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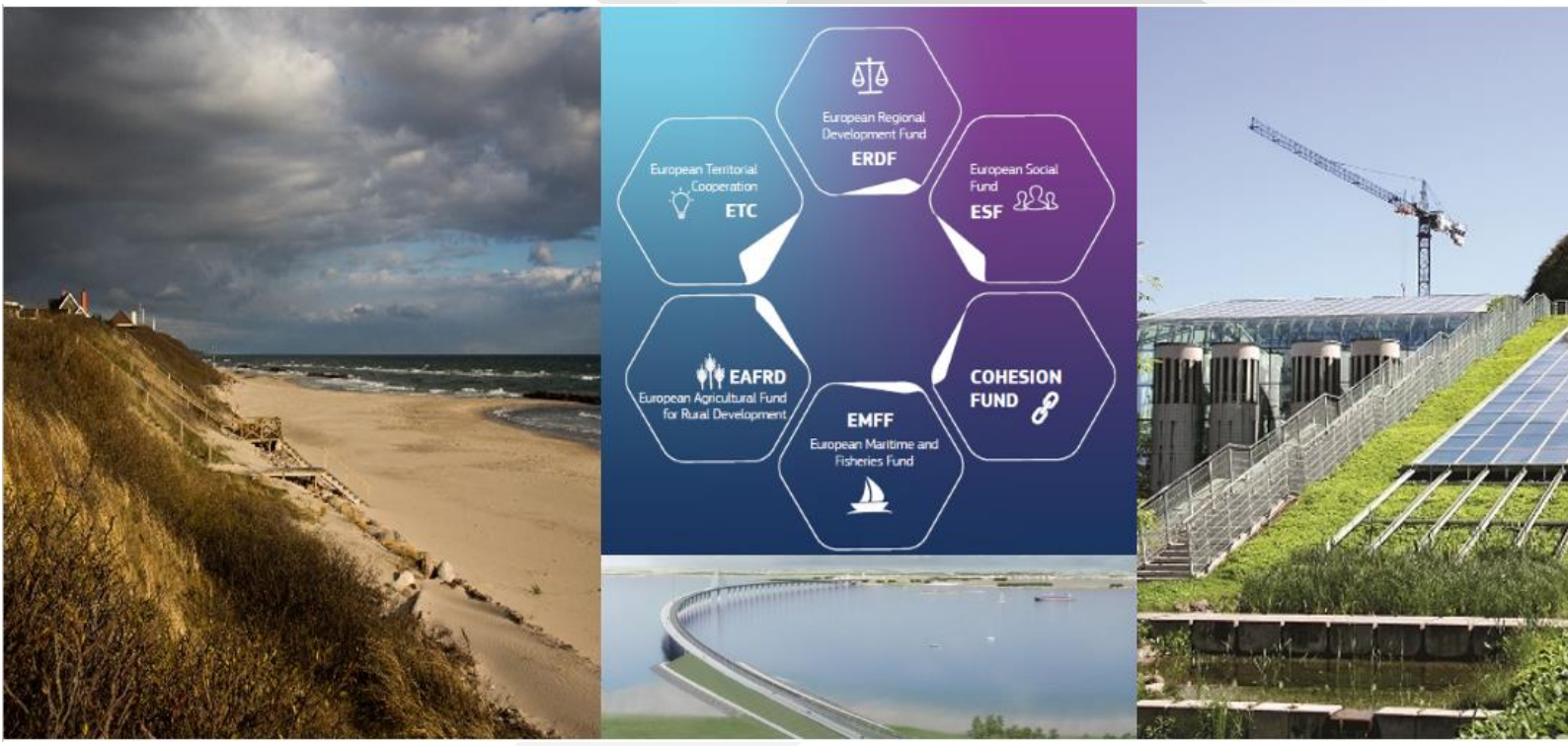
DG CLIMA

MAINSTREAMING OF ADAPTATION INTO THE ESIF 2014-2020

FINAL REPORT



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CONTENTS

ABBREVIATIONS

AIR	Annual Implementation Report
CAP	Common Agricultural Policy
CB	Cross-Border
CBA	Cost-benefit analysis
CCI	Common Code for Identification
CF	Cohesion Fund
CFP	Common Fisheries Policy
CLLD	Community-Led Local Development
CP	Cooperation Programme
CPR	Common Provisions Regulation
CSF	Common Strategic Framework
DCF	Data Collection Framework
DG	Directorate-General
DG CLIMA	Directorate-General for Climate Action
DG EMPL	Directorate-General for Employment, Social Affairs & Inclusion
DG ENV	Directorate-General for the Environment
DG REGIO	Directorate-General for Regional and Urban Policy
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
EEO	European Employment Observatory
EIA	Environmental Impact Assessment
EMFF	European Maritime and Fisheries Fund
ERDF	European Regional Development Fund
ESF	European Social Fund
ESI Funds	European Structural and Investment Funds
ESIF	
ETC	European Territorial Cooperation
EU	European Union

EUSBSR	EU Strategy for the Baltic Sea Region
FA	Focus Area
FAQ	Frequently Asked Questions
FLAG	Fisheries Local Action Groups
GHG	Greenhouse Gas
GNI	Gross National Income
GPP	Green Public Procurement
ISC	Inter-Service Consultation
IF	Intervention Field
IP	Investment Priority
IMP	Integrated Maritime Policy
IR	Interregional
ISC	Inter-Service Consultation
LAG	Local Action Group
LDS	Local Development Strategy
MA	Managing authority
MS	Member State
MSFD	Maritime Strategy Framework
MFF	Multiannual Financial Framework
NAP	National Adaptation Plan
NAS	National Adaptation Strategy
NCCAF	National Climate Change Adaptation Framework
NRP	National Reform Plan
OP	Operational Programme
OR	Outermost Region
R&D	Research and Development
RE	Renewable Energy
RDP	Rural Development Programme
RES	Renewable Energy Sources
PA	Partnership Agreement

PNACC	National Climate Change Adaptation Plan for Spain
RDP	Rural Development Programme
SEA	Strategic Environmental Assessments
SME	Small and medium-sized enterprises
SO	Specific Objective
SRCAE	Regional Schemes on Climate, Air and Energy for France
SUM	Sustainable Urban Mobility
SWOT	Strengths, weaknesses, opportunities, and threats
TA	Technical Assistance
TN	Transnational
TO	Thematic Objective
UNFCCC	United Nations Framework Convention on Climate Change
UP	Union Priority
YEI	Youth Employment Initiative
WSD	Water Scarcity and Drought

1 Executive summary

Study scope

This report summarises how climate change adaptation has been mainstreamed into the European Structural and Investment Funds in the 2014-2020 programming period. The study is intended to contribute to the report that the Commission will present to the European Parliament and the Council on the implementation of the EU Strategy on adaptation to climate change [(1)]. Adaptation to climate change has been mainstreamed as one pillar of the overall mainstreaming of climate action into the European Structural and Investment Funds. Mitigation is the other pillar. This report focuses on the first pillar only: climate change adaptation [(2)].

Climate change adaptation in the European Structural and Investment Funds

The European Structural and Investment Funds comprise a family of five funds: the European Regional Development Fund (ERDF) and European Territorial Cooperation goal (ETC, which falls under ERDF); the Cohesion Fund (CF); the European Social Fund (ESF); the European Agricultural Fund for Rural Development (EAFRD); and the European Maritime and Fisheries Fund (EMFF).

Mainstreaming of adaptation in the 2014-2020 European Structural and Investment Funds programming has taken place at several levels: at the EU level, through the political objective that at least 20 % of EU spending should be for climate action; at the legislative level through regulations, delegated and implementing acts; through the programming of the funds and the negotiations between the Member States and the Commission, supported by technical assessments and CLIMA's proposals for enhanced climate action during 1000+ inter-service consultations; and through Commission guidance on programming, implementation of programmes and on major projects. The Common Provisions Regulation [(3)] sets the overall funds framework, focusing on the priorities of the Europe 2020 Strategy for smart, sustainable and inclusive growth. The respective regulations on the European Regional Development Fund (including

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[(1)] http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm

[(2)] Overall information on climate action in ESIF, covering both adaptation and mitigation, can be found in the report, 'Mainstreaming of Climate Action into ESI Funds, final report, May 2016', published on the DG Climate Action website at http://ec.europa.eu/clima/policies/budget/documentation_en.htm.

[(3)] http://ec.europa.eu/regional_policy/en/information/legislation/regulations/

European Territorial Cooperation goal), the Cohesion Fund, the European Social Fund, the European Agricultural Fund for Rural Development and the European Maritime and Fisheries Fund define how each ESI Fund can contribute to the Thematic Objectives (TO).

The European Structural and Investment Funds promote eleven so-called Thematic Objectives, of which Thematic Objective 5, '*Promoting climate change adaptation, risk prevention and management',* is the key thematic objective regarding adaptation. National and/or regional risk assessments for disaster risk management are a precondition (ex-ante conditionality) for funding under Thematic Objective 5, and national climate change adaptation strategies and related climate vulnerability assessments are required, where appropriate, to inform national risk assessments. This Thematic Objective is covered by the European Regional Development Fund (including the European Territorial Cooperation Goal), the Cohesion Fund and the European Agricultural Fund for Rural Development. The cross-sectorial nature of climate change adaptation means that other Thematic Objectives are also potentially relevant to climate change adaptation, typically supporting adaptation more indirectly.

The Council conclusions of February 2013 on the Multiannual Financial Framework foresee that climate action objectives will represent at least 20 % of EU spending in 2014-2020. The common methodology for tracking and monitoring climate expenditure under this Multiannual Financial Framework provides a transparent, consistent and mechanical method for calculating support for climate action. The common methodology includes a specific intervention field (IF087) on climate change adaptation [(4)].

The EU Strategy on adaptation to climate change

The EU Strategy on Adaptation [(5)] adopted by the Commission in 2013, aims to contribute to a more climate-resilient Europe and enhance its preparedness and capacity to respond to the impacts of climate change at the local, regional, national and EU levels. The Strategy points to the potential of the European Structural and Investment Funds for 2014-2020 in this regard. The three overall objectives on promoting action by Member States, better informed decision-making and climate-proofing EU action and the related eight specific actions are all relevant in terms of Member State uptake and implementation of European Structural and Investment Funds. Actions of direct relevance vis-à-vis the mainstreaming of adaptation into the European Structural and Investment Funds are: *Action 1*: Adoption of Adaptation Strategies and Action Plans; *Action 6*: Climate proofing the Common Agricultural Policy, Cohesion Policy and the Common Fisheries Policy; and *Action 7*: Making infrastructure more climate resilient.

[(4)] For the European Regional Development Fund (including the European Territorial Cooperation Goal), Cohesion Fund and Social Fund, the common methodology defines 123 Intervention Fields (IF), which categorise investments into themes of investment. For each, a pre-defined share is allocated to climate action (0%, 40% or 100%).

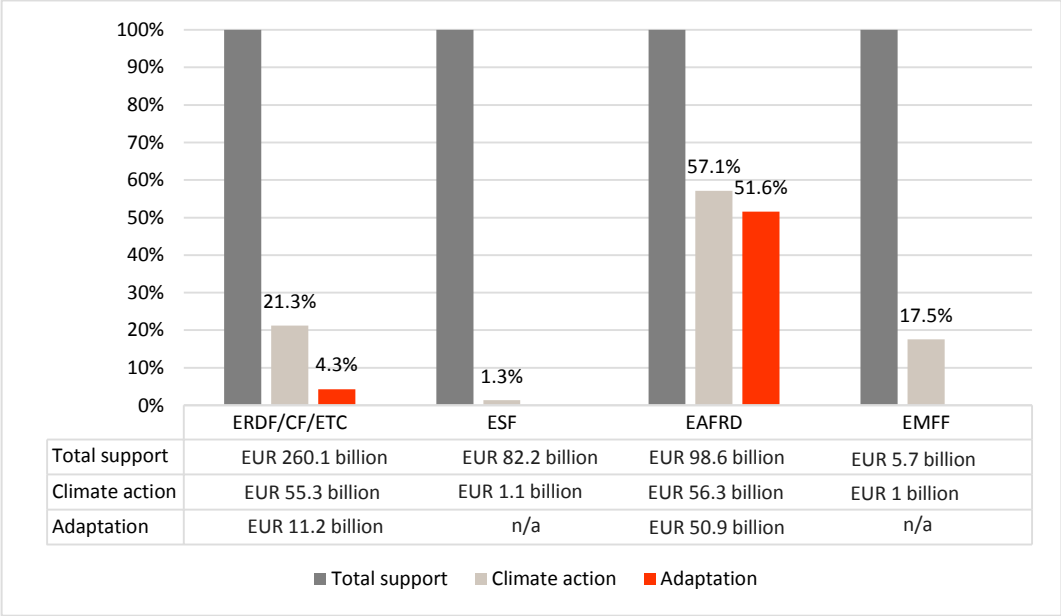
[(5)] http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm

1.1 Programmed European Structural and Investment Funds support for climate change adaptation

EU support for climate change adaptation

EU support for the European Structural and Investment Funds amounts to EUR 453.3 billion in total. Excluding the Youth Employment Initiative (YEI) which does not contain adaptation actions, this adds up to a total EUR 446.6 billion. The total share for climate action is EUR 113.8 billion, which is 25 % of the EU support excluding the Youth Employment Initiative. From this climate action amount, 54 % (EUR 62.1 billion) is dedicated for action related to adaptation (mainly through the European Agricultural Fund for Rural Development). Thus, about 14 % of total EU support (excluding Youth Employment Initiative) covers support that directly targets climate change adaptation as well as support that indirectly promotes this.

Figure 1-1: Share of ESIF support for climate action (mitigation, adaptation) and adaptation separately in each fund, including the respective allocations (in EUR billion)



The European Regional Development Fund, the Cohesion Fund and the European Agricultural Fund for Rural Development all cover Thematic Objective 5 on adaptation. Thematic Objective 6 (environment and resource efficiency) provides most of the indirect contribution to climate change adaptation. Although not specifically relating to Thematic Objective 5, the European Social Fund and the European Maritime and Fisheries Fund will also indirectly contribute to climate change adaptation, but their financial allocation cannot be tracked.

Table 1-1: Support for climate change adaptation in ERDF, CF and EAFRD

Fund	Support for climate change adaptation (EUR billion)		
	Thematic Objective 5	Other Thematic Objectives	Total
CF and ERDF (incl. ETC)	6.3	4.9	**11.2**
EAFRD	1.1	49.8	**50.9**

Climate change adaptation in Partnership Agreements	Climate action on adaptation is almost always explicitly referred to in Thematic Objective 5 of the Partnership Agreements. Overall, adaptation is well-addressed throughout all Partnership Agreements at the strategic level. Flooding, sea level rise, water scarcity and drought are the adaptation themes that are covered the most, followed by actions aimed at increasing disaster resilience. However, the level of detail in the descriptions varies considerably across countries.
Climate change adaptation in programmes	A number of Member States have established clear links in their programmes to their national adaptation strategies and action plans at the strategy level. However, when it comes to specific objectives and actions under selected specific Investment Priorities, there is often scope to further strengthen the strategic links between the programmes on the one hand, and the strategies and action plans on the other. Improved coordination between relevant sector ministries at the national and regional levels as well as a strengthened coherence between climate adaptation and disaster risk reduction at the programme level may further strengthen the strategic links.
Allocations for adaptation at Fund specific level	All five funds provide support for climate action. Still, only the Regional Development Fund, the Cohesion Fund and Rural Development Fund provide support specifically targeted for climate change adaptation. EAFRD covers the thematic objectives and EAFRD translated the thematic objectives into Union priorities for rural development. All the rural development priorities have potential for climate action, and it is anticipated that they make a contribution to the cross-cutting objective of climate change mitigation and adaptation. In Rural Development, most of the expenditure for climate action comes through Thematic Objective 6. Although not specifically relating to Thematic Objective 5, the European Social Fund and the European Maritime and Fisheries Fund will also indirectly contribute to climate change adaptation. Yet, their financial allocation cannot be tracked. All Union priorities for rural development have the potential for climate action but the potentials for adaptation are the highest in UP4. The key themes through which the Rural Development Programmes target climate change adaptation are biodiversity, water, soils and genetic resources. In the Regional Development Fund and the Cohesion Fund, climate change adaptation is mostly addressed through considering flooding, coastal erosion, heatwaves and water scarcity/droughts.

