measures include subsidies for mitigating the social impact, which will be combined with subsidised public advisory services. The specifics are yet to be defined²³¹.

A socioeconomic impact assessment of the planned policies and measures **found that the measures resulted in a slight increase in disposable household income for all income groups**. However, the higher income groups were likely to experience greater gains, **creating unequal income effects**, which was also found to be true for measures in the buildings sector. The impact assessment suggests that to compensate for these unequal income effects, a subsidy system that is based on income tiers could be established for households to implement building measures, with the subsidy tailored to the strengths of the respective instruments across local authorities²³².

²²⁷ Seebauer, S., Lückl, A., Köberl, J. and Kulmer, V., 2021, *Soziale Folgen des Klimawandels in Österreich* (Social consequences of climate change in Austria), p. 81.

²²⁸ Ibid., p. 4.

²²⁹ Federal Ministry of Sustainability and Tourism, 2019, *Integrated National Energy and Climate Plan for Austria 2021-2030*, p. 256. Available at: https://energy.ec.europa.eu/system/files/2020-03/at_final_necp_main_en_0.pdf.

²³⁰ European Commission, 2021, *Assessment of the final national energy and climate plan of Austria*, p. 25. Available at: https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_austria_en_0.pdf.

²³¹ Federal Ministry of Sustainability and Tourism, 2019, *Integrated National Energy and Climate Plan for Austria 2021-2030*, p. 128. Available at: https://energy.ec.europa.eu/system/files/2020-03/at_final_necp_main_en_0.pdf.

²³² Ibid., p. 257.

This subsidy should be organised so as to ensure that the level of subsidisation of the measures for improving building envelopes or heating systems increases as household²³³ income decreases, enabling households in unfavourable economic situations to also implement the measures. Implementation through tax law is also presented as an option for consideration in the NECP, in addition to the awareness-raising measures required to improve access to independent and public information and advice, and to reduce organisational barriers for households in energy poverty²³⁴.

The Tax Reform 2022 entered into force in July 2022 and includes **social measures such as a regional climate bonus**, through which the revenue generated from the CO₂ tax introduced as part of the Tax Reform will be distributed to the public. The level of payment depends on the place of residence and the quality of public transport within a municipality²³⁵.

Despite the NECP addressing energy poverty, **more precise and measurable targets are required**, along with **further information on the impact of the measures in place**²³⁶.

Austria's **Recovery and Resilience Plan** allocates EUR 50 million of the total EUR 3.46 billion that the country will receive in grants to combating energy poverty.

Together with the first funding under the **JTF** (amounting to EUR 76 million), the Commission has approved the **TJTP** for Austria. The JTF will provide Austria a total of EUR 136 million to ensure that the transition to climate neutrality does not result in exclusion for anyone in the local economy and society. The TJTP considers the social implications of the transition mainly in terms of affected employees in GHG-intensive industries, an estimated 71,000 people²³⁷. However, the Plan states that at the time of its development there were no accurate employment predictions for the impact of the transition and the current medium-term forecast fails to account for the substantial rise in pressure on industries to adjust to the new targets.

The **implementation of CO₂ taxation** and the consequent increase in prices within the EU ETS will likely have a **negative impact on employment**, particularly within the industrial and commercial sectors. The demand for highly skilled professionals is expected to rise, exacerbating the existing shortage of skilled workers. The TJTP aims to mitigate the negative effects of the transition to climate neutrality by fostering sustainable green sectors that promote diversification, growth and employment opportunities. This requires the adaptation of the local labour market, for which the necessary development needs are met with JTF funds²³⁸. Specific measures to expand the skills and qualifications of the active workforce include: measures to provide targeted vocational counselling, support and information, and assess the needs and development opportunities; measures for training and further qualification; and measures to expand qualifications and strengthen opportunities by means of employment initiatives.

²³³ The subsidy applies to owners and tenants of one- or two-family houses or terraced houses, and owners and tenants of individual apartments. For multi-storied residential buildings and complexes of terraced houses, owners or the property managers can apply for the subsidy.

²³⁴ Federal Ministry of Sustainability and Tourism, 2019, *Integrated National Energy and Climate Plan for Austria 2021-2030*, p. 257. Available at: https://energy.ec.europa.eu/system/files/2020-03/at_final_necp_main_en_0.pdf.

²³⁵ Input from the Federal Ministry of Social Affairs, Health, Care and Consumer Protection of Austria.

²³⁶ European Commission, 2021, *Assessment of the final national energy and climate plan of Austria*, pp. 12, 25. Available at: https://energy.ec.europa.eu/system/files/2021-01/staff_working_document_assessment_necp_austria_en_0.pdf.

²³⁷ Austrian conference on Spatial Planning (ÖROK), 2022, *Territorial Just Transition Plan Austria 2021-2027*, p. 13.

²³⁸ Ibid., p. 14.

Overall, some aspects of the TJTP are **inconsistent with the just transition and the principle of addressing social inequalities**.

While it prioritises the provision of employment support and job search assistance for workers directly impacted by the transition, as well as other groups who may face indirect effects, it concentrates on a restricted range of sectors and lacks detail on identifying skills needs (despite placing significant emphasis on skills development). Nor does it consider the quality of new jobs, measures for social protection and inclusion, or the impact of the transition on quality of life²³⁹.

Climate change adaptation

The **NAS** was adopted by the Ministry for Sustainability and Tourism in 2017. The extent of stakeholder involvement in the revised strategy is not well-documented, but stakeholders who participated in the extensive engagement process during the preparation of the first NAS also engaged in a written consultation process during the revision²⁴⁰. The NAS states that there is **a lack of comprehensive scientific evaluation of the social consequences of climate change and the social impacts of adaptation measures**, but the following points should nonetheless be considered:

- In what ways do location and socioeconomic status impact how climate change and adaptation measures affect people in Austria?;
- What changes can be expected in daily life, including working conditions and lifestyles, as a result of climate change?; and
- What measures are needed to reduce or prevent the vulnerability of social systems and mitigate the negative impacts of climate change?²⁴¹

The NAS acknowledges that more research is needed to analyse the sectors, areas and groups most susceptible to the social impacts of climate change, **the adaptation measures that can generate social and economic benefits**, how to enhance the resilience of social policies and **how to incorporate the social dimension into adaptation measures** across all policy domains²⁴². Overall, it addresses how climate adaptation measures could impact people on the basis of their geographical location and socioeconomic circumstances. It identifies the most **vulnerable groups** and provides recommendations for addressing the issue, emphasising the need to consider the distribution of impacts from potential adaptation measures²⁴³. Recommendations for action include considering employment and distributive justice and guaranteeing gender equality²⁴⁴. As it stands, however, **the NAS does not have specific policies in place to address social vulnerabilities**.

Austria has carried out **CVRA**s, which are an important step in developing adaptation policies. For example, the **Austrian Assessment Report Climate Change 2014 (AAR14)** acknowledges that

²³⁹ WWF, 2022, Territorial Just Transition Plan Assessment: Assessment for Austria.

Available at: <https://just-transitions-plan.wwf.eu/assessment/orsjfW6MKm4WxqAvp11l>.

²⁴⁰ Leitner, M., Mäkinen, K., Vanneuville, W., Mysiak, J., Deacon, A., Torresan, S., Vikstrom, S., Ligtoet, W. and Prutsch, A., 2020, *Monitoring and evaluation of national adaptation policies throughout the policy cycle*. Publications Office of the European Union, Luxembourg, p. 37. Available at: <https://www.eea.europa.eu/publications/national-adaptation-policies>.

²⁴¹ Ministry for Sustainability and Tourism, 2017, *The Austrian strategy for adaptation to climate change*, p. 53. Available at: https://climate-adapt.eea.europa.eu/en/metadata/publications/national-adaptation-strategy-austria/austrianadaptationstrategy_context_final_25092013_v02_online.pdf.

²⁴² Ibid., p. 54.

²⁴³ Ibid., p. 57.

²⁴⁴ Ibid., p. 115.

vulnerable groups typically face greater exposure to the consequences of climate change, and that the various social groups are impacted differently by the changing climate.

Therefore, **adaptation options vary and are influenced by different climate policy measures**, such as increased taxes and fees on energy²⁴⁵.

The 2020 study on the social consequences of climate change examined the social impact of promoting the greening of buildings. The measure generated positive impacts for heat stress for vulnerable groups, but there were negative impacts for social inclusion for people over 65, people with a migration background and people with a low level of education, as well as displacement and cost burden for low-income households²⁴⁶.

Climate action policies abroad and their social impacts

Austria contributes to international climate finance for developing countries with the aim of limiting the increase in global average temperature to well below 2°C above the pre-industrial level, and with the aim of promoting resilience and low-carbon development²⁴⁷. Austria relies on **international financial institutions (IFIs)** as a key partner in ensuring that people in vulnerable situations globally are protected when promoting climate change mitigation and adaptation (such as accountability for harm caused to communities by development projects). In practice, the accountability mechanisms are generally formal grievance mechanisms within an IFI²⁴⁸. Human rights are explicitly referenced within the framework of the **Austrian strategy on international climate finance**, which states that socioeconomic effects (e.g. gender equality, interests of indigenous peoples) triggered by the use of climate finance must explicitly be taken into account when approving concept notes and selecting projects²⁴⁹.

Insights and avenues for improvement

Based on the findings from literature, inputs from the Ministry of Social Affairs, Health, Care and Consumer Protection, and a stakeholder interview, there is increasing awareness of social vulnerability of the specific groups disproportionately affected by climate mitigation and adaptation policies, with social consequences and impacts also acknowledged in the main federal and state-level climate protection and adaptation strategies.

However, **while the importance of addressing the social impacts is acknowledged, the awareness of the potential impacts has not yet been translated into specific steps**. The NAS, in particular, does not include specific policies for addressing social vulnerabilities.

²⁴⁵ Kromp-Polb, H., Nakicenovic, N., Steininger, K., Gobiet, A., Köppl, A., Prettenhaler, F., Stötter, J., Schneider, J. and Formayer, H., 2014, *Austrian Assessment Report Climate Change 2014 (AAR14) Summary for Policymakers and Synthesis: Austrian Panel on Climate Change (APCC)*, Austrian Academy of Sciences Press, Bécs, p. 27.

Available at: https://www.ccca.ac.at/fileadmin/00_DokumenteHauptmenue/03_Aktivitaeten/APCC/summaries/Synthesis.pdf

²⁴⁶ Seebauer, S., Lückl, A., Köberl, J. and Kulmer, V., 2021, *Soziale Folgen des Klimawandels in Österreich* (Social consequences of climate change in Austria), p. 71.

²⁴⁷ Federal Ministry for Sustainability and Tourism, 2018, *Richtlinien für die internationale Klimafinanzierung* (Guidelines for international climate finance).

²⁴⁸ Input from: Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology; Ministry for Finance; Ministry for Agriculture, Regions and Tourism; City of Vienna.

²⁴⁹ Ministry for Sustainability and Tourism, 2018, *Richtlinien für die internationale Klimafinanzierung* (Guidelines for international climate finance).

The social impacts of mitigation policies have been assessed to a greater extent, particularly in the 2020 study commissioned by the Ministry of Social Affairs, Health, Care and Consumer Protection on the social consequences of climate change.

The NECP considers aspects of the just transition and addresses energy poverty to a large extent, but lacks further details on the social impacts of the measures and policies.

One stakeholder interviewed noted that policy action is often taken at national level in response to action taken at EU level, thus **EU-level action may be necessary to prompt national-level policies to include concrete steps for assessing and addressing the social impacts of mitigation and adaptation policies.**

GREECE

Introduction – climate and socioeconomic context

As a Mediterranean country with a very long coastline of about 16,300 km and thousands of islands, **Greece is extremely vulnerable to the impacts of climate change**²⁵⁰. It is highly exposed to the risk of a rise in sea levels, which is predicted to be between 0.2 and 2 metres by 2100²⁵¹. Greece's mean annual temperatures have increased in recent decades, with a projected rise of 3-4.5°C degrees by 2100, compared to the 1961-1990 period. Coupled with increasing temperatures, record negative rainfall trends over the course of the 20th century, with drops ranging from 10% in Eastern Greece to 20% in Western Greece, have made the forest areas of the country drier and more prone to forest fires²⁵². Extreme heatwaves have also become more frequent, leading to poverty and loss of human life²⁵³.

The energy intensity of the Greek economy is broadly in line with the EU-27 average. Greece's performance on Eurostat's energy intensity indicator has fluctuated around the EU averages since 2000, going slightly above it in recent years²⁵⁴. Similarly, Greece's GHG emission intensity of energy has evolved in line with the EU-27 average²⁵⁵. Notably, Greece has achieved a bigger than average reduction on this indicator in the last years. Over the past decade, Greece has also moved towards a cleaner energy mix, but its **total energy supply is still primarily reliant on fossil fuels**, namely oil, natural gas, and coal²⁵⁶.

The Greek economy is small and service based²⁵⁷. In 2022, GDP per capita was EUR 18,830, lower than the EU-27 average of EUR 28,810 per capita²⁵⁸. Over the past 15 years, Greece has faced a prolonged economic recession, which began in 2009 as a consequence of the financial crisis²⁵⁹. It subsequently received technical and financial assistance from the Eurozone countries and the IMF, and introduced extensive reforms. The Greek economy began to recover in 2017, and, despite the setbacks caused by the outbreak of the COVID-19 pandemic in 2020, GDP growth picked up in 2021 and is expected to

²⁵⁰ OECD (2020), *OECD Environmental Performance Reviews: Greece 2020*, OECD Environmental Performance Reviews, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/cec20289-en>.

²⁵¹ Ministry of Environment and Energy, 2018, *7th National Communication and 3rd Biennial Report Under the United Nations Framework Convention on Climate Change*. Available at: https://unfccc.int/files/national_reports/annex_i_natcom/application/pdf/48032915_greece-nc7-br3-1-nc7_greece.pdf.

²⁵² ClimateADAPT, 2021, *Greece, National circumstances relevant to adaptation actions*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/greece#:~:text=Minimum%20winter%20temperatures%20in%20all,adapted%20to%20colder%20weather%20conditions>.

²⁵³ Hellenic National Meteorological Service (HNMS), *Annual Bulletins on the Climate in Greece, years 2014-2019*. Available at: http://www.hnms.gr/emv/el/climatology/climatology_extreme.

²⁵⁴ Eurostat, 2023, *Energy intensity (NRG_IND_E)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/NRG_IND_EI_custom_4976459/default/table?lang=en.

²⁵⁵ Eurostat, 2023, *Greenhouse gas emissions intensity of energy consumption (SDG_13_20)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_13_20/default/line?lang=en.

²⁵⁶ International Energy Agency, 2023, *Greece*. Available at: <https://www.iea.org/countries/greece>.

²⁵⁷ ClimateADAPT, 2021, *Greece*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/greece>.

²⁵⁸ Eurostat, 2023, *Real GDP per capita (SDG_08_10)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table.

²⁵⁹ OECD, 2020, *OECD Environmental Performance Reviews: Greece 2020*, OECD Environmental Performance Reviews, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/cec20289-en>.

continue in 2023 and 2024²⁶⁰. The unemployment rate continues to be significantly higher than the EU average (13.2% in 2021)²⁶¹, although with considerable regional disparities²⁶².

The AROPE²⁶³ rate in Greece is higher than in other EU countries. In 2021, 28.3% of the population was at risk of poverty or social exclusion, far higher than the EU-27 average of 21.7%²⁶⁴. A gender difference is observed, with 29.2% of women at risk, and 27.3% of men.

Greece performs far worse on energy poverty indicators, compared to the EU average. Between 2010 and 2014, the percentage of the Greek population unable to keep their homes adequately warm increased from 15% to 32.9%, largely following the financial crisis. In 2021, the indicator had decreased to 17.5%, still considerably higher than the EU average (6.9%)²⁶⁵.

Greece has set ambitious climate targets, and the **NECP**²⁶⁶ and **NAS**²⁶⁷ frame policy action on climate change mitigation and adaptation. The NECP, adopted in 2019 and currently being updated, is the Greek government's strategic plan for climate and energy issues. It establishes a roadmap and identifies priorities and policy measures for the attainment of specific climate and energy objectives by 2030, which include:

- A reduction of GHG emissions by more than 42% compared to 1990 and more than 56% compared to 2005;
- A minimum share of 35% of renewable energy sources in gross final energy consumption;
- An improvement in energy efficiency by 38%.

In addition to the NECP, a **Long-Term Strategy 2050**²⁶⁸ was developed to support the European objective of climate neutrality by 2050.

The NAS was adopted in 2016 to set out the general objectives, guiding principles and means to be adopted at national, regional and local level to implement an effective climate adaptation strategy. The NAS is to be implemented through 13 Regional Adaptation Action Plans, which include regional climate change impacts assessments and tailored actions on the basis of region-specific climate impacts and vulnerabilities. The NAS was one of the key policy documents underpinning the NECP.

In May 2022, the Greek parliament passed the **National Climate Law**²⁶⁹, which aims to strengthen actions towards the gradual transition of the country to climate neutrality by 2050.

²⁶⁰ European Commission, 2023, *Economic forecast for Greece*. Available at: https://economy-finance.ec.europa.eu/economic-surveillance-eu-economies/greece/economic-forecast-greece_en.

²⁶¹ European Commission, 2023, *Labour market information: Greece*. Available at: https://eures.ec.europa.eu/living-and-working/labour-market-information/labour-market-information-greece_en.

²⁶² OECD, 2022, *OECD Regions and Cities at a Glance 2022*, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/14108660-en>.

²⁶³ The AROPE indicator corresponds to the sum of persons who are either at risk of poverty, or severely materially and socially deprived, or living in a household with a very low work intensity. Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_\(AROPe\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPe)).

²⁶⁴ Eurostat, 2023, *Persons at risk of poverty or social exclusion by age and sex (ILC_PEPS01N)*. Available at: [https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N\\$DEFAULTVIEW/default/table](https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N$DEFAULTVIEW/default/table).

²⁶⁵ Eurostat, 2021, *Inability to keep home adequately warm - EU-SILC survey (LC_MDES01)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_MDES01_custom_1485289/default/table?lang=en.

²⁶⁶ Ministry of the Environment and Energy, 2019, *National Energy and Climate Plan*. Available at: https://energy.ec.europa.eu/system/files/2019-03/ec_courtesy_translation_el_necp_0.pdf.

²⁶⁷ Ministry of the Environment and Energy, 2016, *National Strategy for Adaptation on Climate Change*. Available at: https://ypen.gov.gr/wp-content/uploads/legacy/Files/Klimatiki%20Allagi/Prosarmogi/20160406_ESPKA_teliko.pdf.