Table 1-2: Key Investment Priorities (ERDF incl. the ETC goal, CF) and Focus Areas (EAFRD) [6] with relevance for climate change adaptation

IP	ERDF / CF
5a	Supporting investment for adaptation to climate change, including ecosystem-based approaches
5b	Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems
6d	Protecting and restoring biodiversity and soil and promoting ecosystem services through Natura 2000 and green infrastructure
IP	**ETC**
5a	Supporting investment for adaptation to climate change, including ecosystem-based approaches
5b	Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems
6d	Protecting and restoring biodiversity and soils and promoting ecosystem services through Natura 2000 and green infrastructure
11b	Enhancing institutional capacity of public authorities and stakeholders through cooperation
FA	**EAFRD [7]**
3b	Supporting farm risk prevention and management
4a	Restoring, preserving and enhancing biodiversity
4b	Improving water management, including fertilizer and pesticide management
4c	Preventing soil erosion and improving soil management
5a	Water efficiency (increasing efficiency in water use by agriculture)
6b	Local development in rural areas

Enablers for climate change adaptation in the European Structural and Investment Funds programmes

European Structural and Investment Funds regulations including Article 8 of the CPR on Sustainable Development, EU policy targets, the EU Adaptation Strategy and the scope and content of fund-specific guidance have overall set a sound framework for promoting climate change adaptation. The strategic framework established in the Partnership Agreements for addressing climate change adaptation across the funds and the ex-ante conditionality on risk assessments have been additional enablers. The uptake of adaptation largely depends, however, on how Member States embed this in their programming. The explicit treatment of climate change adaptation as a cross-cutting issue in the Commission Position Paper was an important enabler. The Position Papers focused on the key country specific challenges and provided a framework for dialogue between the Commission services and the Member State on the preparation of the Partnership Agreement and the programmes, ensuring alignment with the policy objectives of the Europe 2020 agenda. The informal and formal dialogues between managing authorities and the Commission, along with the specific guidance issued by the Commission, were instrumental in successfully mainstreaming adaptation.

[6] 4e on 'promoting low-carbon strategies for all types of territories, in particular for urban areas, including the promotion of sustainable urban mobility and mitigation-relevant adaptation measures' could also include support for adaptation.

[7] Allocations under several other FAs hold potential to help address climate change adaptation in RDPs, e.g. knowledge transfer and farm modernization.

Barriers to climate change adaptation in the European Structural and Investment Funds programmes

The absence of specific adaptation targets in the overall Europe 2020 strategy headline targets may be seen as a barrier when contrasted with the clear and well-articulated mitigation targets for 2020. Equally, the absence of dedicated EU legislation on adaptation could be seen as a barrier. Though ex-ante conditionality 5.1, on adaptation and risk management, supports adaptation by definition, slow progress by Member States in reaching compliance with ex-ante conditionalities and environmental policy objectives and legislation appears to nevertheless be a barrier for Member States' uptake of the European Structural and Investment Funds' funding for adaptation [8]. Lack of resources, awareness, skills and knowledge at the Member State level may also lead to insufficient coordination between relevant authorities and governance levels at the programming stage. The thematic concentration requirements of the European Regional Development Fund *may* have resulted in a biased focus on climate change mitigation at the expense of adaptation. Lastly, explicit links to relevant national adaptation strategies and plans are often neither identified nor appropriately integrated into programmes, and the lack of coherence between National Adaptation Strategies, Partnership Agreements and measures chosen by Member States under different European Structural and Investment Funds may potentially hamper synergies and complementarities [9]. National Adaptation Strategies usually cover a wider range of priorities and topics comparing to the more defined focus of European Structural and Investment Funds [10]. In addition, some of the regional Operational Programmes (OPs) do not support adaptation, even if the National Adaptation Strategies have a clear regional focus.

28 country overviews, overview of European Territorial Cooperation goal and specific case studies

Besides the Fund-specific assessments, the report provides country overviews for all 28 Member States. They describe how climate change adaptation has been programmed in the individual Member States, the national adaptation frameworks and European Structural and Investment Funds support for adaptation and the adaptation contents of programmes. The report also provides an overview of all European Territorial Cooperation programmes. Finally, six specific case studies serve to provide a more comprehensive, case-specific view of specific climate change adaptation themes and how these have been addressed with allocation of European Structural and Investment funding.

Findings and achievement

Mainstreaming of adaptation in the European Structural and Investment Funds contributes to the 2020 Strategy for smart, sustainable and inclusive growth, aiming for a shift to a low-carbon, resource-efficient and climate resilient economy. As specified in this report, climate change adaptation has become much more visible and integrated at all levels. Mainstreaming of adaptation in the European Structural and Investment Funds has been a main contributor to

[8] While this report is based on the situation at the time of adoption of the OPs, it should be mentioned though that today only 4 Member States do not comply with this ex-ante conditionality – compared to 12 at the time of adopting the OPs.

[9] For more information on the correlation between National Adaptation Strategies and ESI Funds for each Member State, see Annex B – Overview of ESIF support for adaptation in each of the Member States.

[10] In the Member States where National Adaptation Strategies were adopted.

the implementation of the three key objectives and most of the specific actions under the EU Adaptation Strategy. Both the 20 % political target and the common methodology for tracking climate expenditure are important achievements. All funds contribute to the mainstreaming of adaptation. The Commission had thus taken significant steps to implement a sound adaptation framework at the strategic level. Delivery on the Europe 2020 objectives, including the growth and job agenda, depends on a climate-resilient EU that is prepared for the current and future impacts of climate change and able to ensure synergies and integrated approaches across sectors and governance levels. Much is still dependent on Member States' practical uptake of adaptation at programme and action level. The implementation process in the Member States thus still need to be complemented by the Commission in the form of continued knowledge sharing and exchange of best practices.

1.2 Future considerations

A range of factors have positively contributed to the observed achievements on adaptation. Still, there is scope for further advancements in the current as well as the next Multiannual Financial Framework. This can be facilitated by strengthening certain key enablers, addressing critical barriers and by knowledge sharing and exchange of best practices in a number of fields.

Considerations for the current 2014-2020 period

OPs are under shared management. Thus, with the overall climate change adaptation framework in place, implementation of adaptation in the current 2014-2020 period now depends on how Member States will implement the programmes in more details. In order to ensure the most efficient and effective integration of adaptation, *it is recommended that the Commission further facilitates and supports the implementation processes in Member States, e.g. by possibly establishing strong platforms for sharing best adaptation practices in implementing the programmes and in catalysing climate change adaptation actions.*

Considerations for the future Multiannual Financial Framework period (post-2020)

As preparation for the next Multiannual Financial Framework, the Commission may consider to:

Provide guidance and best practice examples on how the horizontal principles can be put into use: Due to its strong cross-cutting nature, adaptation needs to be appropriately mainstreamed into other policy areas. The horizontal principles in Annex 1 to the Common Provisions Regulation are used across Member States very unevenly, leading to unharvested potentials for mainstreaming of adaptation across sectors. *Guidance and best-practice examples on how the horizontal principles can be put into use could benefit a number of Member States in better exploring the potential for adaptation mainstreaming, and also facilitate adaptation being integrated into selection criteria.*

Strengthen synergies between strategic framework and adaptation actions. Climate change adaptation is covered fairly well at the strategic level, whereas intentions become less concrete when it comes to the more specific

programme contents, e.g. description of measures and actions. This can create doubt as to whether adaptation actions and synergies between sectors have been sufficiently explored. *It is recommended to consider a) how the contribution of the Ex-Ante Evaluations and the Strategic Environmental Assessments could be enhanced to promote adaptation, and b) that the Commission puts a strong emphasis on ensuring synergies with national plans and adaptation strategies, and that climate change adaptation themes identified at the strategy level are properly reflected in the specific programmes' descriptions of measures and actions.*

Clear earmarking of funding for climate change adaptation: The absence of specific adaptation targets in the overall 2020 targets may have constituted a barrier, compared with clear and well-articulated mitigation targets for 2020. *A clear earmarking of funding for adaptation is thus recommended in the next programming period, in order to facilitate a higher uptake of adaptation measures. Any such earmarking must recognize that certain climate actions delivers both adaptation and mitigation benefits and that some funding can contribute to both at the same time.*

Strengthen direct adaptation action in Rural Development. Rural Development has a strong contribution potential towards climate change adaptation, in particular under Union Priorities for rural development (UPs) 3b, 4 (a, b and c), and 6b. For the latter two, however, the contribution is of a supportive or secondary nature. Still, the current methodology implies that all expenditures categorised under UP 4 count 100 % towards climate action and 40 % for Union Priority 6b. *It is proposed that – where possible - a stronger and more explicit distinction within the focus areas between measures regarding their potential climate change adaptation effects be considered This could be done by ensuring that all programme contents that primarily target climate change adaptation are categorised under a dedicated Union Priority with a marker of 100 %.* The need to focus the tracking methodology to better reflect real climate impact has recently been highlighted by the European Court of Auditors [(11)], although this report does not itself make the specific split between adaptation and mitigation.

Ring-fencing for climate change adaptation in the Regional Development Fund. The thematic concentration requirements of the European Regional Development Fund [(12)] mainly consider mitigation, and pays less attention to adaptation. The focus on Thematic Objective 4 can however involve some

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(11) http://www.eca.europa.eu/en/Pages/DocItem.aspx?did=39853.

(12) Thematic concentration implies that a certain fraction of the support must be allocated for two or more of Thematic Objectives numbers 1, 2, 3 and 4, and that a certain fraction of this must be allocated for TO4; see Article 4 of the ERDF regulation. The exact requirements vary, depending on whether the region in question is more developed, in transition, or less-developed. In the former case, at least 80% of it must be planned for the four mentioned TOs, and at least 20% must be used for TO4. The corresponding minimum requirements are: 60%/15% and 50%/12% for transition and less-developed regions respectively.

allocations for climate change adaptation. Thus, energy efficiency measures falling under Thematic Objective 4 may contribute to adaptation and so may Investment Priority 4e. Still, the ring-fencing requirement may *possibly* come at the expense of adaptation. *Consideration of a stronger inclusion of adaptation in this thematic concentration requirement is proposed;*
if not as a separate sub-requirement, then in terms of combining Thematic Objective 4 and Thematic Objective 5 (under the common banner of climate action), so that they are covered by one shared threshold value, together with the other Thematic Objectives covered (i.e. 1, 2 and 3).

Enhanced incentive for explicitly covering Thematic Objective 5 in European Territorial Goal programmes. In the European Territorial Cooperation Goal programmes, Member States are encouraged to limit the number of Thematic Objectives. This *may* lead Member States to prefer Thematic Objective 6 over Thematic Objective 5, as the former provides a wider spectrum of possible interventions. Thus, quite a few programmes that set out adaptation as a target address it under Thematic Objective 6 instead. *Proposed for consideration is the introduction of a method for marking whether Investment Priorities or support categorised under Thematic Objective 6 will essentially provide significant contributions towards climate change adaptation.*

Climate change adaptation and climate change mitigation treated on par with each other in the European Social Fund. The European Social Fund only indirectly contributes to climate action. The contribution is tracked via marking a certain amount of support for 'Supporting the shift to a low-carbon, resource-efficient economy' (Secondary Theme 01). This wording only refers to the low-carbon economy. Still, review of programmes shows that there are also programmes that explicitly address adaptation. *It is proposed to consider adding climate change adaptation to the title of Secondary Theme 01.*

Setting out the EMFF contribution to climate change adaptation clearly. Many measures under the European Maritime and Fisheries Fund contribute to climate change adaptation, in particular under Union Priorities that relate to Thematic Objectives 6 and 3. Thematic Objective 5 is not explicitly an objective of this fund, and support for adaptation cannot be traced in the programmes. *It is proposed that introducing Thematic Objective 5 explicitly or as a secondary theme on climate change adaptation, along the lines of the Social Fund, be considered.*

2 Introduction

Scope of this report

The scope of this report is to comprehensively analyse and summarise the mainstreaming of climate change adaptation actions into the European Structural and Investment Funds (ESIF) 2014-2020.

Essentially, there are two pillars in the mainstreaming of climate change into ESIF: mitigation and adaptation. Mainstreaming of adaptation into the ESIF is of key importance and contributes substantially to the implementation of the EU's Adaptation Strategy across the five funds: the European Regional Development Fund (ERDF), the Cohesion Fund (CF), the European Social Fund (ESF), the European Agricultural Fund for Rural Development (EAFRD), and the European Maritime and Fisheries Fund (EMFF). Adaptation thus plays a significant role in supporting the ESIF in meeting the target of increasing climate-related expenditure to at least 20 % of the EU budget.

This report analyses programming achievements in terms of climate change adaptation and thus focuses solely on adaptation. Achievements with regards to contributing to the realisation of the aspirations of the EU Strategy on Adaptation to climate change (henceforth, 'the EU Adaptation Strategy') [13], enabling factors, barriers and lessons learned of relevance to the future Multiannual Financial Framework (MFF) post-2020, and elements that could possibly substantiate a proposal for a review of the EU Adaptation Strategy are thus in focus.

For a detailed analysis of mainstreaming of climate mitigation action into ESIF, reference is made to the completion report under the overall Mainstreaming project and its global and fund-specific assessments [14].

Methodology

This targeted adaptation analysis considers through a combined assessment:

- the objectives and actions set forth in the EU Adaptation Strategy;

[13] Communication: An EU Strategy on adaptation to climate change, COM (2013) 216 final, http://ec.europa.eu/clima/policies/adaptation/what/documentation_en.htm.
[14] Mainstreaming of climate action into ESI Funds 2014-2020, final report by COWI under service contract 071303/071201/2012/635389/SER/CLIMA.C.3.

- the regulatory ESIF setup and how it promotes climate change adaptation, the common methodology and the established Thematic Objectives (TO) and UP (UP in case of EAFRD and EMFF), and more fund-specific features such as the eligible Investment Priorities (IPs) and measures; and

- the resulting contents of the approved Partnership Agreements (PA) and Programmes, considering their strategic orientation, their specific contents and priorities, and financial allocations.

This work is primarily based on scrutiny reports for 558 individual Operational Programmes (OP), Rural Development Programmes (RDP) and PAs as part of the Commission Inter-Service Consultations (ISC), summary reports of all adopted programmes and PAs, and the DG CLIMA Mainstreaming database, summarising the key climate-relevant contents of the individual programmes and PAs, including financial data. This work is also based on reviews of essential EU legislation, policy and programme documents (see list of references). Also, for a more in-depth view of specific climate change adaptation themes and specific Member State approaches on adaptation, a number of country case studies have been carried out to support and substantiate the analysis (see Annex A – Case studies).

Overall policy target for climate change action, including adaptation

The Council conclusions of February 2013 regarding the MFF state that climate action objectives will represent at least 20 % of EU spending in 2014-2020 [15]. This is supported by the European Parliament October 2012 resolution. This political target is on-boarded in the preamble (14) of the CPR, which states that '*…the Member States should provide information on the support for climate change objectives, in line with the ambition to devote at least 20 % of the budget of the Union to those objectives, using a methodology based on the categories of intervention, focus areas [FA] or measures…'.*

EU's Adaptation Strategy

The aim of the EU Strategy on Adaptation is to help make Europe more climate-resilient and enhance its preparedness and capacity to respond to the impacts of climate change at the local, regional, national and EU levels.

The EU Adaptation Strategy has three overall objectives, notably: 1) Promoting action by Member States, 2) Promoting better informed decision-making, and 3) Climate-proofing EU action through promoting adaptation in key vulnerable sectors through agriculture, fisheries and cohesion policy. In pursuit of this, the implementation of the strategy points to eight Actions, among which Action 1: Encourage all Member States to adopt comprehensive adaptation strategies, Action 6: Facilitate the climate-proofing of the Common Agricultural Policy (CAP) and the Cohesion Policy and the Common Fisheries Policy (CFP) and Action 7: Ensuring more climate-resilient infrastructure e.g. in the area of energy, transport, buildings and ecosystem-based approaches are directly relevant vis-a-vis the mainstreaming into ESIF. The Strategy points to the potential of the ESI Funds for 2014-2020 for mainstreaming climate change adaptation and thus to support the implementation of the EU Adaptation Strategy. Other major

[15] European Council Conclusions, 7/8 February 2013.

actions of the strategy cover adaptation in cities, promotion of urban adaptation strategies and introduction of adaptation in the Covenant of Mayors framework (Action 3); bridging the knowledge gap through e.g. investments in necessary analyses, development of risk assessments and tools to support decision making and to build capacities for adaptation (Action 4).

Mainstreaming of climate change adaptation

Mainstreaming of climate change adaptation in the 2014-2020 ESI Fund programming framework has taken place at several levels: at the political aspiration level through the political target of dedicating 20% of EU spending to climate action objectives; at the legislative level through regulations and implementing acts; through Commission guidance; and through the programming processes under shared management.

Common methodology for climate tracking

To track climate expenditure in ESIF, the EU has adopted a common methodology [(16)] to calculate support for climate action for all programmes to report on how they intend to use their support, providing a transparent, consistent and mechanical method for calculating support for climate action based on a number of underlying Intervention Fields (IF) and assumptions [(17)].