²⁶⁸ Ministry of the Environment and Energy, 2019, *Long-Term Strategy 2050*. Available at: https://ec.europa.eu/clima/sites/its/its_gr_el.pdf.

²⁶⁹ Law 4936/2022, National Climate Law - Transition to climate neutrality and adaptation to climate change, urgent provisions to address the energy crisis and protect the environment.

The Law established intermediate climate objectives to reduce net anthropogenic GHG emissions compared to 1990 levels by at least:

- 55% by the year 2030;
- 80% by the year 2040.

Key findings – addressing the social impacts of climate action policy

Climate change mitigation

How is the country assessing the social impacts?

The social impacts of climate mitigation policy are assessed as part of broader ad hoc impact analyses for specific policies (e.g. NECP, TJTP).

In the context of the NECP, Greece developed a **specific methodological approach to assess the socioeconomic and environmental impacts associated with the implementation of the foreseen policy measures**. This assessment focused on the impacts associated with increased participation of renewable energy sources (RES) in energy consumption and the measures aimed at improving the building sector's energy efficiency, as the main policy areas identified by the NECP for the implementation of climate mitigation measures²⁷⁰.

The socioeconomic impacts measured included investment effects, increased energy consumption, job creation, public health, and income. However, the NECP notes that the analyses did not account for the effects of decreased activity in the traditional/conventional energy economy sectors (e.g. electricity generation, marketing of fuels) due to reduced energy needs resulting from the energy-saving measures or the replacement of electricity generation by fossil fuels.

Similar to the NECP, specific **analyses were conducted in Greek coal-dependent regions in developing a TJTP**. The existing situation was assessed, alongside an estimation of the economic and social impacts associated with the coal phase-out plans²⁷¹. The Greek government relied on the support of national and international institutes and organisations to carry out the analyses and develop the TJTP. For instance, the World Bank provided active support through the drafting of a roadmap for a 'managed transition' of coal dependent regions²⁷².

Estimates of the expected socioeconomic impacts of coal phase-out in the lignite-dependent regions primarily concerned **job losses, decrease in GDP, and reskilling needs**²⁷³. In addition, some of the main socioeconomic consequences and risks identified included the loss of a key source of electricity and heating (in particular for district heating, which is largely based on the surplus of heat of the lignite units), people fleeing the regions, and youth drain. These issues are embedded in a context of low economic development and high unemployment rates, especially among women and young people, and a low degree of R&D investment²⁷⁴.

²⁷⁰ Interview with Greek government representative.

²⁷¹ Ministry of Environment and Energy, 2020, *Just Transition Development Plan of lignite areas*. Available at: https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf.

²⁷² Christiaensen, L. and Ferré, C., 2020, Managing the Lignite Transition for Coal Regions in Western Macedonia, Greece Towards a Just Coal Transition in Western Macedonia, Greece - What Does the Labour Market Look Like? World Bank. Available at: https://www.sdam.gr/sites/default/files/consultation/Greece_-_Labor_Market_Diagnostic_for_WM_September_2020_Final.pdf.

²⁷³ Ministry of Environment and Energy, 2020, *Just Transition Development Plan of lignite areas*. Available at: https://www.sdam.gr/sites/default/files/consultation/Master_Plan_Public_Consultation_ENG.pdf.

²⁷⁴ SFC2021 Programme supported from the ERDF (Investment for jobs and growth goal), ESF+, the Cohesion Fund, the JTF and the EMFAF - Article 21(3), Just Development Transition. Available at: <https://sdam.gr/node/431>; and based on interview with NGO.

How is the country addressing the social impacts of climate change mitigation?

Ensuring a just and fair energy transition is one of the objectives of Greece's mitigation policy framework. This takes two main forms: 1) for 10 years, Greece's lignite-dependent regions have been the focus of discussions on the implementation of just transition measures; 2) combating energy poverty is a longstanding priority on Greece's policy agenda.

One government official interviewed noted that all Greek overarching climate strategies aim to integrate social considerations, with special attention paid to supporting vulnerable and low-income groups.

TJTP in the Lignite regions

Greece was one of the first European countries to launch discussions on ensuring a just transition²⁷⁵. Local communities and authorities, CSOs and networks (e.g. the Forum of Mayors, inaugurated in 2018 in Kozani, Western Macedonia) played an important role, advocating for the allocation of funding to support the communities most affected by coal phase-out, in particular, Western Macedonia (the biggest coal region) and Megalopolis²⁷⁶.

A number of just transition initiatives have been implemented in these regions in recent years, prior to the establishment of the JTF. Notably, Western Macedonia was selected as one of the pilot regions for the EU Coal Regions in Transition initiative launched in 2017²⁷⁷. In 2018, a **national JTF** was established to support the diversification of local economies and creation of new jobs in lignite dependent regions. The Fund benefits from a percentage of the revenue from auctioning the allowances of the EU ETS²⁷⁸.

In 2019, following the announcement of the complete phase-out of lignite from Greece's power generation by 2028, the Government Committee for Just Development Transition was established, along with a governance structure for the preparation and implementation of a plan for the just transition of the Region of Western Macedonia and the Municipality of Megalopolis²⁷⁹. In August 2020, an initial **Master Plan** was developed and submitted for public consultation. Subsequently, to align with the provisions of the European Just Transition Fund Regulation²⁸⁰, the Greek government developed three **TJTPs**, one for Western Macedonia, one for Megalopolis, and one for the islands of the North & South Aegean and Crete.

²⁷⁵ The Green Tank, 2020, *Just Transition: History, Developments and Challenges*. Available at: <https://thegreentank.gr/en/2020/07/28/just-transition-history-report/>.

²⁷⁶ Based on interview with NGO.

²⁷⁷ This was conceived as an EU-level platform to connect local, regional and national governments, businesses and trade unions, NGOs and academia to promote knowledge-sharing and exchanges of experiences between EU coal regions; European Commission, 2023, *Coal regions in transition*. Available at: https://energy.ec.europa.eu/topics/oil-gas-and-coal/eu-coal-regions/coal-regions-transition_en.

²⁷⁸ OECD, 2021, *Towards a just transition in Greece's lignite-dependent regions*. Available at: <https://www.oecd.org/climate-action/ipac/practices/towards-a-just-transition-in-greece-s-lignite-dependent-regions-a1a8306a/>; The Green Tank, 2020, *Just Transition: History, Developments and Challenges*. Available at: <https://thegreentank.gr/en/2020/07/28/just-transition-history-report/>.

²⁷⁹ Ministerial Council Act 52/23.12.2019 (GG A 213/24.12.2019). Available at: https://www.kodiko.gr/nomologia/download_fek?f=fek/2019/a/fek_a_213_2019.pdf&t=e2be66a84a813701cd78829ae47f5803

²⁸⁰ Regulation (EU) 2021/1056 of the European Parliament and of the Council of 24 June 2021 establishing the Just Transition Fund. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32021R1056>.

These were then combined under a single **Just Development Transition and Territorial Programme**²⁸¹, which was approved in 2022, becoming the first JTF Programme adopted at EU level^{282, 283}.

Greece will mobilise a total investment of EUR 1.63 billion to implement its Just Development Transition Programme: financing of EUR 1.38 million from the JTF, as well as additional funding from the European Social Fund (ESF and ESF+), the RRF, and the EAFRD²⁸⁴.

While the Plan will benefit from EU funding over the 2021-2027 period, a **Special Transitional Programme** was drafted for the transitional phase preceding the full activation of the Partnership Agreement 2021-2027, funded by the remaining resources of the National Strategic Reference Framework 2014-2020²⁸⁵. The Special Transitional Programme focused on: 1) promoting employment, 2) addressing social impacts and strengthening social cohesion, 3) the diversification of the economy, 4) restructuring of the energy identity and rationalisation of the use of environmental resources, 5) promoting urban revitalisation, and 6) scientific and technical support.

The final Just Development Transition and Territorial Programme was structured around six priorities: 1) Enhancing and promoting entrepreneurship; 2) Energy transition— climate neutrality; 3) Adaptation of land uses— circular economy; 4) Fair labour transition and strengthening of human capital; 5) Development of transport infrastructure to support entrepreneurship, sustainable urban mobility and digital connectivity; 6) Integrated Small Scale Interventions— Smart Communities.

The Plan emphasises employment protection and the creation of new jobs, compensation of the socioeconomic impact of the transition, and energy self-sufficiency for the lignite regions and the country as a whole. According to one NGO, while the Plan represents an important stepping stone in supporting the just transition of the lignite regions, there is insufficient funding/action targeted at young people (for issues such as youth drain and unemployment), as well as insufficient attention to energy communities, which constitute a valuable instrument for the support of local communities in the energy transition²⁸⁶.

Energy poverty

The issue of energy poverty has held an important place in Greece's policy agenda over the past 10 years. Notably, the Greek observatory of energy poverty was established in 2014²⁸⁷, while a number of policy measures aimed at improving energy access for vulnerable households were introduced as early as 2011 and have continued to be implemented in recent years.

The NECP highlights the need to continue to address the energy poverty challenge via the provision of long-term and sustainable solutions for vulnerable households.

²⁸¹ Just Development Transition, SFC2021 Programme supported from the ERDF (Investment for jobs and growth goal), ESF+, the Cohesion Fund, the JTF and the EMFAF – Article 21(3). Available at: <https://sdam.gr/node/366>.

²⁸² The Green Tank, 2021, *The Governance of Just Transition in Greece*. Available at: https://thegreentank.gr/wp-content/uploads/2021/07/202107_GreenTank_JustTransition_Governance_Report_EN.pdf.

²⁸³ European Commission, 2022, *EU Cohesion Policy: €1.63 billion for a just climate and energy transition in Greece*, press release. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_3711.

²⁸⁴ Just Development Transition, SFC2021 Programme supported from the ERDF (Investment for jobs and growth goal), ESF+, the Cohesion Fund, the JTF and the EMFAF – Article 21(3). Available at: <https://sdam.gr/node/366>.

²⁸⁵ Government of Hellenic Republic, *Special Transitional Programme for Just Development Transition 2020-2023*. Available at: <https://sdam.gr/node/253>.

²⁸⁶ Interview with NGO.

²⁸⁷ Centre for Renewable Energy Sources and Saving, 2023, *Energy Poverty Observatory*. Available at: <http://www.cres.gr/energy-efficiency/poverty.html>.

Accordingly, it identifies existing and future measures to **ensure and increase access to energy services** and to **improve the energy efficiency of residential buildings**.

For the first objective, foreseen measures include the **Social Domestic Tariff**²⁸⁸ (adopted in 2011) and the **Universal Service provider**²⁸⁹ (also established in 2011), which are set to be maintained and improved, as well as the potential introduction of an **energy card**, which would function as a support measure for vulnerable electricity consumers, replacing the other support measures for the consumption of energy goods. Such a card would enable consumers to select the ways in which they will have their energy needs met²⁹⁰.

For the second objective, actions focus on improving the energy efficiency of buildings of energy-vulnerable and low-income households, alongside the promotion of the installation of RES plants. Targeted financing programmes are expected, together with the continuation of successful existing financing programmes, such as the **Save Energy at Home programme(s)**²⁹¹, which has undergone multiple iterations since 2011²⁹².

A **National Action Plan for the Alleviation of Energy Poverty** was adopted in 2021²⁹³. It identifies nine concrete measures to be implemented between 2021 and 2023, which largely follow the framework and key measures defined in the NECP. The Plan is based on three pillars: 1) Protection of households; 2) Financing measures to increase the energy efficiency of buildings and foster higher penetration of RES; 3) Awareness and information measures. Progress is monitored by the Ministry of Environment and Energy and efforts are made to enhance existing policies to combat energy poverty, including through multilateral discussions (e.g. academics, NGOs) exploring how energy poverty might best be addressed²⁹⁴.

In the context of Greece's fight against energy poverty, the establishment of **energy communities** is worth mentioning. The Greek parliament passed the first dedicated legislation in Europe on community energy in January 2018, with the goal of facilitating the transition to RES.

Energy communities were legally framed as cooperatives aiming to promote innovation and a social economy, addressing energy poverty and promoting energy sustainability, generation, storage, self-consumption, distribution and supply, as well as at improving end-use energy efficiency at local and

²⁸⁸ Special discounted domestic electricity tariff offered to vulnerable consumers by all electricity suppliers, introduced to protect low-income households, parents with three vulnerable children, the long-term unemployed, persons with disabilities and persons who require life support (Government of Hellenic Republic, 2023, *Social Domestic Tariff*. Available at: <https://www.gov.gr/en/sdg/consumer-rights/connection-to-utilities/electricity/social-residential-tariff>).

²⁸⁹ The universal service provider is required to supply small customers who fail to select an electricity supplier and are unable to find a supplier on the liberalised market based on current commercial terms (Government of Hellenic Republic, 2023, *Universal Service Provider*. Available at: <https://www.gov.gr/en/sdg/consumer-rights/connection-to-utilities/electricity/universal-service-provider-usp>).

²⁹⁰ Ministry of the Environment and Energy, 2019, *National Energy and Climate Plan*. Available at: https://energy.ec.europa.eu/system/files/2019-03/ec_courtesy_translation_el_necp_0.pdf.

²⁹¹ 'Save Energy at Home' offered citizens (who met specific income-related criteria) incentives to carry out major interventions to improve their homes' energy efficiency (e.g. subsidies up to 70% and interest-free loans) (Government of Hellenic Republic, 2023, *Home Savings II Programme*. Available at: <https://exoikonomisi.yopen.gr/to-programma>).

²⁹² Centre for Renewable Energy Sources and Saving, 2021, *Energy Efficiency trends and policies in Greece*. Available at: <https://www.odysseemure.eu/publications/national-reports/energy-efficiency-greece.pdf>.

²⁹³ Marinos, A., 2021, *Reforms and investments to combat energy poverty*. Ministry for Environment and Energy. Available at: https://www.eesc.europa.eu/sites/default/files/files/mr_marinos_greek_energy_poverty.pdf.

²⁹⁴ Interview with Greek government representative.

regional level, with the active participation of local actors²⁹⁵. As of November 2021, 1,036 energy communities were established in Greece, operating 677 projects for a 466MW capacity²⁹⁶.

Broad stakeholder engagement

Greece has been a pioneer in Europe in raising just transition concerns, particularly in ensuring just transition support to its lignite-dependent regions. **Over the past decade, stakeholder engagement activities and discussions have played an important role**, including local and regional stakeholders and associations, as well as NGOs such as the World Wide Fund for Nature (WWF) and The Green Tank²⁹⁷. The issue of post-lignite transition was raised as early as the mid-2010s in broad discussions in the Western Macedonia region, initiating broader public debate at national and European level²⁹⁸.

Efforts were made to ensure stakeholder involvement throughout the process of drafting key policy strategies. While an open public consultation is required for the adoption of all key pieces of legislation in Greece, additional targeted consultations, workshops and events were carried out during the drafting of the TJTP, as well as the NECP. More specifically, the public consultation on the final draft of the NECP was open from 28 November 2019 to 16 December 2019 and received 161 comments²⁹⁹, although very few were concerned with the socioeconomic impacts of mitigation policies.

An even more open and participatory approach is being adopted in the context of the ongoing revision of the NECP³⁰⁰. NGOs are currently included in the national Committee for drafting the revised NECP, with discussions relating to the social implications of climate change policy. These concern aspects relating to income distribution, but also to the social quality of life of local communities (e.g. decisions on the location of wind parks)³⁰¹.

Several rounds of targeted consultations were held at national and regional level on adoption of the plan for the just transition of the lignite-dependent regions, from the initial drafting of the Master Plan to the TJTPs, which positively promoted stakeholder participation. However, one NGO noted that limited space was given to co-creation with relevant stakeholders throughout the drafting process, which primarily had a top-down approach (i.e. while consultations were held, these related to a developed draft rather than a process of co-development).

²⁹⁵ Friends of the Earth Europe, Greenpeace EU, REScoop.eu, Energy Cities, 2018, *Unleashing the Power of Community Renewable Energy*. Available at: <https://friendsoftheearth.eu/publication/unleashing-the-power-of-community-renewable-energy/>.

²⁹⁶ Balkan Green Energy News, 2021, *Energy communities are strong factor in decarbonizing Greece's coal regions*. Available at: <https://balkangreenenergynews.com/energy-communities-are-strong-factor-in-decarbonizing-greeces-coal-regions/>.

²⁹⁷ World Bank, 2020, *Stakeholder engagement Plan*. Available at: [https://www.sdsm.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_\(SEP\)_for_WM_June_2020_Final.pdf](https://www.sdsm.gr/sites/default/files/consultation/Greece_-_Stakeholder_Engagement_Plan_(SEP)_for_WM_June_2020_Final.pdf).

²⁹⁸ Interview with NGO.

²⁹⁹ The Green Tank, 2020, *Just Transition: History, Developments and Challenges*. Available at: <https://thegreentank.gr/en/2020/07/28/just-transition-history-report/http://www.opengov.gr/minenv/?p=10155&cpage=4>.

³⁰⁰ Interview with Greek government representative.

³⁰¹ Ibid.

Climate change adaptation

How is the country assessing the social impacts?

No evidence was found on the assessment of the social impacts of adaptation policy.

The Bank of Greece report on the environmental, economic and social impacts of climate change³⁰², which formed a key part of the evidence base for the development of the NAS, took social implications into account, albeit to a limited extent. It highlighted that vulnerable groups (poor households, minorities and immigrants already living in deprivation and facing significant environmental and social problems) would likely struggle to benefit from climate adaptation and mitigation policies and underlined the need for adequate corrective policy, although without including any quantification of expected social impacts or inequalities.

When drafting regional adaptation plans, a CVRA must be carried out, including an exposure and a sensitivity analysis, with the former taking a number of socio-demographic factors into account.

How is the country addressing the social impacts of climate adaptation policy?

Ensuring a just transition is integrated into the NAS as an underlying principle. Unlike the NECP, the NAS does not identify concrete measures to address the social impacts of adaptation policies, but, rather, sets general guidance for the adoption of policy measures at the level of regional adaptation plans. The NAS stresses the importance of accounting for the social groups expected to be most vulnerable to climate change, in particular, older people and those affected by respiratory and cardiovascular diseases³⁰³.

Measures to ensure the protection of vulnerable groups from extreme events, as well as to safeguard key economic sectors and ensure training and reskilling, shall also be integrated in all regional adaptation plans³⁰⁴.