Adaptation achievements investigated

Mainstreaming of adaptation into ESI Funds first and foremost contributes to a more climate-resilient Europe and thereby to the Europe 2020 Strategy for smart, sustainable and inclusive growth aiming for a shift to a low-carbon, resource-efficient and climate-resilient economy. Mainstreaming of adaptation in ESIF is also a main contributor to the implementation of the objectives and actions under the EU Adaptation Strategy.

This report provides analysis first and foremost of the uptake of adaptation measures by Member States and lessons learned in relation to mainstreaming of climate actions in the programming process of the ESI Funds. Contributions to adaptation are observed mainly in ERDF/CF (including the European Territorial Cooperation (ETC) goal) and in EAFRD. While TO5 (climate change adaptation) has been addressed in programmes of many Member States and in many ETCs, contributions to adaptation also come from other TOs.

In addition to the above, the achievements obtained through the mainstreaming of adaptation will also contribute to the 2030 United Nations Agenda for Sustainable Development [(18)], adopted by more than 150 nations, including EU Member States in September 2015. More specifically, it will contribute to attaining Sustainable Development Goal 13 on *'taking urgent action to combat climate change and its impacts'*, and notably the associated target to *'strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries'*.

[(16)] Commission Implementing Regulation (EU) 215/2014, as amended by Commission Implementing Regulation (EU) No 1232/2014.

[(17)] For details, reference is made to the Mainstreaming final report.

[(18)] A/RES/70/1, adopted by the General Assembly on 25 September 2015.

It is also in line with the international momentum for accelerating adaptation planning and action that the Paris Agreement (adopted in December 2015 by 195 nations) [19], under the United Nations Framework Convention on Climate Change, succeeded in building. Even though the final Agreement did not include a collective, quantified goal for adaptation finance, it does support efforts to balance overall climate finance between adaptation and mitigation, and recognises that public funds are especially important for adaptation, because it is more difficult to attract private investment.

Also, mainstreaming of adaptation will contribute to the implementation of targets and priority actions within the Sendai Framework for Disaster Risk Reduction 2015-2030 (the successor instrument to the Hyogo Framework for Action 2005-2015) [20], and the related EU Action Plan on the Sendai Framework [21]. The EU Action Plan provides a disaster-risk informed and resilient sustainable-development approach for EU policy making with a view to reduce vulnerability and increase resilience, taking into account climate-related risks and the need for strengthening the links between climate change adaptation, disaster risk management and relevant EU policies.

A list of references used as part of the analysis under this study is included in Chapter 7.

[19] Decision 1/CP.21.

[20] http://www.un.org/en/ga/search/view_doc.asp?symbol=A/RES/69/283

[21] SWD (2016)205 final/2 Commission Staff Working Document: Action Plan on the Sendai Framework for Disaster Risk Reduction 2015-2030. A disaster risk-informed approach for all EU policies.

3 Mainstreaming adaptation into ESIF 2014-2020

This chapter describes and analyses the mainstreaming of climate adaptation into ESI Funds, beginning with an overall picture of EU support for climate change adaptation actions and climate change adaptation and/or mitigation actions in ESIF, followed by a detailed fund-specific analysis.

Key elements of the EU overall strategic framework and policy objectives are described, including how adaptation contributes to supporting ESIF in meeting the target of at least 20 % climate action, along with the key regulatory framework and most relevant guidance documents and initiatives available. Other documents in the programming process are mentioned briefly, such as the Strategic Environmental Assessments (SEA) and Commission Common Position Papers and their relevance vis-à-vis the mainstreaming of adaptation.

Key concepts of relevance to climate change adaptation across all PAs and programmes and the key achievements with regard to mainstreaming of adaptation in the programming of ESIF are described. Also, reflections are made as to how well the common methodology for tracking climate action captures adaptation functions.

The key adaptation themes taken on board in the programming are mentioned under each fund's specific assessment, including the main climate hazards addressed by ESIF programmes.

3.1 Overview of ESI Funds

EU support for ESIF amounts to EUR 453.3 billion in total. Excluding the Youth Employment Initiative (YEI), this adds up to a total of EUR 446.6 billion. The total share for climate action is EUR 113.8 billion, which is 25 % of the EU support excluding YEI. From this climate action amount, 54 % (EUR 62 billion) is reserved for action related to adaptation (mainly through EAFRD).

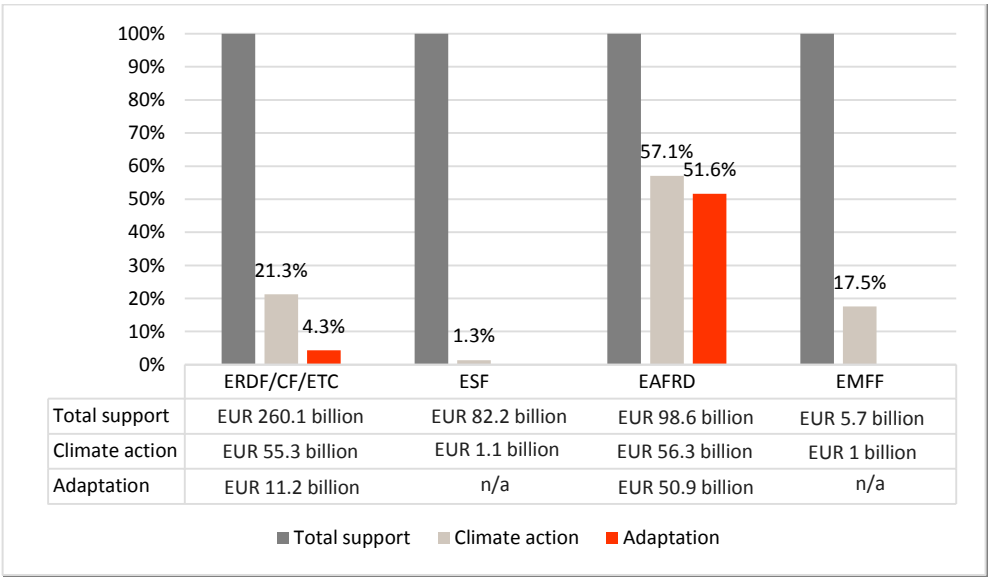
Figure 3-1 below provides a detailed overview of the ESIF support to climate change adaptation. As can be seen, the largest contribution to climate change adaptation comes from the EAFRD. EAFRD covers the thematic objectives and

EAFRD translates the thematic objectives into Union Priorities for rural development. All Union Priorities for rural development have potential for climate action, and it is anticipated that they make a contribution to the cross-cutting objective of climate change mitigation and adaptation. The potentials for adaptation are the highest in Union Priority 4, restoring, preserving and enhancing ecosystems related to agriculture and forestry with a focus on biodiversity, water, fertiliser and pesticide management and soil.

The ERDF, CF, and ETC combined provide the second highest support for climate action on adaptation. Interestingly, even though the amount on climate action through ETC programmes is the lowest of these three, it has the highest share of climate action that contributes to adaptation, often with prevention, preparedness, and impact-response cooperation to flooding as the adaptation themes addressed.

The ESF and EMFF do not directly contribute to adaptation. This is either due to the nature of the programmes (ESF) or due to a general programming of the financing (EMFF). EMFF financing relates to TO3 (Competitiveness), TO4 (Climate change mitigation), TO6 (Environment) and TO8 (Employment) only [(22)]. There is some adaptation to be found in the programmes, but there is no way to track allocations specifically for adaptation in the current programming or common methodology.

Figure 3-1: Share of ESIF support for climate action (mitigation, adaptation) and adaptation separately in each fund, including the respective allocations (in EUR billion)



Based on the allocations in each fund above, this results in an overall share of climate change adaptation of 13.9 % for ESIF as a whole (see table below). This

(22) 'Mainstreaming of climate Action in ESI Funds', Final report, COWI, 2016 http://ec.europa.eu/clima/policies/budget/docs/report_mainstreaming_of_climate_action_en.pdf

corresponds in turn to slightly more than half of the support for climate action. However, it should be noted that the amount for adaptation includes the amounts allocated for adaptation and for climate action that can be considered supportive. This includes climate action that could support both *'adaptation and/or mitigation'*.

Table 3-1: Overview of ESIF (total support, climate, adaptation) [23]

Fund	EU support (in EUR billion)		
	Total	Climate support	Adaptation
ESIF	446.6 (100.0 %)	113.8 (25.5 %)	62.0 (13.9 %)

3.2 ESIF legal framework

The principles in the Common Provisions Regulation (CPR)

Overall, the Common Provision Regulation (CPR) [24] and the fund-specific regulations for ESI Funds 2014-2020 reflect the increased importance that both climate change risks and the need for adaptation have gained in the European policy agenda.

The CPR sets the overall funds framework with a clear focus on the Europe 2020 priorities, including guidance on practical implementation of the horizontal policy principles and provisions of major importance for addressing climate change adaptation.

Text box 3-1: CPR provisions of particular relevance for climate change adaptation

Article 8 of the CPR states that *'… the Member States and the Commission shall ensure that environmental protection requirements, resource efficiency, **climate change** mitigation and **adaptation**, biodiversity, disaster resilience and risk prevention and management are promoted in the preparation and implementation of Partnership Agreements and programmes'*. Article 8 also sets out that Member States shall provide information on support for climate change objectives using a methodology based on the categories of intervention, focus areas (FA) or measures, as appropriate, for each of the ESI Funds.

Article 9 of the CPR defines 11 TOs as a 'common menu' that each ESI Fund shall support. TO5, defined as *'promoting climate change adaptation, risk prevention and management'*, is the TO that directly relates to climate change adaptation. TO5 is included in the EAFRD, ERDF (incl. ETC) and CF, whereas EMFF and ESF do not explicitly include it. In principle, contributions to adaptation can come from all TOs, most often though through TO6, defined as *'preserving and protecting the environment and promoting resource efficiency'*.

Article 10 lays down the **Common Strategic Framework** as set out in Annex I of the CPR. A general principle highly relevant for adaptation – due to the horizontal nature of

[23] The assessment in this report excludes the ESF's Youth Employment Initiative
[24] Regulation (EU) No 1303/2013, laying down common provisions on the ERDF, the ESF, the CF, the EAFRD and the EMFF.

adaptation and the need for synergies with other policy areas – is stated in Section 3.2. of **Annex I** regarding **coordination and complementarity.** The principle requires Member States to ensure coordination, complementarity and synergies and avoid overlapping between supports from the various ESI Funds. Links between adaptation and various sector issues need thus to be taken carefully into account synergies and possible investments under other ESI Funds. Governance thus becomes an important factor for ensuring proper adaptation planning.

Article 19 and Annex XI lay down requirements regarding ex-ante conditionalities on risk prevention and risk management. Where these are not fulfilled, Member States are asked to describe the actions foreseen to fulfil these, the bodies responsible and the timetable for implementation. Ex-ante conditionalities shall be fulfilled by Member States no later than 31 December 2016.

Article 96 (7) states that each OP shall include a description of the specific actions, taking into account environmental protection requirements, resource efficiency, climate change mitigation and adaptation, disaster resilience, and risk prevention and management in the selection of operations.

Further, of relevance to the project-specific level, **Article 101 (f)** states that before a major project is approved, the managing authority shall ensure that the following information is available: *'… (f) an analysis of the environmental impact, taking into account climate change adaptation and mitigation needs, and disaster resilience'*.

In order to target ESI Funds investments towards the Europe 2020 Strategy and goals, the CPR has established 11 TOs, which define sectors and areas of interventions where the ESI Funds can bring the greatest added value. The fund-specific regulations define in greater detail how each ESI Fund can contribute to the TOs through IPs (in the case of the ERDF, CF, ETC and ESF) or UPs (in case of the EAFRD and the EMFF).

Fund-specific regulations

Besides the CPR introducing common rules for all five ESI Funds, the fund-specific regulations include the ERDF Regulation [25], the ESF Regulation [26], the ETC Regulation [27], the CF Regulation [28], the EAFRD Regulation [29] and the EMFF Regulation [30].

The fund-specific regulations establish specific provisions not regulated in the CPR, e.g. on the scope and investment priorities of each fund, or rules on thematic concentration. The regulations are further complemented by Commission delegated regulations and Commission implementing regulations,

[25] Regulation (EU) No 1301/2013 on the ERDF.
[26] Regulation (EU) No 1304/2013 on the ESF.
[27] Regulation No 1299/2013 for the support from the ERDF to the European territorial cooperation goal.
[28] Council Regulation (EU) No 1300/2013 on the CF.
[29] Regulation (EU) No 1305/2013 on support for rural development by the EAFRD.
[30] Regulation (EU) No 508/2014 on the EMFF.

e.g. on the common methodology for tracking climate change support. The scope for climate adaptation is reflected to a varying degree within the five ESI Funds. The fund-specific assessments further below deal with this in more detail.

Translation of the TOs into specific funds

TO5, '*Promoting climate change adaptation, risk prevention and management',* is the key thematic objective regarding adaptation and relates to the Europe 2020 goal of sustainable growth. National and regional risk assessments for disaster management, taking into account, where relevant, climate change adaptation strategies, are preconditions (ex-ante conditionality) for funding in relation to one of the investment priorities of TO5.

The cross-sectorial nature of climate change adaptation means that TOs other than TO5 are relevant to tackling adaptation, especially TO6 '*Preserving and protecting the environment and promoting resource efficiency'*, TO4 *'Supporting the shift to a low-carbon economy in all sectors*' and TO7 '*Promoting sustainable transport and removing bottlenecks in key network infrastructure'*.

In the EAFRD, the selected TOs are translated into six Union Priorities s for rural development and all of them have a potential to contribute to climate actions. Particularly relevant for climate change adaptation are UP4 – *Restoring, preserving and enhancing ecosystems related to agriculture and forestry* and UP5 – *Promoting resource efficiency and supporting the shift towards a low carbon and climate-resilient economy in agriculture, food and forestry sectors*. The EAFRD regulation provides more emphasis on climate adaptation by also stating that '*all priorities shall contribute to the cross-cutting objectives of […] climate change […] adaptation'*. Although not legally binding, it is suggested that Member States spend at least 30% of their EAFRD contribution '*on climate change mitigation and adaptation and environmental issues […] through agri-environment-climate and organic farming payments and payments to areas facing natural or other specific constraints, through payments for forestry, payments for Natura 2000 areas and climate and environment-related investment support*'. Today, the resources allocated by Member States to these actions are largely above 50% overall. Moreover, Member States may include in their RDPs thematic sub-programmes that address specific needs, including a thematic sub-programme on '*climate change mitigation and adaptation and biodiversity*'. The provided support rates may be increased by 10 additional percentage points for operations supported in the framework of thematic sub-programmes concerning climate change mitigation and adaptation and biodiversity.

For the EMFF, there are six UPs that translate to the TOs. Adaptation is addressed under UP1 – *Promoting environmentally sustainable, resource–efficient, innovative, competitive and knowledge–based fisheries*, through measures to reduce the impact of fisheries on the environment, to protect marine biodiversity and ecosystems and to promote resource efficiency, and under UP2 – *Fostering environmentally sustainable, resource-efficient, innovative, competitive and knowledge-based aquaculture*, through measures to improve water management in aquaculture, increase energy efficiency and promote conversion of aquaculture enterprises to renewable sources of energy. Many measures are relevant in relation to tackling adaptation, and most of these

are closely related to improving resource efficiency and the natural environment (TO6). Moreover, adaptation actions can be found under UP4 – I*ncreasing employment and territorial cohesion*, and UP6 – *Fostering the implementation of the Integrated Maritime Policy*.

ESF does not cover any of the TOs that directly relate to climate action. The ESF covers TO8, TO9 (Social inclusion), TO10 (Lifelong learning) and TO11 (Institutional capacity). However, the ESF has the potential of indirectly contributing to climate change adaptation. The ESF regulation reflects this in in Article 3.2 (a). This Article mentions the support to the *'shift towards a low-carbon, climate-resilient, resource efficient and environmentally sustainable economy, through the improvement of education and training systems necessary for the adaption of skills and qualifications, the up-skilling of the labour force, and the creation of new jobs in sectors related to the environment and energy'.* Support for climate action is allocated through marking specific amounts of support for the secondary theme 01, *'supporting the shift to a low-carbon, resource-efficient economy'* [(31)]. In total, 1.4 % of ESF support is marked for climate action. The allocation for climate action is provided at the level of Priority Axes only. Hence, it is not possible to relate allocations to specific IPs at the programme level. It is only in cases where a Priority Axis covers only one TO that a specific allocation can be related to a specific TO [(32)].

3.3 Partnership Agreement and Programmes

Programming

For the 2014-2020 funding period, ESIF programming consists of PAs and OPs [(33)]. These documents lay the foundation for funding over the seven-year period, and it is therefore critical that they consider climate change impacts, direct funding opportunities for climate adaptation and adaptation-related investments across sectors.

Text box 3-2: ESI Funds programming elements

PAs contain for a given Member State a strategic overview of the entire approach to using ESI Funds. The PA reflects whether adaptation has been appropriately addressed across OPs. Member States must ensure a clear link between the ESIF interventions and the Europe 2020 Strategy, including any country-specific recommendations related to climate adaptation, and this link is to be maintained during the implementation stage, including in the Member State's annual implementation reports and the Member State's progress reports.

OPs are the key planning tool for ESIF expenditure and the different stages of the process and different sections of the OP document provide opportunities for incorporating adaptation

[(31)] Table 6 of the Commission Implementing Regulation (EU) No 215/2014 of 7 March 2014.

[(32)] In cases where a Priority Axes cover more than one TO, the allocations per TO have been estimated.

[(33)] In this chapter, the term OP is used for all funds. However, in the case of EAFRD, the correct term is RDP.

objectives.

- **Development strategy**: OP programming follows a logical process, with a development strategy being set out first. At the strategic level, information on climate change threats relevant to the Member State, region or sector will be required in order to understand the risk that climate change might impede programme objectives, on the one hand, and whether there might be opportunities for direct funding of climate change adaptation activities on the other. However, even if adaptation is highlighted as an issue in the development strategy, it may still not have a direct influence on funding priorities.

- **Priority Axes**: Priority Axes specify what gets funded and therefore the language used in describing them will both translate directly into tenders or calls for projects and govern how projects are designed. If climate change impacts and resilience are important for a region or sector, these would be mentioned directly in the priorities. Again, both direct funding opportunities for adaptation and the need to build resilience across funded projects must be considered.

- **Indicators**: Each priority axis requires indicators in relation to project outputs and overall project results that enable project preparation, implementation and programme monitoring and evaluation. Where there is direct funding for adaptation, indicators that effectively capture adaptation successes would be used, e.g. a road investment-related project could include an output indicator for 'Number of km of road retrofitted for increased precipitation'. Defining indicators that assess less tangible objectives, such as climate proofing of an investment, would pose a more challenging endeavour.

- **Ex-ante Programme Assessment**: Overall, the ex-ante evaluation of programmes, which will incorporate an SEA, examines the consistency of the programme strategy with funding priorities and the regional situation. It provides an opportunity for reassessing how the climate change aspects have been dealt with in funding priorities and whether mainstreaming of climate actions has been sufficiently addressed in the programme.

Adaptation in Partnership Agreements

In the PAs, climate action on adaptation is almost *always* explicitly referred to in TO5. Overall, adaptation is well addressed throughout all Member States at the strategic level. There are two PAs where adaptation is mentioned only implicitly. However, some countries have more specific and detailed objectives and expected results for TO5.

Flooding, sea level rise, water scarcity and drought are the adaptation themes that are covered in most PAs, and these themes are explicitly addressed in 16 PAs. Climate and disaster resilience is another recurring topic and is addressed in 10 PAs. Adaptation is mostly addressed through rural development programmes, followed by ERDF/CF programmes.

3.4 Commission guidance documents on how to integrate adaptation into ESIF

In the following, an overview of the key guidance documents provided by the Commission is presented, with particular focus on how to integrate climate change adaptation into the ESI Funds.

The Commission has been actively developing guidance documents addressed to managing authorities and other stakeholders involved in the preparation and consultation of ESIF programmes to ensure that PAs, programmes and projects embed in their design climate change adaptation objectives. Guidance documents are available at the ESI Fund website [(34)], DG CLIMA's website on adaptation [(35)], and on Climate-Adapt, the European climate adaptation platform [(36)], and on the websites of the sector Directorate-Generals (DG) [(37)].

In the negotiation process, specific guidance on adaptation was also provided in the Commission Position Papers to Member States on the development of PAs and programmes.

- **Guidance documents on integrating adaptation in OPs and ESIF programmes:** The Commission has developed a number of guidance documents addressed to stakeholders involved in the preparation and consultation of OPs and PAs.

- Specific and more theme-oriented adaptation guidance has been developed as part of the EU's Adaptation Strategy [(38)].

- A non-exhaustive list of such publications encompasses:

  - **For ERDF, ESF and CF:** *Technical guidance on integrating climate change adaptation in programmes and investments of Cohesion Policy* (16/04/2013 – SWD (2013) 135);

  - **For EAFRD**: *Principles and recommendations for integrating climate change adaptation considerations under the 2014-2020 rural development programmes* (16/04/2013 – SWD (2013) 139);

  - **For EMFF:** *Principles and recommendations for integrating climate change adaptation considerations under the 2014-2020 European Maritime and Fisheries Fund operational programmes* (30/07/2013 – SWD (2013) 299);

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(34) http://ec.europa.eu/regional_policy/en/information/legislation/guidance/

(35) http://ec.europa.eu/clima/policies/adaptation/index_en.htm

(36) http://climate-adapt.eea.europa.eu/

(37) See also list of references.

(38) SWD (2013) 133-139 final.

- **For ESF**: No specific guidance was issued on climate change adaptation. However, the *European Employment Observatory (EEO) Review 2013: Promoting green jobs throughout the crisis – a handbook of best practices in Europe (2013)* provided relevant inspiration.

The Commission has developed publicly available thematic guidance fiches for Commission desk officers on the various TOs, including on climate change adaptation, risk prevention and management (TO5) [(39)] and guidance fiches on water management [(40)] and on biodiversity (TO6) [(41)]. These are, from an adaptation perspective, highly relevant as well.

The Commission has also issued FAQs on ex-ante conditionalities relating to sustainable development and adaptation, e.g. on thematic ex-ante conditionality 5.1 on risk prevention and risk management and climate change requirements, and on the ex-ante conditionality 6.1 on water and relation to adaptation-relevant aspects of the Water Framework Directive and the Floods Directive [(42)].

In terms of ensuring that climate change considerations are appropriately and sufficiently integrated into SEAs, the Commission DG ENV has provided guidance on integrating climate change and biodiversity into SEAs [(43)].

Specific guidance has been provided by DG REGIO on Sustainable Urban Development (Art. 7 of the ERDF Regulation) and on integrated urban strategies, focusing on climate change as one of five key challenges [(44)].

In order to provide guidance to managing authorities in the programming process on how to mainstream climate actions into the ESI Funds, the Commission issued a series of Fact Sheets on the potential for mainstreaming of climate change action and how to assess mainstreaming of climate action [(45)], illustrating by examples how to mainstream climate action and outlining main issues to be considered when assessing the mainstreaming of climate action.

[(39)] Draft thematic guidance on climate change adaptation, risk prevention and management, Version 2, 20/02/2014.

[(40)] Draft thematic guidance fiche for desk officers, Water management, Version 2 – 20/02/2014.

[(41)] Draft thematic guidance fiche for desk officers Biodiversity, green infrastructure, ecosystem services and Natura 2000, Version 2 – 20/02/2014.

[(42)] http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/5_faq_sustainable_development.pdf

[(43)] Guidance on integrating climate change and biodiversity into Strategic Environment Assessment (DG Environment, 03/2013), http://ec.europa.eu/environment/eia/pdf/SEA%20Guidance.pdf.

[44] http://ec.europa.eu/regional_policy/sources/docgener/informat/2014/guidance_sustainable_urban_development_en.pdf

[(45)] http://ec.europa.eu/clima/publications/docs/01-climate_mainstreaming_fact_sheet-esif_introduction_en.pdf

At the level of major projects and at a general project level, guidance documents include:

- Guidelines on cost-benefit analyses (CBA): ESIF regulations require a CBA of all major investment projects applying for assistance from the Funds. In a future changing climate, design thresholds that are built into project designs may be breached more frequently, while at the same time climate change will also affect the environmental and social systems around physical assets and their interactions with these systems.

- For major projects, Commission Implementing Regulation (EU) 2015/207 on [..] submission of the information on a major project [46], including Commission Delegated Regulation (EU) No 480/2014 – Quality review criteria for the information requirements of Article 101(f) of Regulation (EU) No. 1303/2013, requests that Member States submit summaries of actions taken to apply the horizontal principles and policy objectives on sustainable development, including regarding climate change adaptation, and how climate change-related risks and adaptation considerations and disaster resilience have been taken into account.

- Also, the '*Guidelines for project managers: Making vulnerable investments climate-resilient'* [47] have been developed to help project developers of physical assets and infrastructure incorporate resilience to current climate variability and future climate change within their projects. These guidelines provide information on the steps that project developers can undertake to integrate climate resilience within a familiar project lifecycle appraisal. Module 6 of the guidelines, *'Appraise adaptation options',* suggests adjustments to a standard CBA to widen its focus so that it selects not only those options that maximise net benefits, but also those that perform robustly in the context of the uncertainties associated with future climate change.

3.5 Common methodology for tracking climate change actions

Common methodology for climate tracking

To track climate expenditure in ESIF, the EU has adopted a common methodology [48] to calculate support for climate action for all programmes to report on how they intend to use their support. The methodology defines more

[46] Commission Implementing Regulation (EU) 2015/207 of 20 January 2015 laying down detailed rules implementing Regulation (EU) No 1303/2013.
[47] European Commission DG CLIMA, Non-paper – Guidelines for Project Managers: Making vulnerable investments climate-resilient, http://ec.europa.eu/clima/policies/adaptation/what/docs/non_paper_guidelines_project_managers_en.pdf.
[48] Commission Implementing Regulation (EU) 215/2014, as amended by Commission Implementing Regulation (EU) No 1232/2014.

than 100 IFs [49], and assigns a specific weighting that reflects the extent to which ESIF support makes a contribution to climate change action for each IF. The methodology defines a range of investment categories and attaches to each of those a climate marker of 0 %, 40 % or 100 % (also referred to as Rio markers).

The common methodology provides for a transparent, consistent and mechanical method for calculating support for climate action. However, this also implies a certain disregard for important programme- and context-specific details. Inter alia, the marker system involves significant differences in the level of detail when comparing across funds [50], making it difficult to estimate the support for climate change adaptation and mitigation, respectively. The overall Mainstreaming project concludes that introducing such a differentiation in the future may be considered.

Tracking of climate adaptation actions

Tracking of climate adaptation actions according to the common methodology is based on a number of underlying IFs and assumptions, as shown in the table below [51].

Table 3-2: Overview of the categorisation of IFs and FAs relevant for climate change adaptation.

Fund	Adaptation	Adaptation and/or mitigation [52]
ERDF/CF incl. ETC	IF087 and IF100	IF021, IF065, IF085 and IF086
ESF	-	-
EAFRD [53]	FA 3b, 5a, and 6b	FA 4a, 4b and 4c.
EMFF	-	-

The support for climate change adaptation in **ERDF/CF (including ETC)** is defined as consisting of IF087 and IF100. IF087 is defined as '*Adaptation to climate change measures and prevention and management of climate-related*

[49] The ERDF, CF and ESF, the common methodology defines 123 IFs and sets a marker of 0%, 40% or 100% for each of them. For EAFRD, the methodology defines the climate markers (i.e. 0%, 40% or 100%) at the level of UP and Focus Areas (FA). For EMFF, the methodology defines the markers at the measures level (as per the numbering of the relevant Articles in the EMFF regulation). For the sake of simplicity, this report always refers to these categories as IF's when discussing all ESI Funds together.

[50] For a detailed assessment, see Mainstreaming of climate action into ESI Funds 2014-2020 project, final report by COWI under service contract 071303/071201/2012/635389/SER/CLIMA.C.3.

[51] For details, reference is made to the Mainstreaming final report.

[52] For ERDF, part of the allocations under IF013 and IF014 could be considered as both supporting mitigation and adaptation, see Text Box 3-3.

[53] For EAFRD FAs 1a and 2b are not included as little climate action was found in the measure descriptions in the RDPs.

risks e.g. erosion, fires, flooding, storms and drought, including awareness raising, civil protection and disaster management systems and infrastructures'. IF100 is focused on Outermost Regions (OR) only and is defined as '*Support to compensate additional costs due to climate conditions and relief difficulties*'.

Supportive action in the form of both climate change adaptation and/or mitigation is defined as consisting of IF021, IF065, IF085 and IF086. These cover biodiversity protection (IF085, IF086); research and innovation with a focus on the low-carbon economy and resilience to climate change (IF065); water management and drinking water conservation, including river basin management and specific climate change adaptation measures, district and consumer metering, charging systems and leak reduction (IF021). For the energy efficiency related IF (IF013 and IF014), they can in some cases be considered as supporting both mitigation and adaptation, see Text Box 3-3 for more details. All other climate-relevant IFs support climate change mitigation.

The scoping of ESF and EMFF OPs does not allow for a (clear) breakdown between adaptation and mitigation. All ***ESF*** support for climate action is categorised here as *climate change mitigation.* This categorisation is based on the wording of the secondary theme*.* ***EMFF*** support for climate action is not sub-divided into mitigation and adaptation.

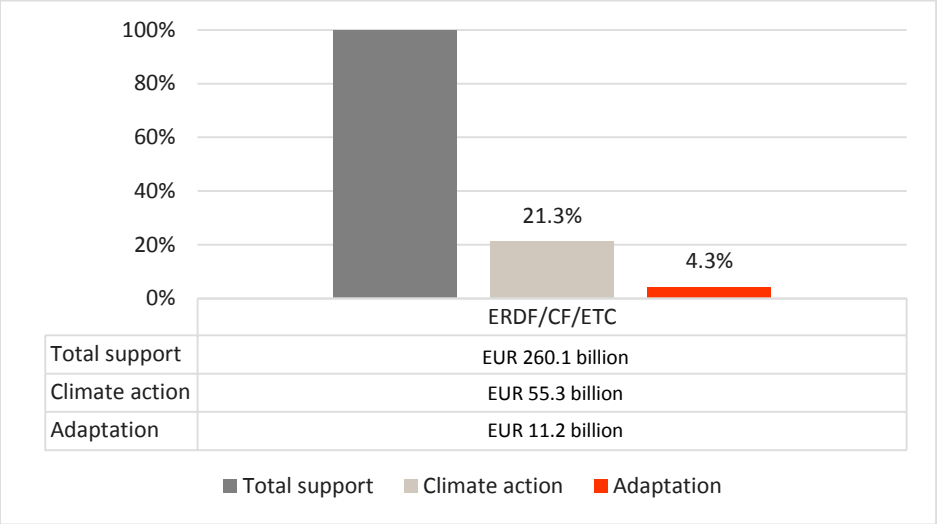
For ***EAFRD***, the climate-relevant UPs and FAs are the ones with significant potential for direct adaptation and mitigation. This has been found to include FA3b, FA4a-c, FA5a-e and FA6b. For EAFRD, *climate change adaptation* is defined by support allocated to FA3b, FA5a, and FA6b. Defined as supporting *both adaptation and mitigation* are FA4a, FA4b and FA4c. In the case of the EAFRD, it should be noted that the latter category includes a range of measures which *can* be supportive of climate change mitigation or adaptation, but they can also be scoped with only a little or no climate-related contents. Implicit or occasional climate action has not been considered *key* climate action and is not included as climate relevant for the purpose of this study. Implicit or occasional means that no or very few references to climate benefits was found across all RDPs under a specific FA.

3.6 European Regional Development Fund and Cohesion Fund

This section presents the assessment of how adaptation has been mainstreamed into the ERDF and the CF. The ERDF and CF are both funds with significant potential for contributing to climate change adaptation actions. The section includes:

- Description of the financial allocations for climate change adaptation;
- Description of the strategy, specific objectives and actions in the OPs.

Figure 3-2: Share of ESIF support for climate action (mitigation, adaptation) and adaptation in ERDF/CF/ETC, including the respective allocations (in EUR billion)



ERDF Regulation

The ERDF Regulation [54] includes support to adaptation under TO5 on promoting climate change adaptation, risk prevention and management (Article 5). Integrated sustainable urban development (Article 7) mentions climate challenges as one type of challenge that should be addressed by integrated actions. At the national level, 5 % of the ERDF resources should be allocated for such integrated actions for sustainable urban development. The ERDF Regulation also includes a requirement on thematic concentration that does not include adaptation under TO5 as one the TOs that are considered in this requirement. Although some contributions to climate change adaptation could come from allocations under TO4 for energy efficiency, in particular in regards to housing, and for IP4c , the thematic concentration requirement *could* potentially reduce the allocation for climate change adaption under ERDF. This follows from the mere inclusion of TO4 in the ring-fencing requirement, and the exclusion of TO5, which *could* lead to less focus in the programmes on climate change adaptation under TO5 while drawing more attention to investigating opportunities for mitigation per se which would count against the ring-fencing requirement.