Initiatives that take into account the need for a just energy transition can be identified at local level. In 2019, the Municipality of Athens adopted its **2030 Resilience Strategy**. This is structured around four pillars – open, green, proactive, vibrant – which are meant to guide concrete actions and projects. Such projects are expected to not only deliver air quality benefits and positive impacts on biodiversity, but to have positive economic impacts on neighbourhoods and properties in the vicinity and to enhance social inclusion (under the ‘vibrant’ pillar).

Broad stakeholder engagement

Social acceptance is identified as a key guiding principle of Greece’s NAS. Social acceptance is intended as the adoption of measures and policies with as little economic/social cost as possible, alongside mitigation of regional inequalities and a fair distribution of costs between social groups. The NAS stresses the need to consult affected social partners systematically, in order to grasp the impacts of climate adaptation investments on society (poverty and social exclusion) and integrate them in the prioritisation and evaluation of the investments themselves. Stakeholder participation and consultation were identified as an important element throughout the drafting and adoption process of the NAS.

³⁰² Climate Change Impacts Study Committee, Bank of Greece, 2011, *Report on the environmental, economic and social impacts of climate change of the Bank of Greece*. Available at: https://www.bankofgreece.gr/Publications/ClimateChange_FullReport_bm.pdf.

³⁰³ Ministry of the Environment and Energy, 2016, *National Strategy for Adaptation on Climate Change*. Available at: https://ypen.gov.gr/wp-content/uploads/legacy/Files/Klimatiki%20Allagi/Prosarmogi/20160406_ESPKA_teliko.pdf.

³⁰⁴ Interview with Greek government representative. Regional development plans are in the process of being adopted.

Nonetheless, as reported by one of the interviewees (Government representative), knowledge and awareness of adaptation policy was relatively low at the time of adoption of the NAS. Hence, **efforts have been made during the drafting process, as well as over the past few years of implementation, to inform and build capacity among stakeholders and the general public.** A series of workshops/events were carried out (as part of the LIFE-IP AdaptInGR project) to enable stakeholders to be better informed ahead of the revision of the NAS in 2026. A more participatory approach is foreseen for that revision, with thematic groups for each sectoral adaptation plan³⁰⁵.

Insights and avenues for improvement

Social implications have been considered and integrated within Greece's climate mitigation and adaptation policy over the past decade, driven by action at national and European level. Formal assessments of the social impacts associated with climate policy have generally been carried out as part of ad hoc studies commissioned in the process of adoption of specific policy strategies.

The role of stakeholders, particularly at local and regional level, has been an important driver of discussions. The organisation of common platforms and networks, such as the Forum of Mayors and the EU Coal Regions in Transition Initiative, have proved important to raise the issue above the regional sphere, connecting stakeholders and local authorities from the most affected regions.

European policy requirements and initiatives have supported and created synergies with national policy action, both for climate policy as a whole and the actions introduced to account for the associated social impacts.

EU support and funds play an important role in financing Greek climate transition measures. The ERDF, ESF+, Cohesion Fund, JTF and RRF all contribute to financing Greece's mitigation and adaptation policy, particularly its just transition measures, supplementing the lack of resources at national level.

Social concerns are integrated into its Greece's climate policy frameworks primarily through the Just Transition Development Plan and measures to support energy-vulnerable households. The adoption of an Energy Poverty Action Plan in 2021 represented a successful milestone, with measures targeting energy-poor or low-income households in order to ensure that the benefits of policy measures to support the energy transition are accessible to vulnerable groups. The Just Transition Development Plan was specifically developed to support a fair transition for the communities in the lignite-dependent regions of Greece, and focuses on issues such as job loss, the need for reskilling, and ensuring that energy demand continues to be met in the regions.

An additional positive aspect is the **involvement of stakeholders in the adoption of key strategies and plans.** The Greek authorities have made an effort to involve relevant stakeholders at national, regional and local level, including NGOs, CSOs and the general public, in the adoption of the NECP, NAS and TJTP. This was done through consultations, events and workshops, with the purpose of ensuring an open and participatory process. While one NGO pointed to the low degree of co-creation/co-development between government authorities and stakeholders in the drafting of the Just Transition Development

Plan, government representatives explained that further efforts are being made to increase stakeholder participation and knowledge of the drafting and revision of the policies discussed, including their social consequences.

³⁰⁵ Interview with Greek government representative.

THE NETHERLANDS

Introduction – climate and socioeconomic context

The Netherlands has geographical and demographic particularities that make it vulnerable to the impacts of climate change. Firstly, it is **vulnerable to (sea and river) flooding**, as one-third of the country is below sea level and it has a large river delta. The Netherlands is the second most densely populated country in Europe and most people live in urban areas, increasing the **population's likely vulnerability to heat stress because of rising temperatures**³⁰⁶.

Compared to the EU average, the Netherlands has a high GDP, with a real GDP in 2022 of EUR 43,310 per capita (EU-27 average of EUR 28,810)³⁰⁷. Given that the Dutch economy is slightly energy intensive and that the reduction of the GHG intensity of energy is smaller than the EU-27 average, the Netherlands appears to be quite reliant on GHG emissions.

Two Eurostat indicators give an overview of the reliance of the Netherlands on GHG emissions for the development of its economic activity. The first is energy intensity, where the Netherlands has been slightly above the EU-27 average since 2000, although this gap has gradually reduced with time. The second indicator corresponds to the GHG emission intensity of energy consumption, where the Netherlands was in line with the EU-27 average until 2007, but has since reduced relatively its GHG emission intensity less than the EU-27 average³⁰⁸.

The Netherlands has a **lower AROPE rate**³⁰⁹ than other Member States. In 2021, 16.6% of people in the Netherlands were at risk, compared to 21.7% for the EU-27.³¹⁰ There is almost no gender difference: 16.8% of women and 16.5% of men are at risk of poverty or social exclusion. **Energy poverty is relatively low in the Netherlands**, which ranked eighth out of the EU-27 in 2021, with 2.4% of households in the country unable to keep their home adequately warm, compared to 6.9% of households in EU countries on average³¹¹.

The Dutch government has worked on a series of policy measures to address and set targets in relation to climate change mitigation and adaptation policies.

Climate mitigation

In 2019, the **Climate Act**³¹² was approved, presenting the objectives in terms of climate policy in the Netherlands.

³⁰⁶ Climate-ADAPT, 2021, *National circumstances relevant to adaptation actions*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/netherlands>.

³⁰⁷ Eurostat, 2023, *Real GDP per capita (SDG_08_10)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table.

³⁰⁸ Simoes, H. M., 2021, *Climate action in the Netherlands. Latest state of play*, European Parliamentary Research Service. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696184/EPRS_BRI\(2021\)696184_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696184/EPRS_BRI(2021)696184_EN.pdf).

³⁰⁹ The AROPE indicator corresponds to the share of persons who are either at risk of poverty, or social exclusion (Eurostat, 2021, *Glossary: At risk of poverty or social exclusion (AROPE)*). Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_\(AROPE\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPE)).

³¹⁰ Eurostat, 2023, *Persons at risk of poverty or social exclusion by age and sex (ILC_PEPS01N)*. Available at: [https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N\\$DEFAULTVIEW/default/table](https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N$DEFAULTVIEW/default/table).

³¹¹ Eurostat, 2023, *Inability to keep home adequately warm – EU-SILC Survey*. Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_MDES01_custom_1485289/default/table?lang=en.

³¹² Dutch Central Government, 2023, *Klimaatwet*. Available at: <https://wetten.overheid.nl/BWBR0042394/2022-03-02>.

The Climate Act sets a legally binding target for GHG emissions reduction by 95% compared to 1990, and it supports the aim of achieving carbon neutrality in the electricity sector by 2050³¹³.

The Climate Plan, the NECP, and the National Climate Agreement contain the policies and measures to achieve the goals set in the Climate Act. The **National Climate Agreement**³¹⁴ reflects agreements between the government and several sectors (i.e. industry, traffic and transport, agriculture, infrastructure, electricity) to achieve the climate targets. The **NECP**³¹⁵ details the main features of climate policy for a period of 10 years, addressing the latest scientific insights into climate change, technological developments, international policy developments and the economic consequences. The NECP was submitted to the European Commission in December 2019.

Climate adaptation

The 2016 **NAS**³¹⁶ and the 2010 **Delta Programme** are the centrepieces of Dutch climate adaptation policy. The NAS is the overarching strategy, which has a multi-sector approach and addresses all possible impacts of climate change. The government also developed a **NAS Implementation Programme**³¹⁷ (2018-2019)³¹⁸, although it does not allocate responsibility for each action. A new NAS was due to be published in 2022³¹⁹. The Delta Programme sets out a strategy to protect the Netherlands against flooding and ensure there is enough fresh water in the country. This includes a Delta Plan on Flood Risk Management, Delta Plan on Fresh Water Supply and Delta Plan on Spatial Adaptation.

Key findings – addressing the social impacts of climate action policy

Climate change mitigation

How is the country assessing the social impacts of climate change mitigation?

The Netherlands has a **high degree of accountability for its climate policies**, compared to other Member States³²⁰. The Climate Act³²¹ requires the Ministry of the Environment to send a memorandum to the Senate and the House of Representatives every two years with an assessment of progress on climate policy and the financial consequences for households and companies of significant developments in climate policy that deviate from the climate plan.

³¹³ Ibid.

³¹⁴ Klimaatakkoord, 2019, *National Climate Agreement – The Netherlands*. Available at: <https://www.klimaatakkoord.nl/documenten/publicaties/2019/06/28/national-climate-agreement-the-netherlands>.

³¹⁵ Ministry of Economic Affairs and Climate Policy, 2019, *Integrated National Energy and Climate Plan 2021-2030*. Available at: https://energy.ec.europa.eu/system/files/2020-03/nl_final_necp_main_en_0.pdf.

³¹⁶ Kennisportaal Klimaatadaptatie, n.d. *National Climate Adaptation Strategy 2016 (NAS)*. Available at: <https://klimaatadaptatienederland.nl/en/policy-programmes/nas/>.

³¹⁷ Ibid.

³¹⁸ This programme is focused on sectors, chains, issues, and climate risks that are not covered by the Delta Programme or the Delta Plan on Spatial Adaptation; it also complements several issues addressed in the Delta Programme or the Delta Plan (Kennisportaal Klimaatadaptatie, n.d. *Policy and programmes*. Available at: <https://klimaatadaptatienederland.nl/en/policy-programmes/>).

³¹⁹ Ministry of Infrastructure and Water Management, 2021, *Adaptation communication. The Netherlands' submission on the United Nations Framework Convention on Climate Change*. Available at: <https://www.government.nl/binaries/government/documents/reports/2021/10/01/the-netherlands-submits-adaptation-communication-ahead-of-cop26/NL+Submission+to+the+UNFCCC++Adaptation+Communication.pdf>.

³²⁰ Evans, N. and Duwe, M., 2021, *Climate governance systems in Europe: the role of national advisory bodies*, Ecologic Institute, Berlin and Institut du Développement Durable et des Relations Internationales, Paris. Available at: <https://www.ecologic.eu/sites/default/files/publication/2021/Evans-Duwe-Climate-governance-in-Europe-the-role-of-national-advisory-bodies-2021-Ecologic-Institute.pdf>.

³²¹ Dutch Central Government, 2023, *Klimaatwet*. Available at: <https://wetten.overheid.nl/BWBR0042394/2022-03-02>.

Measures are then taken if necessary.

The 2021-2030 **Climate Plan contains an assessment of the costs and benefits of climate policies, as well as the effects on labour market and employment, cost and income effects for households and businesses.** The plan also outlines the benefits of reduced GHG emissions, and the effects on air quality or security of supply. The progress report on the Climate Plan is not yet available.

The **2022 Climate Memorandum**³²² reflected on the current climate policy and looked back at the progress of the past year against the intended (interim) results towards 2030, albeit without an assessment of social impacts. The information on the Climate Memorandum draws on the information collected in the Climate Dashboard³²³, a platform where the Ministry of the Environment presents information on progress and insights into the different economic sectors. **The dashboard focuses on GHG emissions and does not provide information on monitoring or assessment of social impacts of the policies.**

The impacts of some long-standing policy measures (e.g. Energy Savings Covenant for the rental sector, in force since 2018, as well as the Energy Box, since 2014) are measured, including numbers of beneficiaries and energy savings³²⁴. However, no other impacts are monitored.

Ad hoc studies are carried out on the social impacts of specific policies. In 2019, the cities of the northern Netherlands, together with the European Commission's Joint Research Centre (JRC), evaluated the socioeconomic impacts of the plan to end most natural gas extraction from the Groningen field³²⁵. The impacts on employment were the only type of social impact assessed.

In 2019, Friends of the Earth Netherlands commissioned a study on the financial impact of the energy transition³²⁶. This highlighted the burden of the transition on low-income families, pushing the issue of energy poverty higher up the political agenda.

How is the country addressing the social impacts of climate change mitigation?

The **Climate Agreement** includes a series of commitments on climate mitigation, both in terms of overall emission reductions and for specific measures within certain sectors. The Agreement includes a chapter on addressing the social impacts of mitigation policies. **It recognises that mitigation measures will affect businesses and citizens, and therefore 'their needs and concerns must be visibly taken into account in the decisions that are made during the transition'.** The chapter sets out key principles to ensure that the relevant policies are feasible, affordable and foster civic participation:

- **Balanced burden-sharing:** actions taken to ensure the feasibility, affordability and fair burden-sharing of the measures. This includes actions to limit the impact of motor vehicle taxes and energy bills on disposable income, financing schemes to help citizens to participate in the

³²² Dutch Central Government, 2022, *Climate Memorandum 2022*. Available at: https://www.rijksoverheid.nl.translate.google/documenten/publicaties/2022/11/01/klimaatnota-2022?x_tr_sl=nl&x_tr_tl=en&x_tr hl=it&x_tr_pto=wapp.

³²³ Dutch Central Government, 2022, *Dashboord klimaatbeleid*. Available at: <https://dashboordklimaatbeleid.nl/>.

³²⁴ European Commission, 2020, *EU Energy Poverty Observatory*. Directorate-General for Energy. Available at: <https://op.europa.eu/en/publication-detail/-/publication/b9a25ba4-9ef6-11ea-9d2d-01aa75ed71a1/language-en>.

³²⁵ Spisto, A., Gerbelova, H., Masera, M. and Barboni, M., 2020, *The socioeconomic impacts of the closure of the Groningen gas fields*. Available at: <https://publications.jrc.ec.europa.eu/repository/handle/JRC120521>.

³²⁶ Ecorys, 2019, *De financiële gevolgen van de warmtetransitie*. Available at: <https://www.ecorys.com/sites/default/files/2019-06/20190220%20-%20De%20financiele%20gevolgen%20van%20de%20warmtetransitie%20-%20Eindrapport.pdf>.

transition, as well as actions to ensure fair sharing of the costs of the transition between households and businesses;

- **Research** into the knowledge, attitudes, motives, expectations and behaviour of citizens in relation to the sustainability transition.

The Netherlands Institute for Social Research will continue its Sustainable Society programme³²⁷, examining the impacts of sustainability transitions on quality of life, and also carry out ad hoc studies (e.g. an exploratory study on citizens' perspectives on the energy transition). Periodic reports will **track support and civic participation** during the progress of the Climate Agreement;

- **Public participation and awareness raising:** the Dutch government will develop a comprehensive public participation approach in order to create greater awareness among citizens of their individual role in the transition and encourage them to change their behaviour. This comprehensive public participation approach consists of two elements, a public campaign and a networking approach. Civil dialogues will also be held; and
- **Public participation in the development of specific measures:** participatory approaches will be implemented to update and develop regional energy strategies, natural gas-free districts programmes, and renewable energy programmes.

Another chapter of the Climate Agreement is dedicated to the labour market and training, explaining that measures will be taken to address job losses due to the energy transition and providing a list of principles and guidelines to ensure a future-oriented education and labour market policy. Measures to ensure that lower income groups participate in the energy transition and can participate in renewable energy production/consumption are also included. The Agreement notes that a EUR 22 million coal fund will be used to support employees who have lost their jobs or are at risk of losing their jobs in relation to the closure of coal-fired power stations and in the coal chain. Tailored solutions to support employment issues in these regions are foreseen.

The level of engagement and the type of stakeholders consulted as part of the Climate Agreement consultation process has attracted criticism. When discussing the decision-making process that led to the 2019 Climate Agreement, a report published by the Netherlands Organisation for Applied Scientific Research³²⁸ pointed to issues with the **balance of represented interests** and highlighted the limited engagement with the citizens most affected by these policies.

Fuel poverty

In the Netherlands, zero-emissions vehicles are stimulated using tax exemptions and lower surcharges³²⁹, a system that may put an additional burden on people with lower incomes who may not be able to afford such vehicles. The Climate Agreement mentions that the government will take measures to address the social impacts from the motor vehicle tax, but no additional information was identified for this study.

³²⁷ The research programme focuses on the relationship between citizens (individually or collectively) and the government in the context of these transitions, on processes of inclusion and exclusion of individual or groups of Dutch citizens during and as a result of these transitions and on the impact of these transitions on quality of life.

³²⁸ Truijens, D., Klosters, M., Hanegraaff, M. and van Tilburg, X., 2023, *Wie schreef het klimaatakkoord?* Available at: https://energy.nl/publications/wie-schreef-het-klimaatakkoord/?utm_source=updates_email&utm_medium=email&utm_id=updates.

³²⁹ Dutch Tax Authority, n.d. *Auto en woon-wekverkeer*. Available at: <https://www.belastingdienst.nl/wps/wcm/connect/nl/auto-en-vervoer/>.

Energy poverty

Energy poverty in the Netherlands is primarily addressed through social policy, including strong social housing and social support systems³³⁰. The **NECP** indicates that the country has not set up any energy poverty strategy or objectives.

Rather, policies focus on social welfare and mitigating poverty in general. Having affordable energy in the context of the climate transition is a priority, as it facilitates better distribution between households and businesses of the taxes and costs needed for the transition³³¹.

The **Netherlands has adopted a number of measures to address energy poverty**³³²:

- Energy advice to households: EnergieBank and EnergieBox³³³ is a service offered in several municipalities (e.g. Eindhoven, Utrecht) to reduce residential consumption and address energy poverty by providing energy advice. These projects lead to savings per household of an estimated EUR 56-113 per year, through enhancing people's knowledge of energy savings, behavioural changes, and thermal efficiency investments. The Netherlands also has a guide to energy subsidies³³⁴, which allows households to check the subsidies they can receive for energy savings;
- Support for energy efficiency in social housing: the **Energy Savings Covenant in the rental sector**³³⁵ is an agreement between the national government and stakeholders in the social housing sector, stipulating that all social housing should achieve a minimum energy performance. There is also an **incentive scheme**³³⁶ that provides financial assistance for improvements in the energy performance of social housing. In order to avoid the landlord-tenant dilemma, the total housing costs (rent, service costs and energy costs) cannot be increased due to the renovation;
- Protection from disconnection: a measure³³⁷ that prevents vulnerable households from being disconnected from electricity in the winter months;
- Tax deductions: a fixed tax deduction (EUR 300) to cover basic electricity needs, as well as reduced taxation on household energy bills³³⁸. For households with an average energy consumption level, the tax component of the energy bill fell by EUR 100 in 2020, did not increase in 2021, and rose only to a limited extent after 2021.