CF Regulation

For the CF, the regulation [55] also includes TO5 as one of the objectives to be supported. The CF has no thematic concentration requirements and has, besides TO5, only four TOs that can be selected (TO4, TO6, TO7, and TO11).

The requirement to track climate change allocations using climate markers further highlights the focus on climate action, including adaptation. Finally, the ex-ante conditions include the need for Member States to have national or regional risk assessments in place, taking into account, where relevant, climate change adaptation strategies.

[54] Commission Regulation (EU) No 1301/2013 of 17 December 2013 on ERDF.

[55] Commission Regulation (EU) No 1300/2013 of 17 December 2013 on CF.

In the next subsections, statistics on EU support are presented, followed by an assessment of how the adaptation objective has been included in the various elements of the OPs, from programme strategy to proposed actions.

3.6.1 Allocation of financial support

Definition of allocations for adaptation

The allocation of EU support in each OP is indicative of what the funding should support. The financial allocations are based on the common methodology [56], with the IFs describing specific types of interventions (actions). There are more than 100 IFs, each having been assigned a specific weighting that reflects the extent to which ESIF support makes a contribution to climate action. The specific approach to the definition in this study of what is considered climate change adaptation action or supportive action can be found in section 3.5 above.

Total allocations for adaptation

The overall EU support allocated for climate change adaptation amounts to EUR 6.0 billion in ERDF and CF. In addition to these specific allocations (based on the selection of IF087 and IF100), there are allocations that could support adaptation, which amount to EUR 4.3 billion. In addition, there are allocations for energy efficiency that could also have adaptation effects, see Text Box 3-3 for more details. Overall, the allocations for climate change adaptation amount to 11 % of the total allocation for climate change and the allocation for adaptation amounts to 2 % of total ERDF/CF support.

Table 3-3: Allocations for Total support, climate action, climate adaptation, and supportive adaptation

Fund	Union support (EUR billion)			
	Total EU ESIF Support	Total Climate Action	Of which for adaptation	Of which adaptation and/or mitigation
ERDF	181.0	35.8	3.0	3.1
CF	61.3	17.6	3.0	1.2
Total	242.3	53.4	6.0	4.3

Allocations by ERDF and CF

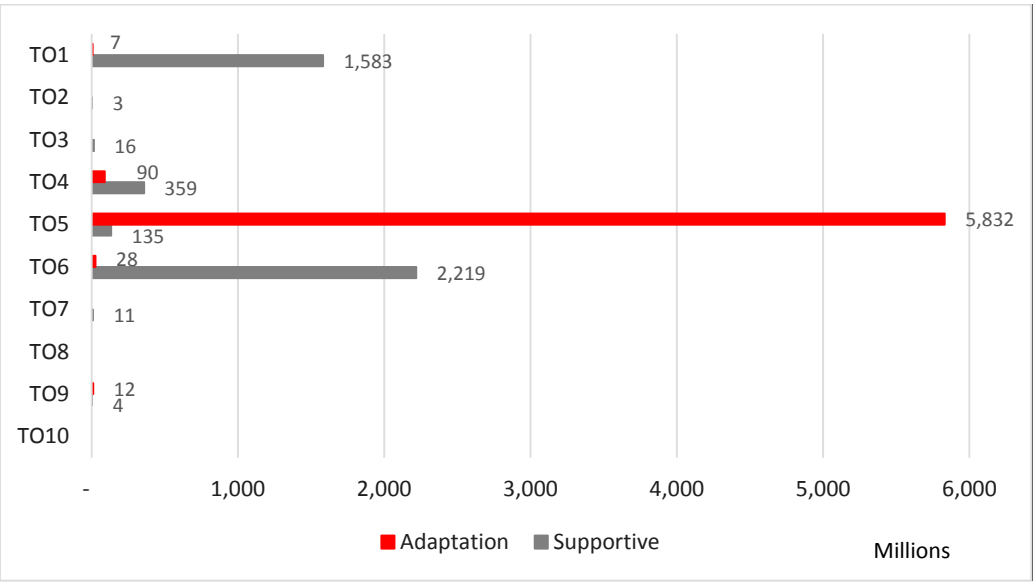
CF contributes a higher share for adaptation compared to ERDF, as Table 3-3 above illustrates. This observed difference can be attributed to several factors, which are discussed later in this section in relation to the differences across Member States.

Allocations by TOs

Figure 3-3 below illustrates the allocations for adaptation and supportive actions by TO for ERDF and CF combined. As is evident, the specific support to adaptation comes through TO5 for 98 % of the indicative allocations.

[56] Commission Implementing Regulation (EU) 215/2014, as amended by Commission Implementing Regulation (EU) No 1232/2014.

Figure 3-3: Allocations for climate change adaptation by TOs in EUR ERDF/CF



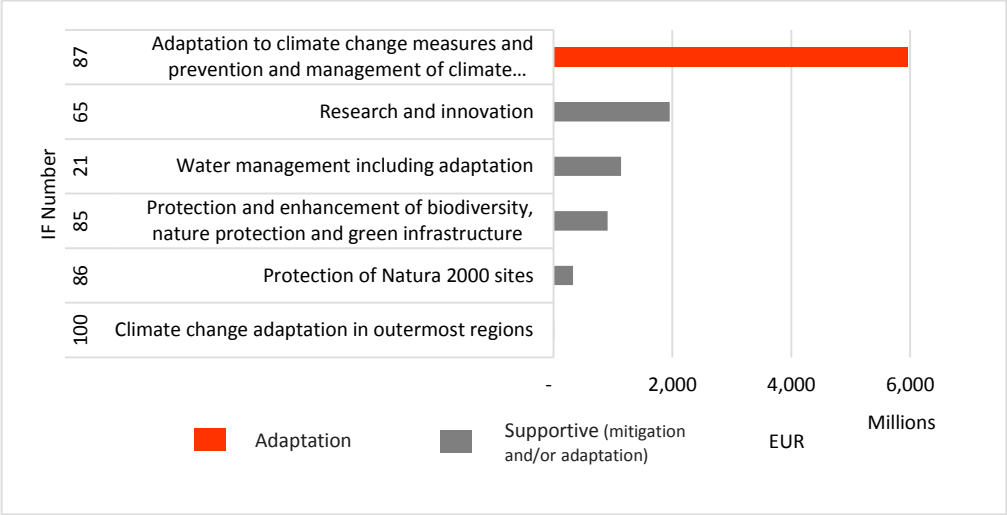
Allocations that are supportive

Supportive allocations are defined as those that can have an adaptation and/or mitigation impact. The supportive EU support allocations are mainly provided through TO1 on research and innovation and TO6 on environmental protection. For example, allocations for nature restoration, such as wetlands, can have both mitigation and adaptation impacts (in addition to the water and nature benefits that are the main purposes of such actions).

Allocations by IF

The above values for climate change adaptation and supportive allocations are based on how the EU support is allocated by IF. The figure below illustrates how adaptation and supportive allocations are distributed per IF. As is evident, the allocation specifically for adaptation (IF087) accounts for EUR 6.0 billion. Energy efficiency is not included here because the concerned Intervention Fields (IF013 and IF014) primarily addresses energy efficiency under the heading "energy infrastructure" and supports the mitigation-related headline target of the Europe 2020 Strategy on 20% increase in energy efficiency.

Figure 3-4 Allocations for climate change adaptation and supportive allocations (mitigation and/or adaptation) by Intervention Fields (IF) in ERDF and CF in EUR [57]



Adaptation

The allocation through IF087 in TO5 includes adaptation themes such as flooding, landslides, droughts, heatwaves, etc. The details of the actions are included in the next sub-section. TO5 includes two IPs with two individually focused IFs each:IF087 relates explicitly and clearly to climate change-related natural risks, whereas IF088 focuses exclusively on non-climate-relevant natural and man-made risks. Therefore, the question could be raised on whether Member States have been biased in allocating more to IF087 than to IF088. However, there is no evidence that suggests that some allocations to IF087 should have been rightfully allocated to IF088 instead. Hence, while all allocations are only indications, the allocation for TO5 expresses the intention for support to specific adaptation actions.

Supportive allocations

For the allocations to IFs that could be supportive for climate change adaptation, it is more difficult to estimate the likely share of climate adaptation support included in these allocations. In some cases, the description of the actions, or the guiding principles for selection, point to where adaptation is likely to be supported or not. In other cases, where the description of actions to be supported is very general, it is not possible to assess the contribution to adaptation.

Research and innovation

The largest allocation of supportive actions is to research and innovation, amounting to EUR 2.2 billion (IF065). As this allocation also supports research and innovation in mitigation measures, the support for adaptation is only a part of it. From the description of the actions, it appears that the majority of the allocations are intended for support to mitigation rather than adaptation.

[57] In addition, there is some climate adaptation support allocated through the energy efficiency related IFs, see Text Box 3-3 for details

Water management

The second largest supportive allocation is for water management (IF021). For this IF, the allocation amounts to EUR 3 billion. To what extent the actual expenditure will include adaptation actions remains to be seen. It is possible that only a part of the allocation will ultimately have a climate change adaptation impact. Judging from OP descriptions of the types of actions included – for example, River Basin Management Plan implementation – a large share of allocation under this IF would indeed be for adaptation actions.

Nature protection

A similar argument is valid for the two IFs on nature and biodiversity protection, green infrastructure and Natura 2000 sites (IF085 and IF086), for which the allocation amounts to EUR 1.2 billion. In particular, investments in green infrastructures are potentially relevant climate change adaptation measures. Hence, a large share of the climate allocation under these two IFs would be for adaptation.

Potential support not included by the climate tracking

There is potential support for climate change adaptation not captured by the financial estimates. In relation to the following two areas, there could be additional support for climate change adaptation actions:

- Wastewater treatment (TO6)
- Transport projects and actions (TO7)

Wastewater treatment (IF022) has a climate action contribution of 0 %. Making wastewater infrastructure climate-resilient could imply additional investments, as the capacity of both collection and treatment infrastructure is adapted to changed volumes of storm water. Hence, it could turn out that some of investments under this IF will actually support climate adaptation.

Similarly, there is a potential for contribution to climate change adaptation inherent in the support for transport-related actions. For support to rail transport (for example IF024-027), the allocation for climate action is defined as 40 %. The report's approach to the definition of adaptation and mitigation has placed these transport actions in the mitigation category. This might not fully reflect what the financial allocation will support. Road infrastructure investments (IF028-034) have a coefficient of 0 % assigned – as there are no mitigation impacts from road infrastructure investments. However, road infrastructure should be made climate-resilient and, therefore, the investments might include a climate adaptation element.

Allocations by Member State

The allocations for adaptation by Member States are illustrated in the table below. Here, the share of the total ESIF allocated for adaptation and supportive allocations (i.e. adaptation and/or mitigation) under the ERDF and CF are illustrated.

The specific allocation for adaptation in Member States varies from 0 % to 26 % of the total ERDF/CF allocation for climate action. There can be many reasons for this:

- Several Member States have mainly allocated for climate adaptation in the EAFRD, putting less emphasis on adaptation in the ERDF/CF. There are also allocations for adaptation in the ETC.

- There seems to be a tendency that Member States with more regions in the less developed category have allocated more for adaptation in ERDF. This could suggest that the concentration requirement for TO1, TO2, TO3 and TO4 has an effect. For developed regions, the concentration requirement is to allocate 80 % of the expenditure for the first four TOs, while the requirement is only 50 % for less developed regions. Thus, there is less flexibility for the more developed regions, where the remaining 20 % of the allocation should cover all the remaining six TOs (see also Section 4.1.1).

- Member States with less developed regions are in many cases eligible for CF, where there is no concentration requirement. Member States with CF place more of the adaptation allocation under the CF.

- The Southern and Central European Member States are also subject to more climate change challenges and therefore have greater need for adaptation actions.

These factors all point in the same direction. Hence, Member States with more regions in the less developed category and Member States eligible for CF have allocated more for adaptation.

Table 3-4: Total EU support and allocations for respectively climate action (mitigation, adaptation), adaptation and supportive action in ERDF/CF by Member States

Member State	Total EU support	Total Climate Action	Of which for adaptation		Of which for adaptation and/or mitigation
	(MEUR)	(MEUR)	(MEUR)	(%)	(MEUR)
AT	978	132	-	0	17
BE	2,021	219	6	3	14
BG	7,423	1,291	67	5	111
CY	702	103	10	10	10
CZ	21,643	3,994	127	3	281
DE	18,269	3,125	478	15	290
DK	712	53	-	0	11
EE	3,425	568	30	5	182
EL	15,275	2,077	349	17	179
ES	27,942	3,650	195	5	112
FI	1,304	261	7	3	81
FR	14,763	2,214	203	9	261
HR	8,463	1,235	215	17	106
HU	21,544	4,112	775	19	109
IE	1,020	86	-	0	-
IT	31,686	4,864	693	14	123
LT	6,709	1,405	109	8	71
LU	40	9	-	0	0
LV	4,418	755	66	9	64
MT	708	108	-	0	29
NL	1,015	122	-	0	50
PL	76,902	11,813	921	8	724
PT	20,734	2,905	416	14	322
RO	22,541	4,487	469	10	648
SE	1,764	231	-	0	79
SI	3,012	602	83	14	90
SK	13,768	2,637	680	26	109
UK	10,974	1,516	70	5	256
Total	339,758	54,575	5,969	11	4,330

3.6.2 Strategy, Specific objectives and Actions

The financial allocations described above point to the overall level of support for climate change adaptation. In order to understand how climate change adaptation objectives are likely to be supported, it is necessary to look into the details of the OPs. This sub-section describes OP strategies, specific objectives and actions in relation to climate change adaptation.

Strategy level

There are climate allocations for TO5 in almost 40 % of all OPs. As illustrated above in Figure 3-3, the specific adaptation allocations are almost entirely in TO5. We have assessed whether the OPs address climate change adaptation at a strategic level. It should be kept in mind that this is a subjective assessment. The assessment indicates that about 45 % of all ERDF and CF OPs have included adaptation at a strategic level. It means that there are OPs – about 5 % – where it is assessed that support to adaptation has been achieved through another TO and it is mainly through TO6 that support for adaptation is strategically included. The OP strategy is typically where needs are assessed, referring to what has been set out in the PAs. Hence, a strategic assessment, including the link to the National Adaptation Plan (NAP), should increase the degree of alignment and effectiveness of the proposed actions.

National adaptation plans

Most of the OPs that allocate EU support to adaptation have included references to their NAPs. The level of integration varies. Generally, many OPs present high-level assessments, where the links to the NAPs are not developed in much detail. This means that OP strategic assessments could have been made more consistent with NAPs. For about eight Member States, the ERDF/CF allocations are supposed to support updating NAPs (see Section 4.1.2).

The case study on flooding in Romania is an example in which there are links to NAPs, but unresolved issues remain – for example, that the national risk assessment is still ongoing. It points to a need for attention during implementation and reporting in order to make sure the supported actions are fully aligned with results of the risk assessment.

Specific objectives

Specific objectives in relation to adaptation are mainly defined for OPs that have selected TO5. The specific objectives, expected results and proposed actions for support are evidently closely linked. Therefore, key areas for adaptation support are described and discussed in relation to the actions.

Actions

The real effect on climate change adaptation is determined by the actions that will be supported. Although the OPs describe indicative actions, the types of actions that eventually will be implemented are likely to be similar to those included in the OPs.

Examples of the types of actions that have been included under different TOs and IPs are illustrated in the table below.

Table 3-5: Overview of examples of climate change adaptation-relevant contents of relevant IPs

IP	Key scope	Examples from OPs
5a (ERDF)	Supporting investment for adaptation to climate change, including ecosystem-based approaches	Actions include planning (including flood risk management plans) and renovation or construction of flood protection measures. Elaboration of regional plans for climate change, vulnerability and risk studies, maps of areas facing flood risks and landslide risks, climate change monitoring databases and regional strategies for integrated management of coastal areas with a view to prevent and minimise climate change risks. Construction of coastal protection shields and stabilisation of the coast in areas with erosion phenomena or areas threatened by sea-level rise; equipment for the prevention of soil erosion caused by the sea. Investments for the upgrading and development of warning and information systems about threats and rescue operations.
5i (CF)	Supporting investment for adaptation to climate change, including ecosystem-based approaches	Development or modernisation of infrastructure and ICT systems for monitoring and warning of severe hydro-meteorological phenomena in order to protect against climate change-related risks, mainly floods and coastal erosion. Construction or rehabilitation of infrastructure to reduce the impact of extreme weather events. Flood risk management actions and actions to limit the negative effects of coastal erosion, e.g. dams and dykes for retention of sand, support walls, etc. Interventions to protect and enhance biodiversity in relation to the effects of climate change.
5b (ERDF)	Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems	In many cases, the actions proposed do not differ from those under 5a, including works and risk management plans to prevent or protect against floods, forest fires and coastal and soil erosion as the main types of action. In other OPs, actions include raising awareness about risks, warning systems and crisis management.
6d (ERDF)	Protecting and restoring biodiversity and soil and promoting ecosystem services through Natura 2000 and green infrastructure	Green infrastructure (for example, restoring natural floodplains) achieves multiple benefits, including the climate change adaptation element of protecting against flood risks and a possible carbon storage effect. Re-establishing natural floodplains as an action to be supported is included under different IPs, such as 5a, 5b and 6d.

The following lists the type of adaptation challenges and themes related to TO5 and that generally have been included in the OPs:

- Flooding and landslides: Many OPs have included flood protection measures. This includes 'softer' measures related to warning systems, preparedness and flood protection infrastructure. Also, green infrastructure measures are included in relation to flooding.

- Droughts: Droughts and water scarcity are also frequently included. The specific actions are less detailed. In most cases, there are references to water management. Addressing water scarcity requires measures to increase water efficiency in the supply of drinking water and irrigation. For the latter, the measures are to be funded in the EAFRD. These topics are also addressed in some of the regional or national Research and Innovation

Strategies for Smart Specialisation meaning that part of their TO1 allocation can be dedicated to it.

- Heatwaves: Heatwaves and urban heat islands are an adaptation challenge addressed in many OPs. The proposed actions include, for example, green urban infrastructure measures.

Less frequently included actions are described below by specific area (e.g. buildings, transport, etc.). For many of the adaptation issues, opportunities are missed by not having these areas included. There are often synergies to be exploited and therefore cost-effective measures could have been introduced.

Buildings: More extreme weather could increase the need for cooling, in particular during heat waves. Here, there is a close link with mitigation action. Increasing the energy efficiency of buildings has clear mitigation impact, but it could also be seen as adaptation to changed weather conditions. The text box below explains this in more detail including a discussion of the financial allocation to energy efficiency in buildings. While support to energy efficiency in buildings is among the most supported climate actions, the specific link to the adaptation dimension is rarely explicitly addressed in narrative descriptions of the OPs. An example of how it can be included is also presented in the Text box below.

Text box 3-3: Energy efficiency in buildings as an adaptation measure

Energy efficiency in building

Energy efficiency improvement in buildings is one the key mitigation measures in many OPs. These energy efficiency actions could cover insulation to reduce the need for heating, more energy efficient ventilation and lighting systems and more energy efficient cooling systems.

In principle, some of these actions could also have an adaptation effect. Climate change would in some EU regions mean higher summer temperature and more frequent heatwaves. If actions to improve energy efficiency in buildings make the buildings more resilient to increased temperature and more frequent heatwaves then it could be counted as an adaptation effect. Example 1 below present an OP where this adaptation aspect of energy efficiency is included.

In relation to whether the funding of energy efficiency improvement in buildings also could have an adaptation effect, the question is how large share of the allocation that would reduce the energy consumption for cooling. Actions such as thermal renovation of buildings (e.g. passive air conditioning, smart insulation and bioclimatic architecture) could reduce this adaptation effect of increased energy needs. Insulation aimed at reducing the need for heating in winters could in some cases provide an effect on the need for cooling in warm summers, but it depends on the specific thermal renovation of the building. If there is already cooling in the building it is more likely that there will be adaptation effect. Similarly, if the renovation includes changing windows, it is likely that there is an adaptation effect.

The allocation to energy efficiency in buildings is provided through IF014 on "Energy efficiency renovation of existing housing stock, demonstration projects and supporting measures" and IF013 on "Energy efficiency renovation of public infrastructure, demonstration projects and supporting measures". The allocation for IF014 is 5.4 billion EUR, while the allocation for IF013 is 7.8 billion EUR. As discussed above, it is only part of these allocations for mitigation actions that could have an adaptation effect. It is not possible to estimate how large share of the funding for improving energy efficiency in buildings that also could have such an adaptation effect. Firstly, the OPs are generally not very explicit in describing the exact nature of the expected energy renovation actions. Secondly, as discussed above, it is only in the regions where climate change will increase the need for cooling that this adaptation effect could be present. Thirdly, for the allocations to public infrastructure, only the allocations for public buildings could potentially have the adaptation effect (for example energy efficiency improvement of street lighting will not have this adaptation effect). Finally, whether there is an adaptation effect depends on the specific renovation and building characteristics.

For these reasons, none of the allocations through IF013 and IF014 have been included in the estimation of the support for adaptation. It should be mentioned that IF068 on "Energy efficiency and demonstration projects in SMEs" and IF070 on "Energy efficiency in large enterprises" also could include similar energy efficiency measures as discussed above though the main type of actions relate to improving the energy efficiency of production processes with no adaptation effects.

Example 1 – ERDF-ESF-YEI OP Regional Programme Centre, France (2014FR16M0OP0003)

The OP supports what is called thermal renovation, where passive air conditioning, smart insulation and bioclimatic architecture are used to address urban heat islands. While these actions are relevant as mitigation actions by reducing the energy consumption of the buildings, they can also be seen to adapt urban areas to very warm weather events.

- Energy: Specifically in coastal areas, where flooding could affect the operation of thermal power plants, actions could address this risk. While the issue of flooding is included in most OPs that have adaptation support, there is no mentioning of protection of energy infrastructure.

- Industry: Support to research and innovation related to adaptation. Few OPs have explicitly made a link between adaptation challenges or opportunities for industry and businesses that could be addressed by research and innovation activities.

- Tourism: Specific adaptation challenges for tourism (e.g. to address unreliable snow cover in winter and extreme heat in the summer) seem not to have been picked up on by Member States.

- Transport: Making transport infrastructure climate-change resilient is relevant for all transport infrastructures. For all major projects including on transport, the requirement to make the investment climate-change resilient is part of the application procedure. For projects less than EUR 75 million, this requirement might or might not be explicitly included; however, Article 8 of the CPR (for example) should apply to all projects. In general, the OPs have not explicitly listed climate change resilience as a part of requirements for transport projects, although it is still part of the application procedure.

- Water infrastructure: Increased frequency of heavy rainfall means that there may be needs for additional water retention and/or increased treatment capacity. Also, less rain – increased risk of drought – could have implications for the design of wastewater treatment systems. For example, the water quality parameters of the Water Framework Directive might only be attainable with more treatment if the water flows in rivers are lessened. These quite complex and detailed issues are not included in the OPs. Hence, it is difficult to make judgements about the extent to which adaptation issues will be sufficiently addressed when actions are implemented. The investments related to wastewater treatment have a climate marker of 0 %. Therefore, climate tracking has not promoted a more explicated consideration of adaptation aspects related to wastewater investments. This points to a need for attention in the implementation and reporting phase regarding the contribution from allocation to wastewater infrastructure [(58)]. Similarly to what is mentioned above under transport, the OPs have not listed climate resilience as a specific requirement for the selection of actions. Making investments climate-resilient is mandatory for major projects, but it is also relevant for non-major projects, for which it is a Member State responsibility.

The question of climate resilience has been discussed above in relation to specific areas, such as transport and water infrastructure. Overall, the OPs do

[(58)] Allocations under IF022 accounts for EUR 7.8 billion.

not include much reference to the need for climate-proofing investments. There are few examples where a financial allocation for IF087 on climate change adaptation has been made in relation to energy infrastructure investments. These OPs do not explain why this allocation has been made, so it is not possible to assess whether it is a provision for making the investments climate-resilient.

Horizontal principles

The majority of OPs have only included a reference to the horizontal criteria of sustainable development as an element in the guiding principles for selection of actions. Few OPs have explicitly made climate change resilience one of their guiding principles. As the specific selection criteria are still to be developed, it could be the case that climate change resilience will be widely included. For major projects – those above EUR 50 million – it is a standard requirement to climate-proof the investment. Still, a significant part of the support will be through projects and actions below this threshold.

Indicators

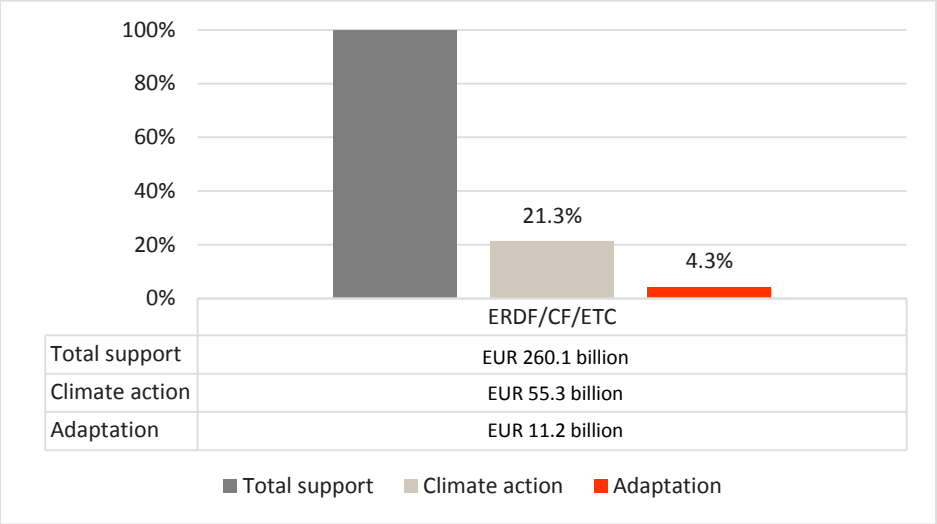
The common output indicators for ERDF include, for example, the number of people benefiting from flood protection measures as one of the two adaptation-relevant indictors. This is a very crude indicator, as the achieved protection level could be either high or low within the same indicator value. It also only covers one climate change hazard (forest fire being the other with an indicator). Defining more indicators to cover more adaptation challenges and requiring more specific output and result indicators to be developed in the programming phase could strengthen the mainstreaming of adaptation.

3.7 European Territorial Cooperation

A share of the ERDF is specifically dedicated to the ETC goal. This section assesses how climate change adaptation has been mainstreamed throughout the ETC. The assessment is based on an analysis of the ETC Cooperation Programmes (CPs), and four case studies carried out on specific CPs:

- Spain-Portugal (cross-border CP)
- Ireland-Wales (cross-border CP)
- Danube (transnational CP)
- Adrion (transnational CP)

Figure 3-5: Share of ESIF support for climate action (mitigation, adaptation) and adaptation in ERDF/CF/ETC, including the respective allocations (in EUR billion)



Regulation

Although ETC forms a part of the ERDF, it is subject to its own regulation [59]. In contrast to the ERDF, CPs under the ETC have a different thematic concentration than the require allocation of a minimum share of funds to a specific TO. Instead, at least 80 % of the allocation shall be distributed among a maximum of four TOs [60]. Therefore, a CP is not limited to specific combinations of TOs, but by the number of selected TOs.

Strands of cooperation

Throughout the ETC, cooperation occurs in a total of 75 CPs on three geographic levels: cross-border (i.e. cooperation among a commonly shared border), transnational (i.e. cooperation within larger areas, such as sea-basins), and interregional (i.e. cooperation among all Member States). A brief overview of all CPs, including their climate adaptation allocations, is provided in Table 8-1 in Annex C – Overview of ETC programmes.

More adaptation in cross-border programmes

Table 3-6 below provides a brief overview of ETC climate adaptation content. Slightly less than half of the total climate action is dedicated to concrete adaptation actions or such that address climate mitigation and/or adaptation (i.e. supportive action) through environmental measures and research, of which the latter contributes a slightly greater share. Notably, cross-border programmes have nearly twice the share of climate action dedicated to concrete adaptation than the transnational ones, which will be discussed in the subsequent section.

[59] Specific provisions for the support from the ERDF to the ETC goal, Regulation (EU) 1299/2013.

[60] Article 6(1), Specific Provisions for the support from the ERDF to the ETC goal Regulation (EU) 1299/2013.

Table 3-6: Climate allocation by climate action, climate adaptation, and supportive adaptation

Cooperation Type	Number of CPs	EU support (MEUR)		
		Total Climate Action Support	For adaptation	For mitigation and/or adaptation
Cross-border	57	1,217.3	333.7	302.7
Transnational	15	647.0	94.7	139.0
Interregional	3	33.8	-	-
Total	75	1,898.1	428.4	441.7

3.7.1 Strategy, Specific objectives and Actions

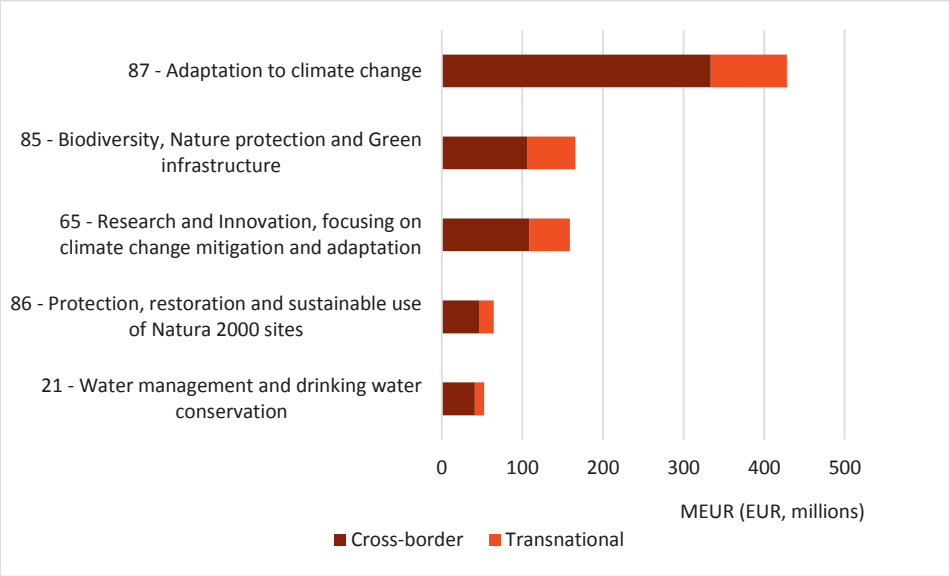
Adaptation at strategic level

Climate change adaptation has been incorporated as a part of the strategy in the majority of programmes. A total of 50 CPs include climate change adaptation issues as part of their strategy, which corresponds to a share of 75 % of all CPs. Overall, it is recognised that the ETC CPs have a potential to address climate change adaptation. The geographical orientation on border areas may be an important explanatory factor. A focus on shared resources (such as land or waters – examples include mountains, rivers, lakes or sea-basins) and shared risks and interdependency concerning climate change adaptation provides a good framework for addressing adaptation issues jointly.

Adaptation in climate action

Similar to the ERDF, the structure of the CPs foresees a categorisation of allocations into IFs and all direct climate adaptation is dedicated to IF087. Furthermore, supportive adaptation is categorised into four IFs (IF021, IF065, IF085, and IF086). Support to each of those IFs is listed in Figure 3-6 below and further shows the amount of climate adaptation action for each cooperation type and the themes each IF addresses. As is evident from the figure, the focus on direct adaptation (IF087) is considerably stronger in cross-border CPs. This observation can be attributed to the fact that adaptation measures, such as flood barriers or coordination strategies, commonly require site-specific solutions. For transnational CPs, the wider geographical scope (often 7-8 countries) is comparably more suited for research activities and environmental measures, as adaptation issues are less concrete and go beyond shared borders.

Figure 3-6: Climate change adaptation in cooperation programmes by IF and cooperation type (in EUR million)



The cross-border and transnational CPs often exhibit links to regional and EU macro-regional strategies. Since transnational programmes commonly have macro-regional coverage, their link to macro-regional strategies is especially strong. This link is also natural in parts, as transnational CPs generally act as one of the implementation mechanisms for macro-regional strategies. The abovementioned case study on the Danube CP provides a detailed example of a transnational CP that implements an EU macro-regional strategy (see Annex A – Case studies). The strategies of the programmes often refer in their identification of needs to regional/macro-regional adaptation plans. Cross-border programmes commonly include a general and non-specific reference to national adaptation strategies (or climate change in general) – though often only to the climate adaptation strategies of one of the Member States (and not both) involved in the programme.

Adaptation in the specific objectives

Most of the specific objectives in the CPs that have indicated climate adaptation action under IF087 are of an environmental or supportive nature. These indirectly also cover climate change adaptation, as can be seen in the corresponding actions to be supported. Relatively few programmes formulate a specific objective that is explicitly focused on adaptation, such as '*Improve the adaptation of territories to climate change'* [(61)] or '*Improve territorial planning of public institutions for climate change adaptation'* [(62)]. This tendency of including adaptation in an implicit manner can be traced back to the thematic concentration requirement of the ETC regulation, which will be discussed more thoroughly in section 4.2. Nevertheless, this does not imply that climate adaptation action itself is not well-embedded in the ETC.