³³⁰ European Commission, 2020, *EU Energy Poverty Observatory*. Directorate-General for Energy. Available at: <https://op.europa.eu/en/publication-detail/-/publication/b9a25ba4-9ef6-11ea-9d2d-01aa75ed71a1/language-en>.

³³¹ Ibid.

³³² Ibid.

³³³ EnergieBox, 2023, *EnergieBox*. Available at: <https://energiebox.org/>.

³³⁴ Dutch Central Government, 2023, *Apply for a subsidy for sustainable energy and energy saving for owner-occupied homes*. Available at: <https://www.government.nl/topics/sustainable-energy-at-home/apply-for-a-subsidy-for-sustainable-energy-and-energy-saving-for-owner-occupied-homes-isde>.

³³⁵ Buildup, 2012, *Review of Dutch energy saving covenant for social dwellings*. Available at: <https://www.buildup.eu/en/learn/notes/review-dutch-energy-saving-covenant-social-dwellings>.

³³⁶ Castellazzi, L., Bertoldi, P., Economidou, M., 2017, Overcoming the split incentive barrier in the building sector. Unlocking the energy efficiency potential in the rental & multifamily sectors. Available at: <https://publications.jrc.ec.europa.eu/repository/bitstream/JRC101251/Idna28058enn.pdf>.

³³⁷ Dutch Central Government, 2023, *Mag mijn energieleverancier mij van energie afsluiten als ik niet betaal?* Available at: [https://www.rijksoverheid.nl/onderwerpen/energie-thuis/vraag-en-antwoord/kan-mijn-energieleverancier-de-levering-van-energie-afsluiten-als-ik-niet-betaal#:~:text=Per%201%20april%202023%20zijn,\(aanvraag%20tot\)%20schuldhelpverleningstraject%20zitten](https://www.rijksoverheid.nl/onderwerpen/energie-thuis/vraag-en-antwoord/kan-mijn-energieleverancier-de-levering-van-energie-afsluiten-als-ik-niet-betaal#:~:text=Per%201%20april%202023%20zijn,(aanvraag%20tot)%20schuldhelpverleningstraject%20zitten).

³³⁸ Dutch Central Government, 2021, *Kabinet verlaagt energiebelasting en stelt extra geld voor isolatie beschikbaar*. Available at: <https://www.rijksoverheid.nl/actueel/nieuws/2021/10/15/kabinet-verlaagt-energiebelasting-en-stelt-extra-geld-voor-isolatie-beschikbaar>.

This measure aims to benefit low- and middle-income groups, and the Dutch government has earmarked EUR 425 million for this purpose; and

- Subsidies and tax rebates are available to improve household insulation and switch to renewable and sustainable energy carriers. Subsidies for improved thermal efficiency are often available at municipal level and regularly prioritise low-income groups.

Coal phase out

In December 2022, the European Commission adopted the **Dutch TJTP**, making EUR 623 million available under the JTF to support a fair transition to a climate-neutral economy. The Fund will support six Dutch regions (Groningen and Emmen, IJmond, Groot-Rijnmond, Zeeuws-Vlaanderen, West-Noord-Brabant and Zuid-Limburg), helping them to move away from an economy centred on fossil-fuel extraction or carbon-intensive industries. In addition to financing the transition through investments in green technology, renewable hydrogen and electrification, the JTF will support the reskilling of local workers. It will be used to train 49,000 workers who currently work in the fossil fuel sector, equipping them with new skills to work in renewable and climate-neutral industries. The aim is to improve local labour mobility and create new jobs in carbon-neutral sectors³³⁹.

The Dutch government is also planning to establish a EUR 22 million **coal fund** to address the employment issues arising from the phasing-out of the industry³⁴⁰.

Climate change adaptation

How is the country assessing the social impacts of climate adaptation?

The **NAS and the Climate Adaptation Implementation Programme** recognise social impacts of climate change, mostly on health systems. In particular, the programme highlights how climate hazards may cause increased health burden, lost productivity and higher costs due to the potential increase in allergies and infectious diseases. However, **no assessment of the social impacts of adaptation measures is included**.

The 2020 report on the **National Climate Adaptation Perspective**³⁴¹ outlines the first phase of the implementation of the NAS and provides guidance and starting points for follow-up activities. It recognises that economic and spatial development and the **effectiveness of mitigation and adaptation policies have not been sufficiently taken into account in current research** into the consequences of climate adaptation. Accordingly, the Ministry of Health, Welfare and Sport proposed a joint interdepartmental programme of research into climate adaptation, as well as a thematic programme researching the consequences of climate change for the health of people, animals, plants and the environment. The report recognises the **challenges in monitoring the 'outcome' of the NAS** (i.e. whether actions and measures to promote climate resilience actually lead to better climate resilience).

³³⁹ European Commission, 2022, *EU Cohesion Policy: €623 million for a just transition to climate neutrality in the Netherlands*. Available at: https://ec.europa.eu/regional_policy/whats-new/newsroom/12-02-2022-eu-cohesion-policy-eur623-million-for-a-just-transition-to-climate-neutrality-in-the-netherlands_en.

³⁴⁰ Simoes, H. M., 2021, *Climate action in the Netherlands. Latest state of play*, European Parliamentary Research Service. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696184/EPRS_BRI\(2021\)696184_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/696184/EPRS_BRI(2021)696184_EN.pdf).

³⁴¹ Meijs, S., Arbouw, G., van Delden, V., de Graaff, R., Helmer, M., van Nieuwaal, K., Schoute, E., van der Strate, E. and Westera, H., 2020, *Nationaal perspectief klimaatadaptatie*. Available at: https://klimaatadaptatienederland.nl/publish/pages/125102/nationaal_perspectief_klimaatadaptatie.pdf.

There is only extensive monitoring for flood risk management (Delta Programme), which was set up long before the issue was considered part of climate adaptation. This monitoring does not address the social impacts of the programme³⁴².

The Netherlands is active in monitoring of adaptation, although it is unclear whether that monitoring addresses social impacts. The Climate Adaptation Portal³⁴³ presents a long list of initiatives to monitor adaptation at national level.

For example, the Netherlands Environmental Assessment Agency (PBL) is working with research institutes and ministries to develop a **monitoring system to support the national climate adaptation policy** until 2026. This system is expected to provide information about climate impacts and risks for various sectors, informing adjustments to actions and plans in the NAS and the Delta Programme. The PBL and Climate Adaptation Monitoring Lab undertook a study to support this work, identifying different options for developing such a monitoring system³⁴⁴. However, there is no investigation of the social impacts that could stem from climate adaptation policies³⁴⁵.

The Ministry of the Environment financed a specific study under the National Knowledge and Innovation Programme: Water and Climate, **exploring the interaction between social resilience and climate adaptation**³⁴⁶. The report asks three main questions: 'How can we identify the neighbourhoods where climate adaptation can also contribute to social resilience?', 'Which climate adaptation measures are most likely to contribute to social resilience?', and 'How do we involve people in measures for climate adaptation and social resilience?'.

The **Climate Adaptation Portal**³⁴⁷ provides **guidance for local authorities and other actors on monitoring local-level climate adaptation**, referencing tools and initiatives such as the Climate Damage Monitor³⁴⁸, the Knowledge Bank Green-Blue Networks³⁴⁹, Monitoring Knowledge dossier³⁵⁰, and Monitoring Local Resistance³⁵¹. As yet, these monitoring tools and guidance do not focus on the social impacts of adaptation policies.

³⁴² Ministry of the Environment, 2021, *Monitoringsrapportage Ruimtelijke adaptatie*. Available at:

<https://www.deltaprogramma.nl/documenten/publicaties/2021/09/21/dp2022-e-monitoringsrapportage-ruimtelijke-adaptatie>.

³⁴³ Kennisportaal Klimaatadaptatie, 2023, *What initiatives are there regarding monitoring?* Available at: https://klimaatadaptatienederland-nl.translate.google.com/kennisdossiers/monitoring/initiatieven/?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

³⁴⁴ Ligtvoet, W., Franken, R., van Minnen, J., Witmer, M., van Nieuwaal, K., Goosen, H. and Heinen, M., 2021, *Navigeren naar een klimaatbestendig Nederland*, PBL and Climate Adaptation Services. Available at: <https://www.pbl.nl/sites/default/files/downloads/pbl-2021-navigeren-naar-een-klimaatbestendig-nederland-4619.pdf>.

³⁴⁵ Discussed and clarified in an interview with someone working on the monitoring by the PBL Netherlands Environmental Assessment Agency.

³⁴⁶ Kind, J., Koers, G., van Popering-Verkerk, J., Visser, V., de Nijs, T., Koopman, R. and Damen, M., 2020, *Verkenning naar de samenwerking tussen sociale veerkracht en klimaatadaptatie*. Available at: https://klimaatadaptatienederland-nl.translate.google.com/publish/pages/205672/6-wp-sv-2020-sociale-veerkracht-en-klimaatadaptatie-5.pdf?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

³⁴⁷ Kennisportaal Klimaatadaptatie, 2023, *Selection Aid tools*. Available at: https://klimaatadaptatienederland-nl.translate.google.com/hulpmiddelen/keuzehulp/?PagClsIdt=2213811&x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp#PagCls_2213811.

³⁴⁸ Kennisportaal Klimaatadaptatie, 2023, *Climate damage monitor*. Available at: https://klimaatadaptatienederland-nl.translate.google.com/hulpmiddelen/overzicht/klimaatbeschademonitor/?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

³⁴⁹ Kennisportaal Klimaatadaptatie, 2023, *Knowledge base Green-blue*. Available at: https://klimaatadaptatienederland-nl.translate.google.com/hulpmiddelen/overzicht/kennisbank-groenblauw/?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

³⁵⁰ Kennisportaal Klimaatadaptatie, 2023, *Climate adaptation monitoring*. Available at: https://klimaatadaptatienederland-nl.translate.google.com/kennisdossiers/monitoring/?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

³⁵¹ Ten Velden, C., Koekoek, A., De Groot-Reichwein, M., Keizer, R., Taanman, M. and Steenstra, M., 2022, *Monitoren lokale klimaatbestendigheid*, NKWK-KBS. Available at: https://klimaatadaptatienederland-nl.translate.google.com/publish/pages/205672/11208355-006-bgs-0002_v0-1-nkwk-kbs-monitoren-lokale-klimaatbestendigheid-voor-publicatie.pdf?x_tr_sl=nl&x_tr_tl=en&x_tr_hl=it&x_tr_pto=wapp.

The 2016 NAS is underpinned by a nationwide **CVRA**³⁵², developed in 2015 by the Netherlands Environmental Assessment Agency. The CVRA does not take into account social risks, i.e., related to the impact of climate change policies, or aspects related to just transition/resilience³⁵³.

However, it assesses the impacts of climate change-related hazards on people, the so-called ‘social risks’, including an assessment of the number of fatalities, injuries and chronically ill people, and the number of people affected by the failure of vital sectors, in relation to specific climate hazards (e.g. heatwave, flooding). A new CVRA will be published in 2026, following an updated methodology^{354,355}. According to one interviewee, **that new CVRA will focus on the social impacts of climate hazards and will also include an assessment of the social impacts of adaptation policies.**

How is the country addressing the social impacts of climate adaptation?

The NAS only appears to recognise the impacts of climate change on health and only identifies measures in this regard, e.g., the development of a National Heatwave Plan (NHP)³⁵⁶. The NHP is a communication plan that aims to raise awareness of simple precautions among at-risk groups (e.g. older people) and those in their immediate environment, in particular care providers and volunteers.

No other measures addressing the social impacts of climate change – nor adaptation policies themselves – are presented in the NAS or the Implementation Programme.

No evidence was found of other specific measures that address social impacts of adaptation policies.

Insights and avenues for improvement

The Netherlands has a well-developed policy framework to mitigate climate change and adapt to the coming crises, and there is a system for monitoring progress on climate policies. However, there is no systematic monitoring of the social impacts stemming from climate mitigation and adaptation policies. Social impacts (e.g. employment, disposable income) are assessed when key strategic documents are developed (e.g. Climate Plan, Climate Agreement). Several ad hoc studies are funded for specific issues, both by the government and by NGOs, but social impacts are not necessarily prioritised as part of the current policy framework.

The Climate Agreement between the Dutch government and industry shows that bipartite agreements helps to address the social impacts of climate mitigation policy, but a broad engagement of stakeholders and consensus is also needed. The Climate Act shows that mechanisms for robust government accountability help with monitoring such agreements. As part of this process, it is important to involve citizens in stakeholder engagement and consultation.

³⁵² Planbureau voor de Leefomgeving, 2015, *Van risicobeoordeling naar adaptatiestrategie*. Available at: <https://www.pbl.nl/publicaties/van-risicobeoordeling-naar-adaptatiestrategie>.

³⁵³ Discussed and clarified in an interview with someone working on the monitoring by the PBL Netherlands Environmental Assessment Agency.

³⁵⁴ Ibid.

³⁵⁵ Meijs, S., Arbouw, G., van Delden, V., de Graaff, R., Helmer, M., van Nieuwaal, K., Schoute, E., van der Strate, E. and Westera, H., 2020, *Nationaal perspectief klimaatadaptatie*. Available at: https://klimaatadaptatienederland.nl/publish/pages/125102/nationaal_perspectief_klimaatadaptatie.pdf.

³⁵⁶ National Institute for Public Health and the Environment, 2022, *National Heatwave Plan*. Available at: <https://www.rivm.nl/en/heat/national-heatwave-plan>.

SLOVAKIA

Introduction – climate and socioeconomic context

Climate change is expected to affect both urban and rural areas in Slovakia. In urban areas, heat stress, storms and extreme rainfall, floods, landslides, air pollution, drought, water scarcity are likely to increase risks to humans, the economy and ecosystems. In rural settings, climate change is expected to have a significant impact on water availability and supply, food security, infrastructure, and agricultural incomes³⁵⁷.

Slovakia has been well above the EU-27 average for energy intensity³⁵⁸ since 2000³⁵⁹, while its reduction in GHG emission intensity of energy³⁶⁰ has been slightly larger than the EU-27 average³⁶¹. In terms of the **energy mix**, Slovakia mainly relies on nuclear energy for electricity generation, although part of its energy production (around 10%) derives from coal. Regional differences in dependency on coal are evident, with east Slovakia depending on coal for 95% of electricity generation in 2017³⁶². The country has one of the highest dependencies on Russian oil and gas among the Member States, importing some 87% of its natural gas and two-thirds of its oil from Russia³⁶³. **Heavy industry is the main GHG emitter** in Slovakia, with industrial processes and product use, as well as manufacturing industries and construction, responsible for 21% and 16%, respectively, of total emissions³⁶⁴.

The Slovak economy is a developed, high-income economy. However, there are regional imbalances in wealth and employment between the western and eastern regions. For instance, **GDP per capita** ranges from 188% of the EU-27 average in Bratislava to 54% in Eastern Slovakia³⁶⁵. Slovakia performs relatively well on poverty, with a **low AROPE rate**³⁶⁶ compared to other Member States. In 2021, 15.6% of Slovakia's population was at risk of poverty or social exclusion, compared to the EU-27 average of 21.7%³⁶⁷. This share has remained relatively stable since 2015. Slovakia also has a small gender difference with 16.2% of women at risk and 15% of men.

³⁵⁷ Climate-ADAPT, 2021, *Slovakia*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/slovakia>.

³⁵⁸ Amount of energy consumed per EUR (thousands) of GDP.

³⁵⁹ Eurostat, 2023, *Energy intensity* (NRG_IND_EI). Available at: https://ec.europa.eu/eurostat/databrowser/view/NRG_IND_EI_custom_4976459/default/line?lang=en.

³⁶⁰ GHG emission intensity of energy consumption, which expresses how many tones of CO₂ equivalent are emitted per unit of energy consumed.

³⁶¹ Eurostat, 2023, *Greenhouse gas emissions intensity of energy consumption* (SDG_13_20). Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_13_20/default/line?lang=en.

³⁶² OECD, 2021, *Slovak Republic: Progress in the net zero transition*, Regional Outlook 2021 – Country notes. Available at: <https://www.oecd.org/regional/RO2021%20Slovak%20Republic.pdf>.

³⁶³ Central and Eastern Europe Energy News, 2022, *Energy security and a just transition at the heart of Slovakia's presidency of the V4*. Available at: <https://ceenergynews.com/climate/energy-security-and-a-just-transition-at-the-heart-of-slovakias-presidency-of-the-v4/>.

³⁶⁴ Erbach, G., 2021, *Climate action in Slovakia: Latest state of play*, in European Parliamentary Research Service briefing, EU progress on climate action – How are the Member States doing? European Parliament. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI\(2021\)698767_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf).

³⁶⁵ Climate-ADAPT, 2021, *Slovakia*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/slovakia>.

³⁶⁶ The AROPE indicator corresponds to the share of persons who are at risk of poverty or social exclusion. Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_\(AROPE\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPE)).

³⁶⁷ Eurostat, 2023, *Persons at risk of poverty or social exclusion by age and sex* (ILC_PEPS01N). Available at: [https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N\\$DEFAULTVIEW/default/table](https://ec.europa.eu/eurostat/databrowser/view/ILC_PEPS01N$DEFAULTVIEW/default/table).

Energy poverty is relatively low in Slovakia compared to other EU countries. In 2021, 5.8% of households in the country were unable to keep their home adequately warm, compared to 6.9% on average in the EU (Bulgaria performed worst, at 23.7%, while Finland performed best, at 1.3%)³⁶⁸.

Climate change mitigation

In 2019, Slovakia committed to achieving climate neutrality by 2050. The **Low Carbon Strategy to 2050**³⁶⁹ states that this goal will be achieved via existing and additional measures, as well as through carbon removal³⁷⁰. As outlined in the **NECP** (2019)³⁷¹, Slovakia will achieve these targets with a mix of policy measures, including improving energy efficiency, increasing the share of renewable energy, addressing energy security, and ending subsidies for coal mines. **Greener Slovakia – Strategy of the environmental policy of the Slovak Republic until 2030** (2019)³⁷² sets out objectives for protecting natural resources, reducing pollution and moving towards a circular economy. It also includes emission reduction targets for 2030 and addresses issues of adaptation to climate change in relation to water, biodiversity, forestry and agriculture³⁷³. Slovakia is expected to adopt its first **Climate Law**³⁷⁴ in 2023, with the first draft of the text (published for public consultation) suggesting it will likely enshrine the goal of achieving carbon neutrality. The new law is also expected to set medium-term goals for reducing emissions at the level of the State, regions, cities, and businesses³⁷⁵.

Climate change adaptation

Slovakia published its first **NAS** in 2014, which was then revised in 2018³⁷⁶. The revised NAS proposes adaptation objectives for sectors (geology, soil, energy and industry, business sector, tourism), that should be implemented by 2025. The **NAP** was adopted in 2021 and defines concrete adaptation measures and time-bound activities to implement the objectives of the NAS. The NAP includes cross-cutting measures (e.g. creation of a national information system for the provision of climate information), as well as specific measures within the areas of protection, management and use of water, sustainable agriculture, adapted forestry, natural environment and biodiversity, health and healthy population, residential environment and technical, economic and social measures.

³⁶⁸ Eurostat, 2023, *Inability to keep home adequately warm* (ILC_MDES01). Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_MDES01_custom_1485289/default/table?lang=en.

³⁶⁹ Ministry of the Environment, 2019, *Low-Carbon Development Strategy of the Slovak Republic until 2030 with a view to 2050*. Available at: <https://www.minzp.sk/files/oblasti/politika-zmeny-klimy/ets/lts-sk-eng.pdf>.

³⁷⁰ Erbach, G., 2021, *Climate action in Slovakia: Latest state of play*, in European Parliamentary Research Service briefing, EU progress on climate action – How are the Member States doing? Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI\(2021\)698767_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf).

³⁷¹ Ministry of the Economy, 2019, *Integrated National Energy and Climate Plan for 2021 to 2030*. Available at: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf.

³⁷² Ministry of the Environment, 2019, *Greener Slovakia: A Strategy of the Environmental Policy of the Slovak Republic until 2030*. Available at: https://www.minzp.sk/files/iep/greener_slovakia-strategy_of_the_environmental_policy_of_the_slovak_republic_until_2030.pdf.

³⁷³ Erbach, G., 2021, *Climate action in Slovakia: Latest state of play*, in European Parliamentary Research Service briefing, EU progress on climate action – How are the Member States doing? Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI\(2021\)698767_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf).

³⁷⁴ Ministry of the Environment, 2023, LP/2023/29 Act on Climate Change and Low-Carbon Transformation of the Slovak Republic and on Amendments to Act No. 162/2015 Coll. Administrative Court Procedure as amended (Climate Act). Available at: <https://www.slov-lex.sk/legislativne-procesy/SK/LP/2023/29>.

³⁷⁵ Enerdata, 2023, *Slovakia unveils its first climate law, confirming carbon neutrality by 2050*, Enerdata Daily Energy News. Available at: <https://www.enerdata.net/publications/daily-energy-news/slovakia-unveils-its-first-climate-law-confirming-carbon-neutrality-2050.html#:~:text=The%20Slovakian%20Ministry%20of%20Environment,regions%2C%20cities%2C%20or%20businesses>.

³⁷⁶ Ministry of the Environment, 2018, *National Climate Adaptation Strategy*. Available at: <https://www.minzp.sk/files/odbor-politiky-zmeny-klimy/strategia-adaptacie-sr-zmenu-klimy-aktualizacia.pdf>.

Key findings – addressing the social impacts of climate action policy

Climate change mitigation

How is the country assessing the social impacts of climate change mitigation policies?

The main strategic and high-level policy documents on climate mitigation are subject to an ex-ante impact assessment, including an analysis of social impacts. This is the case for the Slovakian Low Carbon Strategy to 2050, as well as the forthcoming Climate Law. The Institute for Environmental Policy undertook a specific analysis of the impacts of the EU 'Fit for 55' Package for Slovakia. **The assessment is not specific to climate policy, but, rather, is part of a broader ex-ante assessment practice across all policy fields.**

Box 2: Slovakia's regulatory impact assessment (RIA) procedures

Slovakia has a well-established framework for developing regulations. The Ministry of the Economy is charged with managing the RIA process. A unified methodology on the assessment of selected impacts was put in place in 2015 and an RIA Commission oversees the quality of RIA. The RIA Commission obtains information on the preparation of every new regulation, then decides whether it needs to undergo an ex-ante impact assessment or be subject to public consultation.

The ex-ante impact assessments are developed by the ministries in charge of proposing the new law or strategy, in some cases with the support of the Institute for Environmental Policy (part of the Ministry of the Environment) or the Ministry of the Economy³⁷⁷. Key interviewees reported that the methodologies for the assessment of impacts, as well as the types of impacts assessed, vary according to the ministry³⁷⁸.

The Ministry of the Economy is working to improve and streamline the ex-ante impact assessment procedures, including training different ministries³⁷⁹. A new unified methodology for the assessment of impacts was approved in 2022³⁸⁰.

Source: Authors' interviews with government officials.

The **Slovakian Low Carbon Strategy to 2050**³⁸¹ includes a chapter analysing the 'impact of social economic aspects of proposed policies and measures' to reduce GHG emissions. This chapter includes estimates on increases in annual expenditure (% GDP) to finance the low carbon transition, additional **investment costs (and potential savings) for households** (e.g. thermal insulation, energy-efficient electrical appliances, RES), as well as additional investment costs (and potential savings) for the 'third sector' (buildings and services). These estimates are provided for both 2030 and 2050, for two different decarbonisation scenarios. However, the Strategy itself states that **data unavailability** prevents the accurate estimation of costs of decarbonisation.

³⁷⁷ OECD, 2020, *Regulatory Policy in the Slovak Republic: Towards Future-Proof Regulation*, OECD Reviews of Regulatory Reform, OECD Publishing, Paris. Available at: <https://doi.org/10.1787/ce95a880-en>.

³⁷⁸ Interview with government officials and government agency.

³⁷⁹ Interview with government officials.

³⁸⁰ Ministry of the Economy, 2023, *Current documents of the unified methodology*. Available at: <https://www.mhsr.sk/podnikatelske-prostredie/jednotna-metodika/dokumenty?csr=10888084955678194624>.

³⁸¹ Ministry of the Environment, 2019, *Low-Carbon Development Strategy of the Slovak Republic until 2030 with a view to 2050*. Available at: <https://www.minzp.sk/files/oblasti/politika-zmeny-klimy/ets/lts-sk-eng.pdf>.

The **analysis of the EU ‘Fit for 55’ Package** for Slovakia³⁸² assesses the impacts of EU-level measures on the **domestic industry, innovation, fuel and energy prices, employment and household expenditure**. The study highlights how households experiencing energy and fuel poverty are likely to be impacted negatively, as they are particularly sensitive to changes in energy and fuel prices. It indicates that further data collection is needed to identify these households and provide support through targeted measures, funded by the SCF.

A succinct **ex-ante assessment of the social impacts of the proposed Climate Law** was developed by the Ministry of the Environment³⁸³ and submitted for public consultation. It describes the **expected impacts on household expenditure, as well as the impacts on access to resources, rights, goods and services for individual affected population groups, the impact on social inclusion, gender equality, employment and the labour market**. The analysis includes a short description of the main affected groups for each impact. For household expenditure, these groups are low-income households, the unemployed, households with three or more children, single-parent households with children, households of older people (over 65s or pensioners), households including members with disabilities, households living in marginalised Roma communities, households of third-country nationals, asylum seekers, and other vulnerable groups such as people leaving orphanages or other institutional facilities. For impacts on employment and the labour market, the analysis identifies workers in the car industry as potentially affected by the low carbon transition of the car industry, which is very prominent in Slovakia. On the other hand, the analysis notes that the demand for low-carbon technologies and RES are likely to have positive effects on employment. Overall, the assessment process considers the main impacts of one of the main pieces of legislation that will shape Slovakia’s climate policy, but it fails to estimate those impacts in detail. Rather, it provides a high-level qualitative description of possible impacts, rather than providing quantitative data and concrete estimates.

How is the country addressing the social impacts?

Slovakia has not developed a comprehensive strategy for addressing the social impacts of climate mitigation policies. However, different strategic documents recognise the potential negative impacts of climate mitigation on employment and household expenditure. Specific actions to address these impacts have been taken, to some extent, in the fields of energy efficiency policies, as well as coal phase-out actions and energy poverty.

Strategic level

The **Slovakian Low Carbon Strategy to 2050**³⁸⁴ recognises that ‘a poorly controlled and insufficiently regulated transformation towards a low-carbon economy bears the risk of the situation deteriorating in the area of economic and social rights, the guarantee of which is, inter alia, a prerequisite for the effective exercise of civil and political rights’, and that ‘adequate action to mitigate the social impacts of the low carbon transition is also a prerequisite for social acceptance of the Low-Carbon Strategy in the long term’.

³⁸² Institute for Environmental Policy, 2022, *Analysis of the EU Fit for 55 Package*. Available at: https://www.minzp.sk/files/iep/iep_analyza_fit_for_55_.pdf.

³⁸³ Ministry of the Environment, 2023, LP/2023/29 Act on Climate Change and Low-Carbon Transformation of the Slovak Republic and on Amendments to Act No. 162/2015 Coll. Administrative Court Procedure as amended (Climate Act). Available at: <https://www.slov-lex.sk/legislativne-procesy/SK/LP/2023/29>.

³⁸⁴ Ministry of the Environment, 2019, *Low-Carbon Development Strategy of the Slovak Republic until 2030 with a view to 2050*. Available at: <https://www.minzp.sk/files/oblasti/politika-zmeny-klimy/ets/lts-sk-eng.pdf>.

However, the Strategy does not indicate any such actions.

Energy poverty

Slovakia is one of the few EU countries to have adopted a definition for energy poverty. Law No. 250/2012 Coll. of Laws³⁸⁵ defines it as 'a situation where the average monthly expenditure of a household on the consumption of electricity, gas, heat for heating and the preparation of domestic hot water forms a significant share in the average monthly income of the household'³⁸⁶. The law does not define the term 'significant share'³⁸⁷, which is a shortcoming in effective consideration of energy poverty.

In January 2023, the government approved a new **draft Concept for the protection of consumers meeting the conditions of energy poverty**³⁸⁸, developed by the Office for the Regulation of Network Industries. The aim of the concept is to define an approach to the protection of customers at risk of energy poverty, in line with the requirements of Directive (EU) 2019/944 on common rules for the internal market for electricity³⁸⁹. According to the draft document, 'a household is at risk of energy poverty if, after deducting its total energy and water costs from the household's total disposable income, the given household has available financial resources in a specified amount, e.g. in comparison (or in relation) to the universally accepted minimum subsistence level'^{390,391}. The document does not delineate the ratio between 'the specified amount' and the 'minimum subsistence level', but leaves it to the interministerial committee, which will begin discussing the draft concept in April-May 2023, and ultimately the Slovak parliament, which will adopt the law.

Even in its draft format, this document recognises that in Slovakia, income plays a key role in determining whether a household is energy poor. It notes that once a certain income threshold is reached, income poverty as well as energy poverty decreases. The document also proposes a series of measures to address energy poverty, which will have to be implemented via the revision of other laws. Measures include the optimisation of delivery and network tariffs, offering free instalment plans and energy consulting to consumers, discounts, protection against the interruption ('switching off') of energy and water supplies during the winter, and prohibition of door-to-door energy sale.

In addition to this strategy, **Slovakia addresses issues of energy poverty through general social support measures**, such as social assistance, employment policies, housing allowance, renovation and energy efficiency-support measures or consumer protection measures.

³⁸⁵ National Council of the Slovak Republic, 2012, Act No. 250/2012 on regulation of network industries. Available at: <https://www.slov-lex.sk/pravne-predpisy/SK/ZZ/2012/250/>.

³⁸⁶ Ibid.

³⁸⁷ Radačovský, M., 2021, Question for written answer E-004706/2021 to the Commission: Energy poverty. Available at: https://www.europarl.europa.eu/doceo/document/E-9-2021-004706_EN.pdf.

³⁸⁸ Office for the Regulation of Network Industries, 2022, *Concept for the protection of consumers meeting the conditions of energy poverty, own material (Vlastný materiál in Slovak)*. Available at: <https://rokovania.gov.sk/RVL/Material/27993/2>.

³⁸⁹ Article 28 of the Directive states that Member States shall take appropriate measures to protect customers and shall ensure that there are adequate safeguards to protect vulnerable customers. Each Member State shall define the concept of vulnerable customers, which may refer to energy poverty and, inter alia, the prohibition of disconnection of electricity to such customers in critical times (Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU (recast), OJ L 158. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32019L0944>).

³⁹⁰ Office for the Regulation of Network Industries, 2022, *Concept for the protection of consumers meeting the conditions of energy poverty, own material (Vlastný materiál in Slovak)*. Available at: <https://rokovania.gov.sk/RVL/Material/27993/2>.

³⁹¹ The minimum subsistence amounts in Slovakia from 1 July 2022 to 30 June 2023 are: EUR 234.42 - one adult natural person, EUR 163.53 - additional jointly assessed adult natural person, EUR 107.03 - minor or dependent child (written contribution from government officials).

These all have a positive impact in addressing energy poverty, despite not directly targeting energy-poor households^{392,393}. Measures are also available to increase awareness and provide information to households on improving their energy situation³⁹⁴.

Studies on energy poverty in Slovakia are limited. While the share of people who cannot keep their homes adequately warm is relatively low, if one takes into account transport energy poverty in addition to domestic energy poverty, Slovakia is in the bottom ten countries. According to the European Energy Poverty Index (EEPI), the rate of transport and domestic energy poverty is higher among low-income deciles, as well as among single-person households, pensioners, and the Roma community. Energy poverty is distributed unevenly across Slovakia, with eastern regions more affected, mirroring socioeconomic disparities³⁹⁵.

Energy efficiency and housing renovation

The **Slovakian Low Carbon Strategy to 2050, as well as analysis of the EU 'Fit for 55' Package**, recognise that support must be provided to ensure that the building stock is renovated to achieve energy efficiency and energy performance targets. Measures are taken to support households in this area. The Slovak government will use EUR 528 million of **RRF** funding to finance large-scale renovation of family houses (*Obnov Dom* programme), aiming to improve the energy performance of at least 30,000 residential units³⁹⁶. The government will provide grants covering 60-95% of the renovation costs, and only projects that will create at least 30% of energy savings are eligible. Socially or medically disadvantaged applicants, such as **single-parent families and homeowners with disabilities**, are entitled to a reimbursement of 95% of their renovation costs³⁹⁷. A central website has been set up, together with regional information centres³⁹⁸. According to the website, around 3,000 applications were received between October 2022 and February 2023³⁹⁹. The programme has been criticised for requiring applicants to finance the renovation upfront, which creates a barrier for low-income households⁴⁰⁰.

Coal regions and industries in transition

Slovakia has committed to reducing its GHG emissions and will stop supporting coal mining and electricity production from coal by the end of 2023.

³⁹² Bouzarovski, S., Thomson, H., Cornelis, M., Varo, A. and Guyet, R., 2020, *Towards an inclusive energy transition in the European Union: confronting energy poverty amidst a global crisis*, European Commission, Directorate-General for Energy, Publications Office of the European Union, Luxembourg. Available at: <https://data.europa.eu/doi/10.2833/103649>.

³⁹³ Ministry of the Economy, 2019, *Integrated National Energy and Climate Plan for 2021 to 2030*. Available at: https://energy.ec.europa.eu/system/files/2020-03/sk_final_necp_main_en_0.pdf.

³⁹⁴ European Commission, 2020, *Member state reports on energy poverty 2019*, Directorate-General for Energy, Publications Office of the European Union, Luxembourg. Available at: <https://data.europa.eu/doi/10.2833/81567>.

³⁹⁵ Koďoušková, H. and Bořuta, D., 2022, 'Energy poverty in Slovakia: Officially defined, but misrepresented in major policies', *Energy Policy*, 168, p. 1113095. Available at: <https://doi.org/10.1016/j.enpol.2022.113095>.

³⁹⁶ European Commission, 2021, *Laying the foundations for recovery: Slovakia*, #NextGenEU, June 2021. Available at: https://commission.europa.eu/system/files/2021-06/slovakia-recovery-resilience-factsheet_en.pdf.

³⁹⁷ Slovak Environment Agency, *Obnov Dom programme*. Available at: <https://obnovdom.sk/>.

³⁹⁸ European Commission, *Slovakia's Recovery and Resilience Plan*. Available at: https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/slovakias-recovery-and-resilience-plan_en.

³⁹⁹ As of February 2023 (Slovak Environment Agency, *Obnov Dom programme*. Available at: <https://obnovdom.sk/>).

⁴⁰⁰ Interview with government agency.

The Nováky lignite power plant (in the Trenčín /Upper Nitra region) will be shut down in 2023, and the Vojany hard coal power plant in 2025⁴⁰¹. Slovakia will also support the low carbon transition of metals and chemicals industries in the Upper Nitra, Košice and Banská Bystrica regions⁴⁰².

At the end of 2022, the Commission approved the **TJTP** for Slovakia, setting the strategy for the investment of **EUR 459 million from the JTF** to support a fair transition for the country's metals and chemicals industries in the Upper Nitra, Košice and Banská Bystrica regions.

In **Upper Nitra**, the JTF will help to create new job opportunities for workers in the coal sector, their families and the young people who want to live and work in the region. Funds will also support energy efficiency measures for public buildings and innovative solutions for renewable energy⁴⁰³. A Transformation Action Plan for Slovakia's Upper Nitra Coal Region (phase out) has been developed by the local authorities and the government, with the participation of local communities⁴⁰⁴. Local authorities organised meetings, workshops and working groups, including with local public servants, entrepreneurs, heads of schools or social institutions, and representatives of NGOs. They also opened a call for projects to support the transformation of the region, to be included in the Action Plan. The European Commission provided support to the development of the action plan, via the **Platform for Coal Regions in Transition**⁴⁰⁵ and by hiring a consultant to support the development of the Plan⁴⁰⁶. An early evaluation of the draft plan by the WWF⁴⁰⁷ scored the Plan as 'medium' for fulfilling just transition principles, such as Principle 2, 'The TJTP should not lead to prolonged fossil fuel use or promote false solutions to the transition to climate neutrality' and Principle 4, 'The TJTP should address social inequalities, improve interregional solidarity, decrease inequalities and tackle injustices'. One interviewee⁴⁰⁸ noted that the stakeholder consultation process was not always effective or user-friendly, and often lacked structure and clear communication of the timelines to participants. Some issues were also signalled in respect of the call for projects, where it seemed that project selection criteria were not clearly communicated to stakeholders from the outset. These issues, coupled with the limited technical capacity and resources of certain local stakeholders (e.g. local municipalities or NGOs), impacted the effectiveness of the participation process.