Types of adaptation actions

Most adaptation actions are concentrated on IPs under TO5, TO6 and TO11. Notably in one programme, adaptation action can also be found under TO9, which addresses poverty and social inclusion. Examples of the most commonly used or notable IPs and corresponding examples of actions can be found in Table 3-7 below. Due to the cooperative nature of the ETC CPs, climate adaptation occurs primarily through 'soft' measures such as prevention, preparedness, and impact-response cooperation with regard to adaptation. Furthermore, many supportive actions are also found that aim for the improved resilience of the environment through, for example, strengthened green infrastructure or the enhanced protection of biodiversity.

[(61)] ES-FR-AD – Spain-France-Andorra (POCTEFA) (CCI: 2014TC16RFCB006).

[(62)] FR-IT – France-Italy (ALCOTRA) (CCI: 2014TC16RFCB034).

Table 3-7: Overview of examples of climate change adaptation-relevant contents of relevant IPs

IP	Key scope	Number of CPs	Examples of actions
5a	Supporting investment for adaptation to climate change, including ecosystem-based approaches	6	Cooperation in awareness-raising, research, vulnerability studies and piloting activities. Implementation of ecosystem-based approaches to protect from coastal erosion and floods. Common development of early alert systems. Investments in green infrastructures to reduce risks emerging from climate change. Improve knowledge about climate change to strengthen the capacity of the public sector to adapt to climate change.
5b	Promoting investment to address specific risks, ensuring disaster resilience and developing disaster management systems	19	Development of common strategies to manage disasters. Shared infrastructure and equipment to prevent forest fires and other natural disasters. Improved disaster resilience through a coordination of institutions, a harmonisation of deforestation rules, forecasting and management of natural hazards, and risk mapping. These actions are complemented through investments in ecosystem-based approaches to reducing land hazard risks (e.g. flood- and coastal defence, reforestation).
6d	Protecting and restoring biodiversity and soils and promoting ecosystem services through Natura 2000 and green infrastructure	15	The development of frameworks and platforms for hazard and risk management. Conservation, development and improvements of green infrastructures/bio-corridors to support biodiversity. Concepts and plans for the preservation and development of bogs and woods to reduce vulnerability to soil erosion. Recovery of terrestrial ecosystems with high ecosystem value and the control of invasive species to strengthen ecosystem services and biodiversity.
9a	Active inclusion, including with a view to promoting equal opportunities and active participation, and improving employability	1	Mobility and exchange of medical staff to improve risk management; Creation of a training centre to fight against forest fires; Joint intervention plans for risks management; Providing means of transport to improve interventions in case of natural disasters; Meetings and sharing between emergency services professionals.
11b	Enhancing institutional capacity of public authorities and stakeholders through cooperation	6	The promotion of cross-border management, monitoring and prevention systems for climate adaptation and hydrogeological risk management. Cooperative development of tools and services for emergency interventions.

A particularly interesting example of adaptation action can be found in the Romanian-Bulgarian cross-border CP, as it provides a combination of 'soft' and 'hard' adaptation measures, which is demonstrated in Text box 3-4 below [(63)].

[(63)] RO-BG – Romania-Bulgaria (CCI: 2014TC16RFCB021)

Text box 3-4: Examples of approaches to climate change adaptation in CPs

Example 1 – ETC CP Romania-Bulgaria (2014TC16RFCB021) – IP 5b
The CP addresses disaster resilience in the region by combining 'soft' as well as 'hard' measures to adapt on multiple levels. The indicated 'soft' measures reach beyond a simple coordination of institutions and further include, inter alia, the harmonisation of deforestation rules, forecasting and managing of natural hazards, and risk mapping. These actions are complemented through 'hard' investments in ecosystem-based approaches of reducing the hazard risk of land (e.g. flood and coastal protection, reforestation) and green infrastructures. The variety of actions thus includes a reactive as well as a proactive approach to climate adaptation, leading to an integrated climate adaptation of the region.

Climate adaptation indicators

The indicators used to track the progress of climate adaptation action differs among the ETC CPs, as common indicators provided in the provisions are identical to ERDF OPs. Hence, the common indicators are not adjusted to a cooperation context. However, the provisions allow developing programme-specific indicators if these better reflect the achievements of the programmes. As ETC programmes are of a cooperative nature and generally include funds for investments, the indicators reflect this soft, or cooperation-related, aspect. Based on the reduced feasibility of the common indicators for ETC, only some programmes developed specific indicators that reflect cooperation and climate change adaptation, while others did not include adaptation-relevant indicators. Therefore, there is strong variation in how climate adaptation indicators were included.

Output Indicators

The output indicators specifically describe the kind of outputs a CP aims to achieve, e.g. development of joint strategies, tools for action and pilot-projects in transnational water management and flood risk prevention, restoration and management of ecological corridors, and environmental risk management. Based on target values that are set during the adoption stage, it is possible to measure whether the expected outputs related to climate change adaptation are likely to be achieved.

Result Indicators

The result indicators measure the intensity of cooperation in programmes. For the ETC, part of the result is improved cooperation between the actors themselves. In order to judge whether there has been an increase in cooperation, the responsible authority commonly conducts regular surveys to measure an eventual increase in cooperation intensity.

The result and output indicators provide the managing authority with a specific tool to monitor that the cooperation programme delivers on climate change adaptation, and are therefore essential in identifying the degree to which indicated actions eventually turned into concrete actions. The Danube transnational CP provides a strong example of a best case of using indicators for climate adaptation, which is described in Text box 3-5 below.

Text box 3-5: Example of adaptation indicator development

Example – ETC CP DANUBE (2014TC16M6TN001) – IP 6b
Under IP6b, the Danube CP focuses on transnational water management and flood risk prevention. For the result indicators, inter alia, qualitative surveys measure the results of the common cooperation on environmental risk management, which will repeatedly be conducted amongst relevant actors in e.g. water management and flood prevention. Therewith, an eventual increase in cooperation intensity can be detected.
In order to measure the output under this IP, multiple units of measure were developed to measure the achievement of the objective: 10 'tools-', 5 'strategies-', and 3 'pilot-actions for improving transnational water management and flood risk prevention'. Under this IP, a number of concrete measurements have been designed, which will ensure that climate adaptation will be mainstreamed throughout this programming period.

Selection Criteria

The selection criteria in the CPs generally do not include climate adaptation, and it is further stated in many of the CPs that the selection criteria will be developed at programme start. However, a number of CPs include some general guiding principles, while other CPs refer to horizontal criteria on sustainability that will be included in the development of the selection criteria. Based on the different approaches to the principles of selection criteria, no main trend has been identified in terms of the selection criteria. In general, however, the assessment of the guiding principles says little about adaptation.

Horizontal principles

Throughout the CPs, a few refer to using climate adaptation as a guiding principle in the horizontal principle of sustainable development. However, these are not very specific. The lack of reference can be linked to the fact that strengthened references to climate action in general were not called for in the programme-specific guidance.

Text box 3-6: Examples of, including climate adaptation in the horizontal principle of sustainable development in a CP

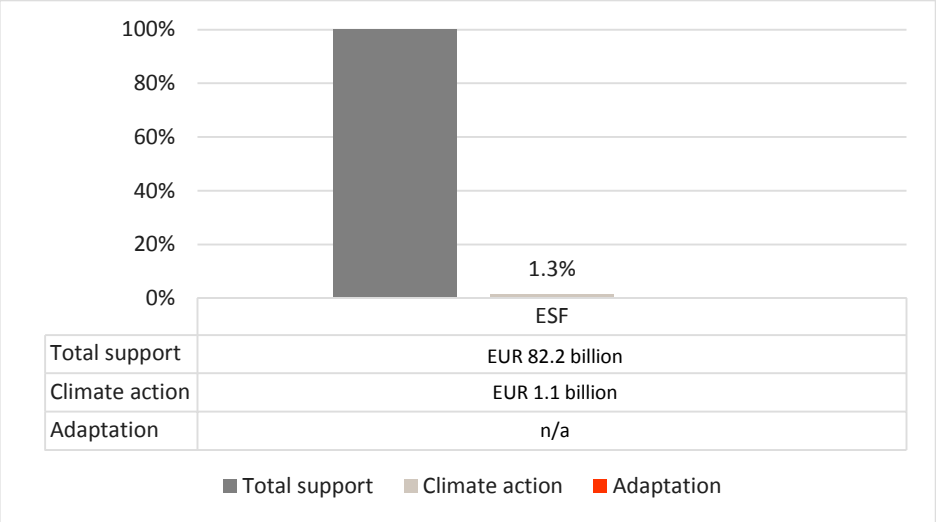
Example – ETC CP ADRION (2014TC16RFCB021) – IP 5b
The horizontal principle of sustainable development in the ADRION CP accounts for climate adaptation in project selection through assessing projects by their contribution to:
› efficiency in the use of resources (water management and sustainable land use); and
› better awareness for adaptation to climate change and risk prevention.
Furthermore, beneficiaries are asked to promote eco-innovations, aiming for more sustainable use of natural resources under all PAs. More precisely, beneficiaries are asked to describe in their project proposals the efforts they will undertake to reduce the project's 'carbon footprint'.

3.8 European Social Fund

This section presents the assessment of how adaptation has been mainstreamed into the ESF. The section includes:

- Description of climate change adaptation throughout the Fund;
- Description of climate action in the individual OPs.

Figure 3-7: Share of ESIF support for climate action (mitigation, adaptation) and adaptation in ESF, including the respective allocations (in EUR billion)



The legislative framework

The ESF allocates climate support through secondary theme 01, *'supporting the shift to a low-carbon, resource-efficient economy'* [(64)]. In total, 1.4 % of the ESF support is marked for climate action. The allocation for climate action is at the Priority Axes level only. Hence, it is not possible at the programme level to relate allocations to specific IPs. It is only in cases where a Priority Axis covers only one TO that the specific allocation can be related to a specific TO [(65)].

Alongside the stipulations of the CPR, in particular Article 8 of the Common Provisions Regulation on sustainable development, the ESF regulation [(66)] also calls for mainstreaming of the IPs of the ESF vis-à-vis other TOs, of which Article 3.2 (a) relates to TO4, TO5 and TO6 [(67)]:

- Article 3.2 (a) *'supporting the shift towards a low-carbon, climate-resilient, resource efficient and environmentally sustainable economy, through the improvement of education and training systems necessary for the adaption of skills and qualifications, the up-skilling of the labour force, and the creation of new jobs in sectors related to the environment and energy'*.

[(64)] Table 6 of the Commission Implementing Regulation (EU) No 215/2014 of 7 March 2014.

[(65)] In cases where a Priority Axes cover more than one TO, the allocations per TO have been estimated.

[(66)] Regulation (EU) No 1304/2013 on the ESF.

[(67)] Article 2 (b) is about mainstreaming vis-à-vis TO2; Article 2 (c) relates to TO1 and Article 2 (d) relates to TO3.

The term 'ESF programmes' includes both ESF programmes per se, and programmes that combine ESF funding with ERDF and/or CF funding. In the latter case, this section only considers the part of the programme related to ESF.

ESF programmes are not subject to SEAs. The Commission Position Papers did not include much specific reference to the role of ESF in climate change adaptation.

3.8.1 Support for climate change adaptation

The table below provides an overview of the extent to which *climate action* has been addressed in ESF programmes; at the Member State level and at the level of programmes. While the table does not consider adaptation per se, it nevertheless illustrates the extent to which the ESF programmes have provided support for *climate action.* Almost 30 % (8 out of 28) of the Member States have not made such allocations, and 44 % of all ESF programmes do not contain support for climate action. However, detailed investigations show that there is not necessarily a link between the allocations provided for climate action on one hand and, on the other, how and to what extent the programme describes climate action – nor is there any legislative requirement for establishing such a link. Furthermore, there is no mechanical way by which climate change adaptation can be traced in the financial allocations, as they are only categorised under secondary theme 01, which actually only refers to low-carbon economy and resource efficiency and not climate change adaptation.

Table 3-8: ESF allocations for climate action per Member States and programmes

Member State/programmes	Share (%) with positive support for climate action
Member States	71
All programmes	56
Programmes that combine ESF with ERDF/CF	29
ESF programmes	84

That being said, it is interesting to observe from the table that as many as 44 % of the ESF programmes and eight out of 28 Member States do not provide any specific allocations for climate action. There may be various underlying reasons for this observation:

- **Unharvested potential** for climate action in ESF. There may be cases of insufficient analysis of the potentials of the ESF to support climate action – thus leading to a relatively weak mainstreaming of climate action into ESF, which is again reflected in no ESF support for climate action.

- **Lack of awareness** of the opportunity to link a climate-oriented focus in the programme to a 'dedicated' support allocation. Such cases may have

occurred, not least due to implementing regulation introducing secondary themes being issued only when programming was fairly advanced.

- **A deliberate choice** not to allocate specific support under secondary theme 01. Job creation, employment, education, skills, combating discrimination and social cohesion are themes at the core of ESF. Managing authorities may have preferred the flexibility inherent in not allocating specific support for climate action, thereby maintaining high flexibility in pursuing the overall aspirations of their programme(s).

In conclusion, the data on EU support do not provide any breakdown that allows for a detailed assessment of support for climate action. Furthermore, the programmatic approach to support for climate action varies: some programmes are very elaborate on the climate contents, but with no or low allocations for climate action, and vice versa. For this reason, a detailed investigation of the contents of the programmes is better suited to analyse how and to what extent ESF programmes address climate change adaptation.

3.8.2 Climate action in the programmes

While there are 103 programmes that allocate support for climate action, there are 113 programmes that have explicit references to climate action or to green/environmental themes. This can be inferred from the table below. The table also demonstrates that the two Member States with allocations for climate action in excess of 10 % do not have explicit references to climate change adaptation. Adaptation themes mentioned are in many cases quite specific in terms of pointing to specific sectors or themes, such as disaster risk prevention and management (including specific risks, such as forest fires), training of civil servants in policy framing, SEA, Environmental Impact Assessment (EIA), and training in management of Natura 2000 sites and water. The below table only counts the programmes with explicit mentioning of *climate action*.

It is important to be aware that programmes may not include explicit mentioning of green sectors, climate action, climate change mitigation or climate change adaptation. However, this cannot be taken as an indication that the programme can and will not eventually contribute positively to these themes. Rather, it reflects that ESF programmes tend to pursue their objectives in a horizontal manner, i.e. with no or little sectorial delineation.