The US-owned steel plant in Košice is the largest integrated steel plant in central Europe, with a crude steel production capacity of 4.5 million tonnes per year. It is one of the nation's biggest employers with over 10 000 workers⁴⁰⁹. In the Košice region, JTF will help to re-skill and upskill around 2,400 workers in

⁴⁰¹ Erbach, G., 2021, *Climate action in Slovakia: Latest state of play*, in European Parliamentary Research Service briefing, EU progress on climate action – How are the Member States doing? European Parliament. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI\(2021\)698767_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf).

⁴⁰² Kuzmanič, A., Stępień, M. and Ilčíková, L., 2022, *Territorial Just Transition Plans for Latvia, Poland and Slovakia approved*, Just Transition info. Available at: <https://www.just-transition.info/territorial-just-transition-plans-for-latvia-poland-and-slovakia-approved/>.

⁴⁰³ Ibid.

⁴⁰⁴ Ilčíková, L., 2019, *Local community participation in the Transformation Action Plan for the Slovakia's Upper Nitra Coal Region*, CEE Bankwatch Networks. Available at: <https://bankwatch.org/wp-content/uploads/2019/09/Transformation-Action-Plan-Upper-Nitra.pdf>.

⁴⁰⁵ European Commission, *Initiative for coal regions in transition*, website. Available at: https://energy.ec.europa.eu/topics/oil-gas-and-coal/eu-coal-regions/initiative-coal-regions-transition_en.

⁴⁰⁶ Kuzmanič, A., Stępień, M. and Ilčíková, L., 2022, *Territorial Just Transition Plans for Latvia, Poland and Slovakia approved*, Just Transition info. Available at: <https://www.just-transition.info/territorial-just-transition-plans-for-latvia-poland-and-slovakia-approved/>.

⁴⁰⁷ WWF, 2021, *Territorial Just Transition Plans – build your scorecard: Assessment for Slovakia, draft plan*. Available at: <https://just-transitions-plan.wwf.eu/assessment/cEiaYhB6e3tqWStklYe7>.

⁴⁰⁸ Interview with civil society.

⁴⁰⁹ Erbach, G., 2021, *Climate action in Slovakia: Latest state of play*, in European Parliamentary Research Service briefing, EU progress on climate action – How are the Member States doing? European Parliament. Available at: [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI\(2021\)698767_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/698767/EPRS_BRI(2021)698767_EN.pdf).

the steel industry. The fund will also create new job opportunities in the green sectors in RES, energy storage, and upgrading district heating networks.

Similarly, in Banská Bystrica, the JTF will help to increase the energy efficiency of public buildings and the use of geothermal energy resources, as well as lifelong learning for workers and support for vocational schools⁴¹⁰.

Climate change adaptation

How is the country assessing the social impacts of climate change adaptation policies?

No evidence was found of systematic assessment of the social impacts of adaptation policies at national or sub-national level.

Slovakia has not yet undertaken a nationwide CVRA, according to key interviews⁴¹¹. While the importance of assessing such impacts and identifying the groups most vulnerable to climate change is highlighted in strategic documents such as the NAS and NAP, these principles are not translated into concrete assessments at national level.

The **NAS** (2018) mentions that 'issues of (social) justice should be considered in adaptation planning, including spatial planning measures' and that 'attention should be paid to indicators such as changes in demographics, work habits, lifestyle choices, social isolation'. However, the Strategy fails to explain how this social justice principle should be operationalised in practice, or how social impacts should be assessed. The NAS identifies **residents from socially disadvantaged groups** as more vulnerable to the consequences of climate change (i.e. because they tend to live in areas threatened by landslides and floods).

The **NAP** (2021) recognises the lack of information and data on how climate change will affect household budgets or how vulnerable populations may be supported with targeted measures. The Plan notes that 'it will be necessary to increase the information base' on the issue. The monitoring and evaluation chapter of the NAP mentions that State administrators shall evaluate the specific measures implementing the NAP before implementing them, including assessing whether they have a negative impact on vulnerable groups. No definition of vulnerable group is provided, but it refers to some adaptation measures being inaccessible due to high investment costs, suggesting it relates to **low-income groups**. The NAP does not specify how the information base will be increased in practice.

The NAP includes a series of objectives and measures to develop the knowledge base, data collection, monitoring and research on climate adaptation. While the monitoring of social impacts is not mentioned, it could nevertheless be an opportunity to develop such monitoring.

The NAP includes a monitoring and evaluation plan, which states that responsible authorities will periodically assess implementation against a set of specific indicators, and use this exercise to prepare the report to the European Commission on national adaptation measures. Unfortunately, no indicator is included for the 'improved' assessment of social impacts.

⁴¹⁰ Kuzmanič, A., Stępień, M. and Ilčíková, L., 2022, *Territorial Just Transition Plans for Latvia, Poland and Slovakia approved*, Just Transition info. Available at: <https://www.just-transition.info/territorial-just-transition-plans-for-latvia-poland-and-slovakia-approved/>.

⁴¹¹ Interview with research institute and government agency.

Another high-level document, the **National Environmental and Health Action Plan (2020-2030)**⁴¹², recognises that certain population groups are more likely to experience negative health impacts from climate change. It identifies older people, people with chronic diseases, pregnant women, children, and employees working outdoors as the most vulnerable groups and calls for measures to strengthen their adaptability and resilience to health risks. It does not give any indication of the numbers of people belonging to such vulnerable groups.

No assessment of the impacts of climate change itself on vulnerable groups is available at national level.

The assessment of climate vulnerability and risks is addressed under Act 24/2006 on **Environmental Impact Assessment (EIA)** and **Strategic Environmental Assessment (SEA)**. Climate vulnerability (impact) is addressed through amendment 142/2017. There is no evidence that Slovakia has carried out a CVRA⁴¹³.

Key interviewees⁴¹⁴ stated that the Slovak government plans to **deliver a methodology for CVRA by 2025**, to be applied at different levels of governance and likely including an assessment of social vulnerabilities. Developed by the Slovak Environment Agency, the methodology will explore the social impacts of climate change. For instance, it will enable the identification of socially vulnerable groups and how they will be affected by climate change events (floods, droughts, etc.). This methodology will not be applied to climate adaptation policies already in place, but, rather, will be implemented prior to the development of new national, regional and local adaptation plans so as to ensure that they consider such vulnerabilities.

One interviewee⁴¹⁵ stated that **data on social vulnerability in Slovakia is lacking**, particularly data that could be used to develop CVRA at local (municipal) level. Organisations in charge of developing local adaptation plans often need to collect local-level data on an ad hoc basis, imposing an extra burden and lengthening the development of such assessments. Issues of comparability of data may also arise, as data collection is mostly ad hoc.

In a document providing input to a questionnaire on human rights and climate change, the Slovak National Centre for Human Rights indicated that 'There are no specific monitoring tools to measure the impact of climate change on the enjoyment of human rights in Slovak Republic'⁴¹⁶.

How is the country addressing the social impacts of climate adaptation policies?

The consideration of social impacts in adaptation policy-making is in its infancy in Slovakia. While both the NAS and the NAP refer to the importance of social justice in adaptation planning, this principle does not seem to be translated into practice and no guidance is provided on how such impacts should be addressed.

At national level, the **NAP** (2021) includes an explicit goal to strengthen health protection in the face of climate hazards, as well as a goal to improve adaptation supports for socially vulnerable residents and people in poverty, within social policy instruments.

⁴¹² Ministry of Health, 2019, *National Environmental and Health Action Plan of the Slovak Republic V. (2020-2030)*. Available at: <https://rokovania.gov.sk/RVL/Material/23451/1>.

⁴¹³ Climate-ADAPT, 2021, *Slovakia*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/slovakia>.

⁴¹⁴ Interview with research institute and government agency.

⁴¹⁵ Interview with research institute.

⁴¹⁶ Slovak National Centre for Human Rights, 2021, Input of the Slovak National Centre for Human Rights to the questionnaire in relation to Human Rights Council Resolution 47/24 on Human Rights and climate change. Available at: <https://www.ohchr.org/sites/default/files/2022-03/slovakia-nhri.docx>.

Specific activities include ‘adopting a concept for the protection of customers meeting the conditions of energy poverty’ and ‘considering solutions for the protection of consumers who meet the conditions of energy poverty, when taking measures in social policy’. This action could potentially support vulnerable households in operating cooling solutions (e.g. air conditioning) in the summer. No evidence of implementation of this action was found.

The monitoring and evaluation chapter of the NAP mentions that State administrators shall evaluate the specific measures implementing the NAP before implementing them, and that compensation or support schemes should be provided to vulnerable groups where the measures are expected to have a negative impact.

Measures to address the climate impacts on certain economic sectors (e.g. tourism) are included in the NAP, but no direct reference is made to associated social impacts (e.g. impacts on employment).

The **National Environmental and Health Action Plan (2020-2030)**⁴¹⁷ identifies a number of measures to reduce vulnerabilities and increase the adaptive capacity of citizens, health professionals and public institutions to help them to address the negative health impacts of climate change. Measures include applying an interministerial approach, raising awareness among health professionals and the general public, and strengthening and securing the necessary infrastructure. No evidence of implementation of these measures was identified.

According to one interviewee⁴¹⁸, **most of the (limited) work on addressing social impacts of climate change adaptation policies takes place at local level** (e.g. municipalities), subject to the goodwill of local authorities or grassroot movements^{419, 420}. This is partly because it is not mandatory for local authorities to develop local adaptation plans, and the funding of such plans is not considered a priority. This might change in the coming years, with one interviewee⁴²¹ reporting that the new proposal for the Climate Law includes a provision requiring each city of more than 10,000 inhabitants to develop a local adaptation strategy or plan.

Interviewees noted the lack of technical capacity to develop assessments or plans as a barrier.

Insights and avenues for improvement

Slovakia’s approach to assessing and addressing the social impacts of climate mitigation and adaptation policies is still in its infancy. While recently adopted strategic documents highlight the importance of considering such impacts (e.g. Slovakian Low Carbon Strategy to 2050, NECP, NAS, NAP), they often fail to translate this principle into concrete measures.

⁴¹⁷ Ministry of Health, 2019, *National Environmental and Health Action Plan of the Slovak Republic V. (2020-2030)*. Available at: <https://rokovania.gov.sk/RVL/Material/23451/1>.

⁴¹⁸ Interview with research institute.

⁴¹⁹ The Carpathian Development Institute supports municipalities in developing their local adaptation plans. The Institute has developed a methodology to perform local-level CVRA, which integrates an analysis of social vulnerability (see case study: ClimateADAPT, 2018, *Social vulnerability to heatwaves – from assessment to implementation of adaptation measures in Košice and Trnava, Slovakia*, Case studies. Available at: <https://climate-adapt.eea.europa.eu/en/metadata/case-studies/social-vulnerability-to-heatwaves-2013-from-assessment-to-implementation-of-adaptation-measures-in-košice-and-trnava-slovakia>).

⁴²⁰ Several cities and towns developed their adaptation strategies: Spišská Nová Ves (2012); Bratislava (Strategy 2014, SAP 2017); the Bratislava region prepared a catalogue of adaptation measures of the regional towns and municipalities; Košice - West (2014); Košice region (2020); Trnava (2015); Zvolen (2015); Kežmarok (2015); Trenčín (2019) adopted strategies; Cierny Balog did a pilot study in 2016; regional strategy of Horná Ondava (Climate-ADAPT, 2021, *Slovakia*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/slovakia>).

⁴²¹ Interview with research institute.

The assessment of social impacts seems to take place solely as part of regular policy-making processes, with different methodologies and on an ad hoc basis. There is no regular monitoring of relevant social indicators, beyond basic energy poverty indicators, at national or local level.

Some measures aim directly (or indirectly) to address the social impacts of climate mitigation policies. In addition to traditional social assistance measures, **actions that directly target just transition (e.g. action plans for the transition of coal/heavy industry regions, or support for housing renovation for vulnerable households) are supported by EU funding or technical assistance** (JTF, RRF).

No ex-post assessment of the impacts of measures addressing social impacts appears to be available. This is partly because some measures are only being implemented now and partly because they do not directly target social impacts (e.g. social assistance measures that indirectly address energy poverty).

The interviews with stakeholders did not identify particular best practices, but, rather, highlighted a general lack of data and a need to improve technical capacity for the assessment of social impacts of climate policies, at different level of governance and within academia and research. Interviewees identified a lack of technical capacity, the political and institutional context, and the relatively recent development of climate policy as the main barriers to the creation of measures addressing social impacts of such policies.

SPAIN

Introduction – climate and socioeconomic context

Climate change presents a serious threat to Spain, whose geographical location and socioeconomic characteristics make it one of the EU countries most susceptible to climate hazards. The average annual temperature in Spain has increased by around 1.5°C in the past 50 years and the national average precipitation is projected to decrease throughout the 21st century, with a significant reduction in southwestern Spain and in the islands. Drought frequency and length are expected to increase, while average river flow and ground water recharge are predicted to decline. There are many synergies between climate hazards that, acting simultaneously, could severely worsen the situation for Spain. For instance, heatwaves, droughts and extreme winds could increase the risk of forest fires, or coastal flooding could become more severe when sea level rise, storms and heavy precipitation happen at the same time⁴²².

Spain has put in place a framework for the implementation of climate policies to address and prevent the worst consequences of climate change. This framework comprises the **2006 NAP**⁴²³, the **National Climate Change Adaptation Plan (PNACC) 2021-2030** (hereafter NAP)⁴²⁴, the **Climate Change and Energy Transition Law**⁴²⁵, the **NECP**⁴²⁶ and the **Just Transition Strategy**⁴²⁷.

The Spanish NECP proposes a series of climate change mitigation measures to decarbonise the economy and reach carbon neutrality by 2050. The policies address the decarbonisation of the economy, improvements in energy efficiency and energy security, the increase of interconnectivity in the internal energy market, and the development of research, development, and innovation (RDI) planning. If carried out, by 2030, the measures specified in the NECP will result in a 21% reduction in GHG emissions compared to 1990, 42% of energy end-use from renewables, 39.6% improvement in energy efficiency, and 74% of electricity generated from renewable sources.

The NAP sets out a series of adaptation strategies to make the country more resilient to the impacts of climate hazards. The documents establish strategic objectives and define a series of indicators for impacts and adaptation, promoting coordinated action to tackle the effects of climate change.

Two key Eurostat indicators give an overview of the reliance of Spain on GHG emissions for the development of its economic activity. The first is energy intensity (i.e. energy consumed per EUR thousand GDP), with Spain below the EU-27 average since 2000, although the gap has been reducing over time.

⁴²² Climate-ADAPT, 2021, *Spain*. Available at: <https://climate-adapt.eea.europa.eu/en/countries-regions/countries/spain>;

International Energy Agency, 2021, *Spain Climate Resilience Policy Indicator*. Available at: <https://www.iea.org/articles/spain-climate-resilience-policy-indicator>.

⁴²³ Ministry for Ecological Transition and Demographic Challenges, 2006, *Plan Nacional de Adaptación al Cambio Climático*. Available at: https://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/pna_v3_tcm7-12445_tcm30-70393.pdf.

⁴²⁴ Ministry for Ecological Transition and Demographic Challenges, 2020, *National Climate Change Adaptation Plan 2021-2030*. Available at: https://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/pnacc-2021-2030-en_tcm30-530300.pdf.

⁴²⁵ Government of Spain, *Boletín Oficial del Estado* 21 May 2021. Available at: <https://www.boe.es/eli/es/l/2021/05/20/7/dof/spa/pdf>.

⁴²⁶ Ministry for Ecological Transition and Demographic Challenges, 2020, *Integrated National Energy and Climate Plan for Spain 2021-2030*. Available at: https://energy.ec.europa.eu/system/files/2019-06/ec_courtesy_translation_es_necp_0.pdf.

⁴²⁷ Just Transition Institute, 2022, *Spain, towards a just energy transition, Executive Summary*. Available at: https://www.transicionjusta.gob.es/Noticias/common/220707_Spain_JustTransition.pdf.

The second is the GHG emission intensity of energy consumption⁴²⁸ (i.e. tonnes of CO₂ equivalent emitted per unit of energy consumed), for which Spain's evolution in line with the EU-27 average. The Spanish economy is not particularly energy intensive and the development of its GHG intensity of energy is similar to that of the EU-27 average.

This implies that Spain is not especially reliant on GHG emissions for the development of its economic activity and decarbonisation of the economy should not entail disproportionate costs compared to other countries in the EU-27.

The Spanish economy performed relatively well compared to the EU average until the financial crisis of 2007, when GDP per capita⁴²⁹ went from EUR 24,380 to a low point of EUR 21,850 in 2013. The recovery has since been steady, surpassing pre-crisis levels of GDP per capita in 2019, before the COVID-19 pandemic outbreak in 2020.

Spain has a high AROPE rate compared to other Member States⁴³⁰. In 2021, 27.8% of Spain's population was at risk, compared to 21.7% for the EU-27.⁴³¹ The gender difference is similar to that of Austria and Greece, with 28.9% of women at risk and 26.7% of men.

The energy poverty rate is relatively high in Spain: in 2021, 14.2%⁴³² of households in the country were unable to keep their home adequately warm, compared to 6.9% for the EU-27.

Key findings – addressing the social impacts of climate action policy

Climate change mitigation

How is the country assessing the social impacts of climate mitigation policies?

Spain used a macroeconomic modelling exercise to assess the potential social impacts of climate change mitigation policies in the NECP. This evaluation was developed following the recommendations of the Governance Regulation⁴³³. However, the study team found no evidence of a systematic approach to the assessment of the effects of climate mitigation policies outside the NECP.

The NECP assesses the socioeconomic impacts of the policies through a macroeconomic model. The model⁴³⁴ was developed by the Basque Centre for Climate Change (BC3) in 2019, in collaboration with the Centre of Economic Scenario Analysis and Research (CESAR).

According to the results, the implementation of the measures in the NECP would entail a net increase in employment of 1.7% by 2030. Compared to the baseline, the unemployment rate would decrease by between 1.1% and 1.6%. The only sector where net employment is negative is the mining sector.

⁴²⁸ Eurostat, 2023, *Greenhouse gas emissions intensity of energy consumption (SDG_13_20)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_13_20/default/line?lang=en.

⁴²⁹ Eurostat, 2023, *Real GDP per capita (SDG_08_10)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/sdg_08_10/default/table.

⁴³⁰ Eurostat, 2021, *Glossary: At risk of poverty or social exclusion (AROPE)*. Available at: [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_\(AROPE\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:At_risk_of_poverty_or_social_exclusion_(AROPE)).

⁴³¹ Eurostat, 2023, *Persons by risk of poverty or social exclusion (ILC_PEE01N)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/ilc_pees01n/default/table?lang=en.

⁴³² Eurostat, 2021, *Inability to keep home adequately warm – EU-SILC survey (ILC_MDES01)*. Available at: https://ec.europa.eu/eurostat/databrowser/view/ILC_MDES01_custom_1485289/default/table?lang=en.

⁴³³ European Commission, 2022, *Commission Notice on the Guidance to Member States for the update of the 2021-2030 national energy and climate plans*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX%3A52022XC1229%2802%29&from=EN>.

⁴³⁴ To carry out the impact assessment, information was extracted from the energy model TIMES-SINERGIA and from the electricity sector model ROM and incorporated into the Dynamic Econometric Input Output (DENIO) model of the Spanish economy.

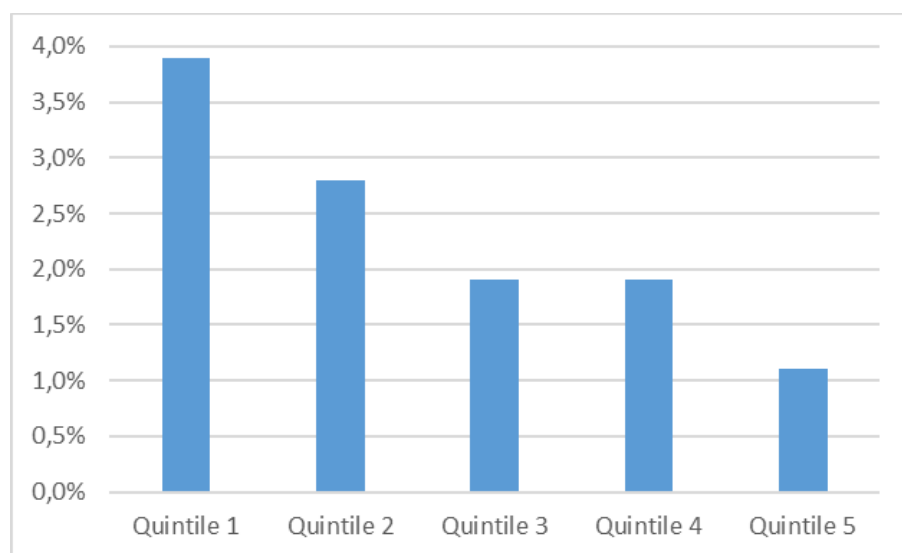
The NECP acknowledges this impact, with the policies in the Just Transition Strategy focusing on areas strongly dependent on coal mines, as well as the workers from this sector.

The results from the modelling show that **the measures in the NECP favour households with lower income and vulnerable groups**.

The implementation of the policies result in a comparatively higher increase in disposable income for lower-income households (quintile 1), making them progressive measures (see Figure 3).

A complementary finding highlights that after the implementation of the policies, the **increase in final consumption would be larger for vulnerable⁴³⁵ households** than non-vulnerable households.

Figure 3: Spain: variation in disposable income, 2030, by income quintile (%)



Source: Ministry for Ecological Transition and Demographic Challenges, 2020.

According to the Spanish Environmental Sciences Association (ACA), energy poverty occurs when a household is incapable of paying for sufficient energy to meet domestic needs and/or when it is obliged to use an excessive share of income to pay these bills. A significant number of Spanish households fall into this category, thus addressing energy poverty is a key priority in the NECP. The Spanish NECP assesses energy poverty using four indicators from the European Energy Poverty Observatory: disproportionate expenditure of households in energy, hidden energy poverty⁴³⁶, inadequate temperature of the dwelling, and delay in the payment of energy bills.

How is the country addressing the social impacts of climate mitigation policies?

Two strategies address the social impacts generated by the mitigation policies in the NECP: the Just Transition Strategy⁴³⁷ and the National Plan Against Energy Poverty⁴³⁸. These cover energy poverty and the impact of the policies on coal-reliant regions and workers.

⁴³⁵ Vulnerable consumers are those in a situation of energy poverty.

⁴³⁶ Percentage of households whose energy expenditure is lower than half of the national median.

⁴³⁷ Ministry for Ecological Transition and Demographic Challenge, 2020, *Just Transition Strategy*. Available at: https://www.transicionjusta.gob.es/common/ETJ_ENG.pdf.

⁴³⁸ Ministry for Ecological Transition and Demographic Challenge, 2018, *Estrategia Nacional Contra La Pobreza Energética 2019-2024*, Available at: https://www.miteco.gob.es/es/prensa/estrategianacionalcontralapobrezaenergetica2019-2024_tcm30-496282.pdf.

The Just Transition Strategy is a national instrument launched in 2019 whose objective is to maximise employment opportunities for those affected in the transition towards a low GHG emission economy. There are two main outcomes of this Strategy, which have a similar focus and relate to social policy. The first is the creation of the Just Transition Institute, which is a pioneer organisation in Europe that aims to protect territories and workers affected by the transition towards an economy non-reliant on GHG emissions. The second is the Urgent Just Transition Action Plan, which specifically targets those affected by the closure of coal mines in 2018 and by the shut-down of coal-fired power plants⁴³⁹.

The Urgent Just Transition Action Plan is based on agreements between the government, trade unions and companies involved in the closure of mines and power plants. The Plan has approved EUR 657 million⁴⁴⁰ to achieve the following objectives:

- To guarantee that workers who lose their jobs in mining companies will be adequately compensated;
- To maintain employment in the mining regions in the short term through the Mine Restoration Plan, and the Renewable Energy and Energy Efficiency Plan; and
- To offer affected regions Just Transition agreements to ensure that the closures do not impact employment and populations.

In addition to the Just Transition Strategy, the National Plan Against Energy Poverty also focuses on addressing the social impacts of mitigation policies. The goal of the Plan is to reduce the four energy indicators by at least 25% (see Table 11).

Table 11: Spain: energy poverty indicators and their expected evolution to 2025

INDICATOR (%)	2017	MINIMUM OBJECTIVE FOR 2025	PURSUED OBJECTIVE FOR 2025
DISPROPORTIONATE EXPENDITURE	17.3	12.9	8.6
HIDDEN ENERGY POVERTY	11.5	8.6	5.7
INADEQUATE TEMPERATURE OF THE DWELLING	8	6	4
DELAY IN PAYMENT OF BILLS	7.4	5.5	3.7

Source: Ministry for Ecological Transition and Demographic Challenge, 2018.

The National Plan Against Energy Poverty involves 19 policies, structured around four axes:

- **Improving knowledge of energy poverty.** Policies are in place related to the development of a robust monitoring system for energy poverty and the periodic publication of the indicators by the Ministry of Ecological Transition and Demographic Challenges;
- **Improving the response to energy poverty.** The subsidy mechanisms currently in place to avoid energy poverty will be revisited, and a new social energy voucher (*bono social energético*) will be introduced, together with a minimum vital supply;

⁴³⁹ The Agreement for Just Energy Transition for Thermal Power Plant Closures was signed in April 2020.

⁴⁴⁰ EUR 357 million from the State budget and EUR 300 million from the RRF.

- **Generating a structural change for the reduction of energy poverty** by retrofitting dwellings, substituting equipment for more energy efficient versions, or promoting public housing with a subsidy for energy expenditure; and
- **Measures to improve consumer protection and social awareness**, such as homogenising the management of information, developing a general information website, or communicating actions on the use of intelligent meters.

In addition to the National Plan Against Energy Poverty, some of the policies discussed in the NECP include the design of redistributive mechanisms such as aid related to housing upgrades, the extension of the current heating discount (*bono de calefacción*) or the promotion of self-consumption in vulnerable households.

Climate change adaptation

How is the country assessing the social impacts of climate adaptation policies?

There is no evidence of assessment of the social impacts of climate change adaptation policies in the NAP.

The Spanish national adaptation policies are contained in the NAP, first launched in 2006 and later updated in September 2020, when the NAP 2021-2030 was approved.

The 2006 NAP was based on a previous publication that assessed the effects of climate change in Spain⁴⁴¹. It aimed to develop methods and tools to evaluate the impacts of various climate scenarios on different economic sectors, as well as reporting the results of evaluations. This initial NAP advocated for stakeholder participation in the development of adaptation policies.

The first NAP acted as a stepping stone for NAP 2021-2030. An in-depth evaluation of the first strategy was carried out, involving a wide set of participants with experience in the field of adaptation (including large workshops with participants from both the private and public sectors). More than 1,500 observations were received from 182 organisations and people before the final draft of NAP 2021-2030.

The publication of NAP 2021-2030 responds to the need to develop a society and economy resilient to the potential impacts of climate hazards. It also aligns with new policies by the European Council linking adaptation with COVID-19 recovery policies. The NAP is a basic planning tool that defines objectives, criteria, scope and actions to build resilience and minimise damage. It defines 81 action lines for different socioeconomic sectors, organised in 18 work areas. The Plan is grounded in five guiding principles: 1) Social and territorial equity for a just future, 2) Science, knowledge and society at the service of adaptation, 3) Transversality and integration in public management, 4) Addressing unwanted effects, and 5) Coordinated, transparent and effective action.

The first principle acknowledges that the impacts of climate change are unevenly distributed across the population and can result in factors that reduce social resilience, such as economic inequality or rural depopulation. The NAP states that 'the social components of exposure and vulnerability, as well as their geographical distribution, should be taken into account in climate risk analyses and in the definition of adaptation initiatives'. It also **recognises that all adaptation measures need to ensure non-discrimination, equity, meaningful and informed participation, and accountability.**

⁴⁴¹ Ministry for Ecological Transition and Demographic Challenges, *Evaluación Preliminar de los Impactos en España por Efecto del Cambio Climático*. Available at: https://www.miteco.gob.es/es/cambio-climatico/temas/impactos-vulnerabilidad-y-adaptacion/plan-nacional-adaptacion-cambio-climatico/evaluacion-preliminar-de-los-impactos-en-espana-del-cambio-climatico/eval_impactos.aspx.

The NAP considers a series of transversal aspects to be reflected in the assessment process of the impacts. Some of these are directly related to the social impacts of policies:

- Territorial vulnerability: The impacts of climate change are unequally distributed across the Spanish territory, and these differences must be identified for the adequate definition of adaptation policies;
- Social vulnerability: Differences in vulnerability of social groups limit the ability to respond to impacts, and therefore must be identified when developing adaptation measures; and
- Gender mainstreaming: Climate change opens the door to processes of change that require the consideration of policies to make Spanish society more inclusive, including from a gender perspective.

Although the NAP acknowledges the need for a plan that ‘must guarantee that adaptation measures do not disfavour certain social groups or increase already existent social disparities’, one interviewee confirmed that this has not translated into the development of a strategy or standard procedure to evaluate the impacts of adaptation policies.

How is the country addressing the social impacts of climate adaptation policies?

In line with the findings on the assessment of the social impacts of climate adaptation policies, and despite mentioning the need to account for them, **the NAP does not specify concrete policies to address these effects.**

There is general awareness that climate adaptation can present challenges in the form of increased inequality and worse conditions for vulnerable groups, but this is not reflected in a standardised method of assessing the impacts or the creation of policies to tackle them.

Insights and avenues for improvement

Spain has a considerable margin for improvement in assessing and addressing the social impacts of climate mitigation and adaptation policies. The importance of addressing such impacts is recognised in the NECP and NAP, but not reflected in actual evaluation and monitoring strategies or policies.

The assessment of social impacts is more advanced for climate mitigation policies, largely because it was either a requirement or a recommendation in the NECP Regulation or Just Transition Strategy reporting guidelines⁴⁴². This suggests that the requirements and recommendations specified in the regulations for these plans have a clear effect on the assessments and measures carried out. As expected, only those impacts that are assessed are addressed with policies – in this case, energy poverty and coal territories.

Both the assessment and addressing of impacts of climate adaptation policies are in the very early stages. Again, the need to consider the social consequences of these policies is acknowledged, but no policies or assessment methods underpin these statements.

⁴⁴² This is the case for the evaluation of energy poverty (its inclusion is compulsory under *Commission Implementing Regulation (EU) 2022/2299*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R2299&from=EN>). It is also the case for the macroeconomic modelling of impacts of the NECP. Coal activities are included in the template for TJTPs within the regulation of the Just Transition Fund (*Regulation (EU) 2021/1056 of the European Parliament and of the Council*. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1056&from=EN>).

ANNEX 3: POLICY MAPPING

Mitigation⁴⁴³

Table part 1

	<i>Climate mitigation</i>								
	<i>Economic</i>				<i>Regulatory</i>			<i>Hybrid</i>	
	<i>Taxes/levies (e.g., carbon, energy taxes)</i>	<i>Subsidies schemes (e.g., for energy audits)</i>	<i>Feed-in Tariffs</i>	<i>Public investments (e.g., infrastructure expansion)</i>	<i>Standards (e.g., efficiency standards)</i>	<i>Emissions trading schemes</i>	<i>Other regulation (e.g., zoning restrictions, land-use restrictions)</i>	<i>Certificates (e.g., tradeable white certificates)</i>	<i>Feebates</i>
AT		Domestic Environmental Support Scheme					Decrease emissions from F-gases and other product use		
BE				Third party financing scheme development	Strengthening product standards and labelling				
BG		Energy Renovation of Bulgarian Homes	Feed-in Tariff: 1000 MW of installed solar capacity; 660 MW of installed wind power capacity				Introduction of monitoring systems for energy consumption		
HR		Promoting the RES use for production of electricity and heat							
CY									

⁴⁴³ This table mirrors Table 2 in Section 1.1.1. However, the following columns have been deleted as no example policies were identified: Subsidised loans; Tradeable permits; Direct procurement; Charges and fees; Trade policy; Coal phase-out policy; Permitting systems.

	Climate mitigation								
	Economic				Regulatory			Hybrid	
	Taxes/levies (e.g. carbon, energy taxes)	Subsidies schemes (e.g., for energy audits)	Feed-in Tariffs	Public investments (e.g., infrastructure expansion)	Standards (e.g., efficiency standards)	Emissions trading schemes	Other regulation (e.g., zoning restrictions, land-use restrictions)	Certificates (e.g., tradeable white certificates)	Feebates
CZ	Economic and tax tools for road vehicles		Preferential feed-in tariffs for electricity produced from renewable energy sources				Energy management act		
DK		Price supplement and subsidies for renewable energy production		Investment in a tunnel under the Femern Belt			Obligation for energy savings in government buildings		
EE		State aid to support production of electricity from renewable sources		Investment support for wind parks			Bans and duties from the Regulation (EU) No 517/2014 on fluorinated greenhouse gases		
FI		Subsidies for energy efficiency in buildings			Act on Ecodesign and Energy Labelling (1005/2008)				
FR	Energy taxes	MaPrime Renov'							Bonus écologique voiture ou camionnette; CO2 emissions and since 2022 weight of passenger cars
DE			Feed-in tariff, overarching legislation (Renewable Energy Act):		Building Energy Law (GEG)	Carbon dioxide trading mechanism (national ETS)			

	Climate mitigation								
	Economic				Regulatory			Hybrid	
	Taxes/levies (e.g. carbon, energy taxes)	Subsidies schemes (e.g. for energy audits)	Feed-in Tariffs	Public investments (e.g. infrastructure expansion)	Standards (e.g. efficiency standards)	Emissions trading schemes	Other regulation (e.g. zoning restrictions, land-use restrictions)	Certificates (e.g. tradeable white certificates)	Feebates
			Increase in national share of renewables, from 7% in 2000%–33% in 2017; €4,000 subsidy for the purchase of electric vehicles (2016)						
EL		Common Agricultural Policy (CAP) - Green Direct Payments					Reduction of emissions of fluorinated gases		
HU		Financial support for buying electric vehicles							
IE	Vehicle registration tax and motor tax rebalancing			EXEED Certified Grant (EXEED Grant Scheme) (p)	Energy efficient boiler regulation				
IT					Minimum energy performance requirements for buildings			White certificates - Cogeneration	
LV			Preferential feed-in tariffs for renewable electricity		Energy labeling of appliances		Reduce emissions of fluorinated greenhouse gases		
LT	Annual car pollution charge	Investment subsidies for residential		Financial support for investments into small-			Restriction of access to designated urban		

Climate mitigation									
	Economic				Regulatory			Hybrid	
	Taxes/levies (e.g. carbon, energy taxes)	Subsidies schemes (e.g. for energy audits)	Feed-in Tariffs	Public investments (e.g. infrastructure expansion)	Standards (e.g. efficiency standards)	Emissions trading schemes	Other regulation (e.g. zoning restrictions, land-use restrictions)	Certificates (e.g. tradeable white certificates)	Feebates
		energy technologies		capacity power plants			areas for vehicles within ICE		
LU					Increase energy efficiency standards for new non-residential buildings				
MT		Grant on purchase of micro wind turbines					The introduction of a biofuel 'Substitution Obligation'		
NL		Subsidy schemes on energy efficiency and renewable energy					Implementation of EU F-gas regulation (517/2014/EC)		
PL		Subsidy for buying an electric vehicle (Moj elektryk), rooftop PV and storage system (Moj Prad); Clean Air Priority Program					Energy audits and energy management systems		
PT	Carbon tax for non EU ETS sectors		Feed-in Tariff: Increase in national share of renewables, from 30% in 2000–50% in 2010				Regulation on CO2 for cars and vans		

	Climate mitigation								
	Economic				Regulatory			Hybrid	
	Taxes/levies (e.g. carbon, energy taxes)	Subsidies schemes (e.g., for energy audits)	Feed-in Tariffs	Public investments (e.g., infrastructure expansion)	Standards (e.g., efficiency standards)	Emissions trading schemes	Other regulation (e.g., zoning restrictions, land-use restrictions)	Certificates (e.g., tradeable white certificates)	Feebates
RO		energy efficiency retrofit subsidies					Law no. 220/2008 on establishing the promotion system for the production of energy from renewable energy sources, amended and complemented by Law no. 139/2010		
SK				Long term financial mechanism to support the development of charging infrastructure			Setting stricter requirements for regular technical inspections		
SI	Environmental tax for the pollution of air with CO2				Energy labelling and minimal standards				
ES		Subsidies for the promotion of electricity from renewable energy sources				Carbon dioxide trading mechanism (national ETS)	Regulation on Thermal Installations in Buildings		
SE	Carbon tax on transport fuel								Bonus - Malus system for private cars classes I and II, light busses, and light lorries

Table part 2

	Climate mitigation							
	Research, Education and Information					Planning		
	Education and training programmes	Capacity building	Financing of research and statistics	Advice programmes (e.g., energy or home renovations advice)	Awareness raising campaigns	Waste management plan	Renewable planning and deployment	Transport plan
AT								Reduction of energy consumption by trains
BE							National Energy Efficiency Action Plan	
BG	Energy efficiency education				Energy efficiency information campaigns			
HR		Reduction of emissions from businesses						
CY								
CZ								
DK				Advisory services, farm management and farm relief		Reducing landfilling waste		
EE					Information dissemination and campaigns targeted to residents	National Waste Plan 2030		Action plan for eliminating greenhouse gas emissions in domestic transport by 2045
FI	Training programmes for farmers in agroecology (as part of the Agroecology Project)							

	Climate mitigation							
	Research, Education and Information					Planning		
	Education and training programmes	Capacity building	Financing of research and statistics	Advice programmes (e.g., energy or home renovations advice)	Awareness raising campaigns	Waste management plan	Renewable planning and deployment	Transport plan
FR				Energy consulting for residential buildings				
DE								
EL					Awareness raising on climate and energy policy	National Waste Management Plan		
HU								
IE								Urban Plans for Sustainable Mobility - PUMS
IT								
LV	Broad social dissemination, public information, habit building and pilot projects to reduce fossil fuel consumption			Promotion of partial change of the composition of animal feed by reducing methane and nitrogen emissions				
LT				Educating advisors for giving energy consumption advice primarily to families with low revenues	Strengthening awareness campaigns at regional or local level aiming at promoting and diffusing information on energy efficient construction and			

	Climate mitigation							
	Research, Education and Information					Planning		
	Education and training programmes	Capacity building	Financing of research and statistics	Advice programmes (e.g., energy or home renovations advice)	Awareness raising campaigns	Waste management plan	Renewable planning and deployment	Transport plan
					renovation and their advantages			
LU			Development of R&I Strategy for energy and water					
MT					Efficient Driving Campaign (Eco driving)			
NL			Research projects to develop coalbed methane					
PL								
PT								
RO								
SK			Financial incentives for research, innovation and market take-off for low-carbon products and services	Energy advice network for citizens - ENSVET				
SI	Efficient driving courses in road transport					National Waste Management Framework Plan 2016-2022		
ES				Climate change communication				
SE								

Adaptation

<i>Climate adaptation</i>											
	<i>Governance and Institutional</i>			<i>Economic and Finance</i>		<i>Physical and Technological</i>		<i>Nature Based Solutions and Ecosystem Based Approach</i>		<i>Knowledge and Behavioural Change</i>	
	<i>Policy instruments</i> (e.g. creation/revision of policies or regulations)	<i>Management and planning</i> (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	<i>Coordination, cooperation and networks</i> (e.g. ministerial coordination formats, stakeholder networks)	<i>Financing and incentive instruments</i> (e.g. incentive mechanisms, funding schemes)	<i>Insurance and risk sharing instruments</i> (e.g. insurance schemes and products, contingency funds for emergencies)	<i>Grey options</i> (e.g. new physical infrastructures, rehabilitation/upgrade/replacement of physical infrastructures)	<i>Technological options</i> (e.g. early warning systems, hazard/risk mapping, service/process applications)	<i>Green options</i> (e.g. green infrastructure, natural and/or semi-natural land-use)	<i>Blue options</i> (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	<i>Information and awareness raising</i> (e.g. research and innovation, communication and dissemination, decision support tools and databases)	<i>Capacity building, empowering and lifestyle practices</i> (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
AT	Austrian Adaptation Strategy	Flood Risk Management Plan		Foreign Disaster Fund (FDF)						Raising awareness of climate change adaptation and implementing concrete actions on regional level through the Pilot Programme "Climate Change Adaptation Model Regions for Austria - KLAR!"	

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
BE	National Adaptation Plan	National Environmental Health Action Plan (NEHAP)	Strengthening sectoral coordination at national level	Support for solar panel installation and energy efficiency improvements in social housing, and discount vouchers for purchasing energy-efficient household appliances	Flood risk insurance based on an equitable solidarity-based system: insurance purchase is mandatory, but premiums are not connected to risk and the government offers support for extreme losses		Risk analysis for invasive alien species, taking into account climate change	Develop and adapt the green area in the Brussels region	Continue efforts to improve groundwater and surface water quality and ensure quality water supply to the population	Development of a national online platform for climate adaptation	
BG	National Climate Change Adaptation Strategy and Action Plan	Develop and adopt the new Biodiversity Strategy and Action		Investments in insurance products to reduce the risks of	Development of insurance and risk management			Regional/local 'red lines' to prevent loss of ecosystem	Development of suitable irrigation systems	Development of a national database (online)	Development of climate change training for farmers

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
		Plan and a new Green Infrastructure Strategy with regard to ecosystem-based management, conservation, restoration and CCA		climate-related income loss.	t program (management strategies with respect to climate loss of crop yields and subsidised crop insurance program)			services vital for CCA		portal) containing CCA-specific information, for raising public awareness and knowledge-sharing bringing people together for knowledge exchange	
HR	Strategy for adaptation to climate change of the Republic of Croatia	Support to planning, construction, reconstruction and upgrading the system for protection against harmful	Integration of the climate change topic into the curriculum (for early childhood and preschool	Strengthening the aquaculture sector by investing in the development of new markets and expanding	Insurance of agricultural production from production losses caused by adverse climate conditions	Reconstruction and construction of amelioration drainage structures	Establishment of a climate monitoring and early warning system for protected areas and ecological	Implementation of the green infrastructure concept aimed at strengthening climate resilience in	Strengthening the resilience of the coastal water and municipal infrastructure and coastal water	Implementation of the climate change adaptation experimental-research programme in agriculture	Strengthening capacities of responsible institutions to act in cases of occurrence of extreme

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
		effects of water and related hydrotechnical systems (structural measures) and lowland natural floodplains flooded in a controlled fashion, as well as other water protection measures	education; for primary and secondary education)	the range of products offered			network areas and monitoring of ecosystems, habitats and wild species	urban and rural areas	resources (structural measures)		hydrological conditions
CY	National Strategy for climate change adaptation	Implementation and regular revisions of the Drought Management Plan		Investment in infrastructure / technologies to address elevated		Improving the design and construction materials of buildings and transport	Extreme weather early warning systems	Creation and maintenance of urban parks and other green practices to limit the phenomenon		Promotion of rainwater collection sponsorship plan in residences	Advice and education on crop adaptation to climate change

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
				temperatures		infrastructures		n of urban heat island			
CZ	Strategy on adaptation to climate change in the Czech Republic	River Basin Management Plans and Flood Risk Management Plans					Development and strengthening of the Integrated Rescue System	Measures to ensure a functional and ecologically stable system of urban greenery	Restoration of small water reservoirs and enhancing their reliability	Research and communication in tourism	
DK	Danish strategy for adaptation to a changing climate				Climate aid for communities affected by climate change						
EE	Climate change adaptation development plan until 2030		Supporting the adaptation of preschool child care institutions,			Ensuring the durability of buildings, more energy efficient heating and	Development of information, monitoring and support systems and	Development of green areas and urban landscapes for		Increasing awareness about the effects of climate change and	Ensuring food supply in the changing climate through the

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
			general education and hobby schools, environmental education centres and vocational schools to the effects of climate change			cooling and a comfortable indoor climate for people in the changing weather conditions	preparation of action plans for improving the efficiency and managing the health risks arising from climate change	managing climate risks		risks in land use, urban arrangement and planning, development of planning methods of risk areas and organisation of the legal framework.	development of land improvement systems, increase in the competitiveness of agriculture and through knowledge creation and transfer.
FI	Finland's national climate change adaptation plan 2022	Action Plan for adaptation to climate change in the ministry of agriculture and forestry	Promoting concrete actions for the Baltic Sea region and cooperation related to adaptation issues and exploring the possibilities							Promotion of regional and local demonstration, research and development projects relating to adaptation, using networks,	

Climate adaptation											
Governance and Institutional				Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replacement of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
			of EU funding to support the measures							practices and EU financing instruments available in the regions, areas and municipalities	
FR	National adaptation strategy				Flood risk insurance based on an equitable solidarity-based system: insurance purchase is mandatory, but premiums are not connected to risk and the government offers						

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
					support for extreme losses						
DE	German adaptation strategy to climate change	Adaptation of management planning for farmers	Promoting the expansion of electricity networks by means of intensified links with the networks of European neighbours to access the most economical locations of electricity generation	In Berlin, the environmental justice index, which considers environmental problems (e.g. exposure to high temperatures) and socioeconomic disadvantage, informs the allocation of funding for environmental improvement	Insurance density of extended natural hazard insurance for residential buildings		Heat warning system	Riparian vegetation on the banks of small and medium-sized watercourses	Investments in floodwater protection for inland waterways	Newsletters containing information regarding the pollen exposure risk index	Training exercises for civil protection in emergency situations

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
	Policy instruments (e.g. creation/revision of policies or regulations)	Management and planning (e.g. mainstreaming adaptation into other sectors, technical rules/codes/standards)	Coordination, cooperation and networks (e.g. ministerial coordination formats, stakeholder networks)	Financing and incentive instruments (e.g. incentive mechanisms, funding schemes)	Insurance and risk sharing instruments (e.g. insurance schemes and products, contingency funds for emergencies)	Grey options (e.g. new physical infrastructures, rehabilitation/upgrade/replace ment of physical infrastructures)	Technological options (e.g. early warning systems, hazard/risk mapping, service/process applications)	Green options (e.g. green infrastructure, natural and/or semi-natural land-use)	Blue options (e.g. blue infrastructure, natural and/or semi-natural water and marine areas management)	Information and awareness raising (e.g. research and innovation, communication and dissemination, decision support tools and databases)	Capacity building, empowering and lifestyle practices (e.g. good practices, training and knowledge transfer, lifestyle practices and behaviours)
				ts in neighbourhods that need them the most							
EL	National strategy for adaptation to climate change	Incorporating the consideration of climate change adaptation issues into the Regions' rural development programs.		Investment programs for the protection of energy facilities in cooperation between the public and private sectors		Creation of sub-horticultural forest stand structures preferably, with a mix of species, avoiding deforestation for increased biodiversity and ecosystem stability	Installation of warning systems and software for rapid and seamless evacuation of areas	Protection from overgrazing and undergrazing by determining their grazing capacity	Sustainable water resources management measures, such as investigating the limitation of the use of upper limits in the areas cultivated with water-bearing plant species, and the use of varieties with a reduced	Creation of a database of research findings on the effects of climate change on agriculture and livestock and adaptation at national and international levels.	Educational programs on biodiversity and adaptation to climate change

	Climate adaptation										
	Governance and Institutional			Economic and Finance		Physical and Technological		Nature Based Solutions and Ecosystem Based Approach		Knowledge and Behavioural Change	
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									biological cycle		
HU	National adaptation strategy	Elaborating a Heat Plan with particular view to prepare the general public	Elaborating and disseminating methodologies of climate-aware construction among the experts preparing settlement and building plans					Enhancing the intercommunication across the landscape surrounding natural areas in order to facilitate the migration of species	Rational treatment of the municipal rainwater streams, revising the drainage systems on an “as necessary” basis and enabling them to receive sudden large quantities of rainwater	Strengthening social awareness raising	
IE	National adaptation framework	Climate Change Sectoral Adaptation	Work collaboratively with agencies and	Promote ecosystem restoration and		Transition plans for the peatlands area in the	Develop an impact assessment tool to	Co-design green spaces and wildlife refuges in	Develop integrated catchment management	Raise awareness among external	Up skill farmers, foresters and fishermen to

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		Plan for Transport	other departments to develop national policy supporting climate change adaptation and maximising synergies with mitigation	conservation through Payment for Ecosystem Services and investment in actions that increase carbon sinks while promoting biodiversity (e.g., woodlands, bogs, soil management, hedgerows)		Midlands, including retrofitting social housing stock, protecting the most vulnerable from rising energy costs and improving electricity distribution infrastructure	screen for potential maladaptation on impacts of climate change adaptation actions across all sectors	cities and peri-urban areas with local communities to provide habitats for species under threat from climate change	and nature-based solutions	stakeholders on climate change and adaptation issues	ensure they have the knowledge and tools required to implement climate adaptation practices
IT	National adaptation strategy to climate change	Urban and territorial planning		Economic and financial incentives	Insurance and other instruments of risk transfer		Prediction and early warning systems	Establishment and maintenance of agroforestry systems	Maintenance and improvement of drainage and irrigation networks	Development of a research program to improve the knowledge framework	

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										on the impacts of climate change, vulnerability and risks in Italy	
LV	Latvian national plan for adaptation to climate change until 2030								Provision of access to free drinking water in public spaces as part of the national adaptation plan	Awareness-raising among educational and social care institutions, and development of recommendations for social care stakeholders on health prevention measures during	

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										heatwaves as part of the national adaptation plan	
LT	The national strategy for climate change management policy			State support for modernisation of apartment buildings (no sure if it is specifically addressed at climate adaptation)		Ensuring continuous improvement and updating of the meteorological and hydrological observation system		Developing the system of protected areas and natural framework and recovering and proliferating natural landscape elements in these areas	Development of an effective flood risk assessment and management system taking into account social, economic and environmental aspects		Developing farmers' skills and increasing awareness and motivation to adapt to climate change
LU	Strategy and action plan for adaptation to					Limit the impacts of climate change on	Development of monitoring and early		Adapt the planning and sizing of wastewater	Research aimed at identifying the impacts	

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	the effects of climate change					transport infrastructure, for example by ensuring that pipelines (gas and oil pipelines) are covered by at least 2 m, by keeping high voltage pylons away from risk areas and by sizing them to higher wind and frost loads	warning systems for critical infrastructure		disposal systems	of invasive neophytes on forest functions	
MT	National Climate Change Adaptation Strategy										

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NL	- National climate adaptation strategy 2016 - Delta programme (2010)	National Heat Plan Delta Plan on Flood Risk Management, Delta Plan on Fresh Water Supply and Delta Plan on Spatial Adaptation	Delta programme - government collaborates with residents, business, knowledge institutes, and NGOs	The Dutch Fund for Climate and Development is funding developing countries with the purpose of climate mitigation and adaptation						Working group on climate adaptation: The working group will exchange knowledge in the field of climate adaptation about such aspects as scenario analyses, methods and data. It will also identify sector-wide opportunities for public-private adaptation finance and indicate how	

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										current bottlenecks can be overcome. The working group is expected to report on its findings by the end of 2023. It also seeks to explore joint activities and aims to reach out to Dutch central and local authorities to explore collaboration opportunities.	
PL	Polish National Strategy for	Introduction of obligatory	Improvement in	Investment support for		Design of transmission	Developing and	Increasing the	Reforming water	Creation of research	Organisation of training

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	Adaptation to Climate Change by 2020 with the perspective by 2030	spatial development plans at the regional and local level, especially for flood areas, areas at risk of flooding and landslides, urbanized areas, naturally valuable areas and coastal zones and coastal water zones, taking into account the cross-border areas	management structures, including crisis management, rescue and civil protection and defining the needs with regard to strategic planning, taking into account cross-border aspects	holdings and training and technological advice taking into account aspects of adapting agricultural production to the increased climate risks and preventing climate change		networks, including, inter alia, underground and overhead networks, taking into account extreme weather situations, in order to limit the risk of, inter alia, deposition of ice and snow on them, flooding and destruction in case of strong wind.	implementing assessment methods of flood and flooding risk	forestation rate both in case of artificial afforestation and natural succession and rationalization of land use, reduction in the fragmentation of forest complexes.	management structures with consideration of adaptation to climate change	programmes and financing research in the following areas: energy, construction, geology, transport, agriculture and forestry management, water and maritime management	courses in the following areas: climate change and methods for preventing and reducing its consequences for residents of: areas at risk of floods, landslides and strong winds.
PT	National adaptation to					Contingency plan to support					

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	climate change strategy					homeless people following alerts for extreme weather-related events put in place by the Lisbon municipality					
RO	National Climate Change Strategy	Elaboration of a National Agenda for Adaptation to the Effects of Climate Change and its integration into the current and future policy			Flood risk insurance based on an equitable solidarity-based system: insurance purchase is mandatory, but premiums are not connected to					Supporting research activities in the field of climate change and creating a national data base on climate change	Best practices regarding the integration of adaptation measures to the effects of climate change in development policies

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					risk and the government offers support for extreme losses						
SK	Climate change adaptation strategy of the Slovak Republic							Tree planting in a residential area of Trnava and Kosice, Slovakia, containing housing prone to overheating and a high proportion of older people and children	Construction and restoration of water features in a residential area of Trnava and Kosice, Slovakia, containing housing prone to overheating and a high proportion of older people and children		Actions intended to change behaviour during heatwaves, in a residential area of Trnava and Košice, Slovakia, containing housing prone to overheating and a high proportion

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											of older people and children
SI	Strategic framework for climate change adaptation	The effective coordination of the contents and processes of development and spatial planning, including taking account of capabilities for disaster risk management	The inclusion of stakeholders and the participation of the wider interested expert public in the development of policies and the planning and implementation of measures are guaranteed							Dissemination of research results, the latest findings, information on innovations, examples of good practice, etc.	
ES	National Climate Change Adaptation Plan 2021-2030	Integration of climate change into the national	Strengthening of the technical working				Early warning systems for adverse	Interventions aimed at improving the	Improving the condition of water bodies	Expanding and updating knowledge	Dissemination of information on available

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		health and environment plan	group on coastal risks within the Impacts and Adaptation Working Group (GTIA)				weather and climate events	ecological permeability of the territory and ecological connectivity	and aquatic ecosystems, with an impact on groundwater	on the potential impacts of climate change on water and the management of water resources	tools and capacity building for the appropriate use of tools and climate data, through the development of methodological guidelines, examples of good practices and training actions
SE	National Strategy for climate adaptation	Sea and Water Authority's work with action plan for climate adaptation							Development of sustainable drainage systems in Malmo		

Copy of the abstract from the beginning of the document. Text should be between 30 and 80 words. Ensure proper designation (study / in-depth analysis) is used if referring to the document, or use a neutral term such as "research paper".

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