Table 3-9: Programmes in Member States: how climate action and climate change adaptation is addressed

Member State	OPs with contents of relevance to climate action	General reference to climate action	Specific reference to climate change adaptation	OPs with no explicit mentioning of climate action	Share (%)of ESF support for climate action
AT	1	Green jobs and mainly a focus on climate change mitigation			1.7
BE	2	General formulations relating mainly to		2	1.5

Member State	OPs with contents of relevance to climate action	General reference to climate action	Specific reference to climate change adaptation	OPs with no explicit mentioning of climate action	Share (%)of ESF support for climate action
		climate change mitigation			
BG	1	Business opportunities related to mitigation are mentioned		2	1.5
CY	1	Mentions green potentials	Opportunities in adaption relevant sectors (agriculture, ecosystem management etc.). A specific reference is made to adaption-related jobs at PA level		<0.1
CZ		Hardly any mention of climate action		3	0.1
DE	17	Typically in the form of mentioning jobs, upskilling and training in unspecified green and environmental areas. Almost half of the programmes address climate change mitigation themes more specifically	One programme specifically mentions synergies with ERDF programmes regarding e.g. forestry- and agriculture-related businesses		2.2
DK	1	Green jobs and potentials for green growth			0
EE	1	Mitigation is covered in particular, but also adaptation, however both themes are weakly covered in the ESF part of this multi-fund programme			0
ES	19	Green jobs, green economy, green growth, green technologies, green awareness	Nine programmes consider adaptation more specifically. Themes mentioned include agri-food industry, management of natural resources and water, management of Natura 2000 sites (at IP level), forest fires (at IP level), ecosystems, environmental preservation and conservation, conservation of biodiversity	3	0.8
FI		Need to address high energy consumption is emphasised		2	12.3
FR	16	Education, training and jobs in green skills, green jobs, green growth, circular economy	Six programmes, of which two are multi-fund, consider adaptation more specifically: water management, innovative projects on biodiversity, risk prevention and management, environmental protection, and jobs in agriculture and forestry	15	2.2
EL	1	Green skills are mentioned in the national ESF programme		15	0
HR	1	Climate-relevant activities mentioned at the PA level			0.3
HU		Green themes and climate action weakly, if at all, addressed for ESF programmes		5	0
IE	1	Green and blue economy, in particular energy efficiency			0
IT	23	Needs, skills, training, business development and jobs in: Green	Six programmes have explicit mentioning of climate change	5	2.6

Member State	OPs with contents of relevance to climate action	General reference to climate action	Specific reference to climate change adaptation	OPs with no explicit mentioning of climate action	Share (%)of ESF support for climate action
		economy/green growth sectors and SEA and GPP. Awareness campaigns, an explicit focus solely on mitigation in six programmes.	adaptation and consider skills upgrading, training and/or education in risk management and prevention, water management, mountain areas management, including hydro-geological risks and risks monitoring and prevention and open data maps focused on hydrogeological risks, environmental risks and prevention and the SEA and EIA competences of public authorities		
LT		Little if any reference to climate action		1	0
LU	1	Development of the green economy with a focus on mitigation (eco-technologies and buildings)			10.6
LV		Little if any reference to climate action		1	0
MT	1	Weak reference through the mentioning of support on post-docs in energy, climate change and environmental issues			0
NL	1	Mentioning that the shift towards a greener economy may lead to additional green jobs and green sectors			0.1
PL	8	References include those to green economy and mitigation and/or adaption under TO8 mainly, but also in one case under TO10	Climate change adaption mentioned under actions in TO8 for four programmes	9	0.5
PT	7	Mention of green jobs and green growth, climate action covered in descriptions of actions under PAs or IPs, including for Community-Led Local Development (CLLD)	Risk prevention and management referred to in the national ESF programme	3	3.0
RO	2	Green jobs are mentioned	The programmes mention prevention and management of risks and one of them further points to management of emergency situations		1.2
SE	1	National environmental goals		1	1.1
SL		Little if any reference to climate action		1	2.6
SK	2	Green employment, transition to a low-carbon and climate-resilient economy, training of civil servants on Green Public Procurement (GPP) and policy formulations where climate change is taken into consideration			1.2
UK	5	At a fairly general level, reference is made to green economy and to challenges in relation to the shift to a low-carbon economy, and to a low-carbon and climate change challenge	One specific programme explicitly mentions that TO8 and TO9 will support TO4 and TO5	1	0.8
	113			69	

However, assuming that explicit reference to adaptation-relevant themes is a factor that generates awareness from applicants on such potential, the table below summarises the extent to which such references are made. The below table applies a wide interpretation of when such explicit referencing is made. The table thus includes, as adaptation-relevant references, both the specific mentioning of climate change adaptation and broader referencing to, for example, green themes, environmental themes and climate action in general. The underlying assumption is that such referencing can provide a stimulus to project proponents and managing authorities to think along the lines of climate change adaptation.

Table 3-10: Count of programmes with adaptation-relevant content [68]

Member State	Single fund		Multi-fund		All ESF programmes	
	Adaptation relevance	No adaptation relevance	Adaptation relevance	No adaptation relevance	Adaptation relevance	No adaptation relevance
AT	1				1	
BE		4				4
BG	1	1		1	1	2
CY	1				1	
CZ		1		2		3
DE	16		1		17	
DK	1				1	
EE	1				1	
ES	19	3			19	3
FI		2				2
FR	4	1	12	14	16	15
EL	1			15	1	15
HR	1				1	
HU				5		5
IE	1				1	
IT	19	1	4	4	23	5
LT				1		1
LU	1				1	
LV				1		1
MT	1				1	
NL	1				1	
PL		1	8	8	8	9
PT	2		5	3	7	3
RO	2				2	
SE	1			1	1	1
SL				1		1
SK	1		1		2	

[68] Adaptation-relevant contents are defined in the broadest sense, including contents that explicitly refer to climate change adaptation and content that refers more generally to climate action, environmental themes or to green growth, jobs, skills and sectors.

Member State	Single fund		Multi-fund		All ESF programmes	
	Adaptation relevance	No adaptation relevance	Adaptation relevance	No adaptation relevance	Adaptation relevance	No adaptation relevance
UK	5	1			5	1
Total	80	15	31	56	111	71

It is interesting that with this relatively wide definition, 111 programmes provide contents of relevance to adaptation. These programmes cover 21 Member States. That said however, Table 3-9 illustrated that concrete content of relevance to adaptation is found in programmes in only nine of these Member States. Typically, mention of climate action and of climate change adaptation themes is made in the programmes' sections on actions.

Thus, programmes seldom include reference to climate action, let alone climate change adaptation, in the expected results, outputs and considerations for project selection. Regarding the latter, there is frequent mention of sustainable development in the considerations for selection, and cases mentioning GPP. In a few cases, there are specific considerations related to climate change mitigation. However, there is no mention of climate change adaptation. Thus, climate action, including climate change adaptation, is typically mentioned only at the overall and strategic levels and when describing actions under the IPs. Thus, programmes do not provide 'hard' commitments to climate action, let alone climate change adaptation.

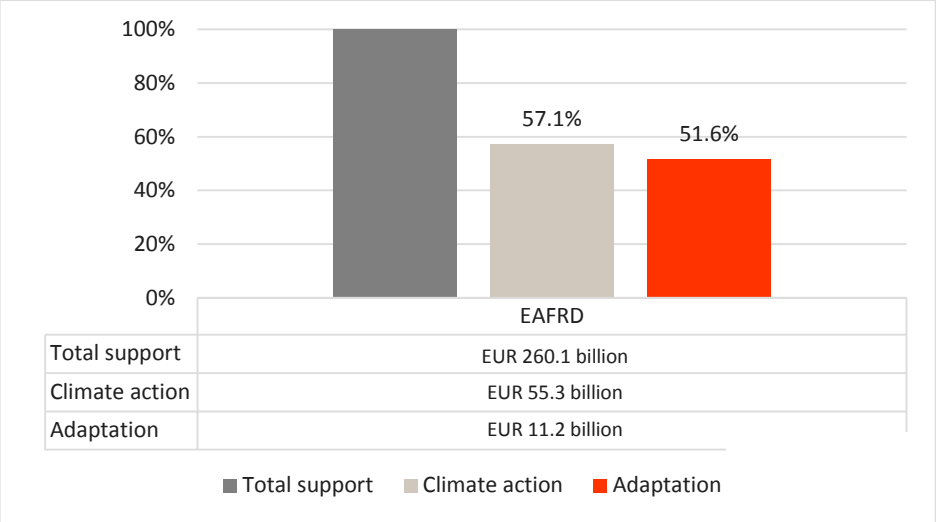
In conclusion, the mainstreaming of climate action into ESF programmes applies to the majority of programmes in terms of support and addressing climate action in the programme contents. This is a more frequent observation for 'pure' ESF programmes than for multi-fund programmes. While there tends to be a stronger focus on climate change mitigation, many programmes provide broader reference to green and environmental themes. A little more than 15 % of the programmes include specific and sometimes quite concrete descriptions of climate change adaptation: actions and themes. Descriptions of climate action, and in particular of climate change adaptation, tend to be at the general and strategic levels, provided when describing actions under specific IPs. The expected results, outputs and considerations for project selection never specifically mention climate change adaptation. The programmes can use the opportunity to designate specific amounts for climate action under secondary theme 01. Similarly, during implementation, they have the opportunity to report on support provided under this secondary theme, even when these did not allocate such support in the programme. At the programme level, it appears that the opportunity was used differently in various programmes and Member States.

3.9 European Agricultural Fund for Rural Development

This section presents the achievements of the EAFRD and describes the

- climate change adaptation challenges in the Fund,
- climate adaptation objectives in the programmes,
- financial allocations of the Fund, and
- programming of adaptation in the programmes.

Figure 3-8: Share of ESIF support for climate action (mitigation, adaptation) and adaptation in EAFRD, including the respective allocations (in EUR billion)



System of UPs and FAs

One key characteristic of the current regulatory and financial system for Rural Development is the system of UPs for rural development and associated FAs as defined in the corresponding regulation [69] and the climate change scoping of UP3, UP4, UP5 and UP6. This system, in combination with specific requirements and targets, should cater to appropriate climate action being programmed into RDPs while the tracking methodology [70] serves to provide transparency in action and support. Climate change adaptation is often mentioned in both the CPR [71] and in the EAFRD regulation, and both in the context of recitals, priorities and objectives and in the regulation text on measures. In short, this system aims to facilitate action on climate change (adaptation and mitigation) through a combination of targets, requirements on content, earmarking of support or support levels and not least the mandatory climate-tracking methodology. As concerns climate change adaptation in EAFRD, the following requirements are found to be applicable (see table below):

[69] Regulation (EU) No 1305/2013 on support for rural development by the EAFRD.
[70] Commission Implementing Regulation (EU) 215/2014, as amended by Commission Implementing Regulation (EU) No 1232/2014.
[71] Articles 7 and 8 in Regulation (EU) No 1303/2013, laying down common provisions on the ERDF, the ESF, the CF, the EAFRD and the EMFF.

Table 3-11: Overview of EAFRD applicable requirements (incl. ex-ante conditionalities)

Targets and conditionalities	Requirement on content	Recommendation on content	Earmarking of support	Climate tracking
EU2020 target on Emission Reductions, Energy Efficiency and Renewable Energy	CPR, art. 8: Member State and COM shall ensure adaptation is promoted in PAs and RDPs	Recital and article on M01: *Advice may also cover other issues and in particular the information related to climate change mitigation and adaptation…*	30% allocation to climate and environmental relevant measures	Member States shall provide information on the support for climate change objectives using: 100% for UP4 and 5, and 40% for FA 3b and 6b
Ex-ante conditionality 3.1. *Risk prevention and risk management: the existence of national or regional risk assessments for disaster management, taking into account climate change adaptation*	CPR, art. 96(7,a): Member Sates *shall include a description of the specific actions to take into account …climate change... adaptation, disaster resilience and risk prevention and management, in the selection of operations*;	Recital on M10: *Agri-environment-climate payments should…further encourage farmers and other land managers to serve society as a whole by introducing or continuing to apply agricultural practices that contribute to climate change mitigation and adaptation*		
	EAFRD, art 5 on UPs: *All those priorities shall contribute to the cross-cutting objectives of innovation, environment and climate change mitigation and adaptation.*	Measure text on M04: *Support under this measure shall cover tangible and/or intangible investments which: …concern modernisation or adaptation of agriculture and forestry*		

Managing authorities have programmed the RDPs within the framework of this system, guided and encouraged by information material and stakeholder involvement. In order to allow for an assessment of which regulatory and financial characteristics have been enabling factors or barriers and identify possible lessons learned to extract recommendations for future programming, this chapter undertakes a EAFRD-specific, UP- and FA-level investigation of the allocation of EU support for adaptation purposes, and an RDP-based analysis of topics of and variations in the programming of adaptation. One key strain of analysis is consistency in adaptation programming, i.e. finding answers to the questions, 'What adaptation challenges are identified? How have these been integrated into programme objectives? How are measures designed, and support allocated, in view of challenges and objectives?'

3.9.1 Climate adaptation challenges

Based on the SWOT analysis, the climate adaptation challenges identified in the RDP reflect the changes that the managing authority for each region perceives as the most pertinent to address. Hence, the selection and formulation of adaptation challenges are useful to investigate in order to understand how managing authorities have taken climate adaptation aspects into consideration in the programming of the RDPs.

Four types of climate challenges have been defined based on the UPs for rural development and FAs, which set the scene for the challenges to be addressed at a Union level by 2020; these are shown in Table 3-12 below.

Table 3-12: Link between climate challenge types and UPs for rural development and FAs, as applied in the report

Climate challenge types	UPs and FAs
Dedicated Climate Adaptation	3b, 5a, part of UP1
Environmental management supporting climate action	UP4
Promoting a Low-Carbon Bio economy	5c
Dedicated Climate Mitigation	5b, d and e [72]

Dedicated climate adaptation will, in most cases, also yield climate mitigation benefits through indirect effects resulting from the action and vice versa, but for the purpose of this exercise, these remain separated. The two remaining types of climate action can contribute to adaptation and mitigation alike. In order to further investigate how climate adaptation has been taken into account in defining challenges in RDPs, a scrutiny of all identified challenges is undertaken, in which all challenges are allocated to one or more of the climate-relevant challenge types identified above, depending on the formulation of the challenges in the RDP text.

Scrutiny of identified challenges

One key requirement from the legislation is the ex-ante conditionality concerning an assessment for risk prevention and risk management [73], which relies on a criterion whereby Member States are to conduct a risk assessment referring to adaptation plans, if available. Such a conditionality could support the identification of relevant challenges and hence feed into the RDP SWOT analysis and a national or regional adaptation strategy. If so, these would be key sources for the identification of challenges and hence the programming of RDPs.

Reading the text of the RDPs, very little reference is made to any such assessments, and even less is made to national and regional adaptation strategies. Some French programmes are very specific on this issue (as are a couple of other RDPs), but the risk assessment and any adaptation strategies appear to have played a small role in the SWOT, if any. This does not rule out, and the gathered information material does not allow for, determining whether such assessments or strategies are in place, but it at least suggests that, in drafting the RDPs, little attention has been given to them.

Instead, generally speaking, the SWOT is described with very little context or use of references, and as a result it is notable that challenges are often formulated in a general way that does not allow assessing whether a specific

[72] Indirect mitigation effects are not included here.

[73] Number 5.1, Annex XI, Regulation (EU) No 1305/2013 on support for rural development by the EAFRD.

challenge targets climate adaptation. For example, in Bavaria, '*improving soil management*' is identified as a challenge, and in the Netherlands RDP one challenge identified is identical to FA5a, namely '*Increasing efficiency in water use by agriculture*'. Both of these have climate adaptation relevance, but the climate adaptation element is not explicitly recognized in the RDP text. In fact, it was found that only eight RDPs explicitly mentioned climate adaptation as a challenge. That said, all RDPs that recognise that natural hazards and climate risks will become a challenge more or less explicitly recognize climate change, and hence it appears that in fact most RDPs identify the need to address climate change adaptation. Therefore, a first finding is that the use of risk assessments as required by the regulation is unclear and difficult to verify, and perhaps the identified challenges are often generic, seldom reflecting adaptation explicitly.

Further assessing the full list of identified challenges across all RDPs can benefit from categorisation. The below categorisation of identified climate challenges is based on a screening of section 5.1 of all the RDPs. This categorisation is constructed to reflect UPs and FAs, as shown below:

Table 3-13: Overview of allocation and counts of identified individual challenges to categories of climate action and relevant FAs

Type of climate challenge	Challenge category [74]	Relevant FAs	Count [75]	Share (%) of all challenges
Climate Adaptation	Natural hazards, risk prevention and risk management	3b	123	14.6
	Water efficiency	5a	71	8.9
	Knowledge building, Advisory services and Research related to climate change adaptation in agriculture or forestry sectors	UP1	72	8.6
	Total	-	271	32.1
Environmental management supporting climate action	Biodiversity, Habitat management, ecosystem services, genetic resources of plants, invasive species	4a	146	17.3
	Water management, including fertilizer and pesticide management	4b and 5a	166	19.7
	Preventing soil erosion and improving soil management	4c	148	17.6
	Total	-	460	54.6
Low Carbon Bio-economy	Resource efficiency, Renewable- and Bioenergy, bio-economy, cascade use, waste reduction	5c	135	16
Climate Mitigation	Reducing GHG and ammonia emissions from agriculture and improving energy efficiency	5b and 5d	116	13.8
	Carbon sequestration and maintenance of soil carbon stocks	5e	61	7.2
	Total	-	177	21

It can be seen that challenges related to water are the most common (mentioned 166 times in 94 RDPs) and take up just under 20 % of all challenges identified. As such, the challenges related to UP4 counts 460 or 54.6 % of all

[74] The categories of challenges are named after the challenges observed and hence does not necessarily reflect the headline of the FAs to which it has been linked. Link to FAs assigned after analysis of challenges.

[75] A challenge may correspond to more than one of the categories, hence the total number will not add up to 747. In addition, challenges related to *organic farming* or *sustainable management of lands* has been assigned to biodiversity, water and soil (all UP4 FAs). The count does not correspond to the total number of RDPs, as some RDPs identify several challenges related to the same category and likewise some challenges relate to more than one challenge category.

challenges. In fact, all but ten programmes have identified challenges relevant to UP4, and only 24 programmes have not identified water-relevant challenges. For comparison, 387 or 37.1 % of all challenges related to UP5 (including livestock), distributed over 101 RDPs, have been identified as climate-relevant. Hence, a relevant finding is that restoring, preserving and enhancing ecosystems has gained slightly more attention in defining challenges than the need to build a low-carbon and climate-resilient economy.

Challenges directly related to adaptation to climate change by enhancing risk management and resilience against natural hazards (FA3b), takes up almost 15 % of all challenges, and would be the risks found in the risk assessment following from the ex-ante conditionality mentioned earlier. If mentioning of issues with water efficiency and lack of knowledge on climate adaptation is included, some 32.1 % of all climate-relevant challenges relate directly to adaptation. Furthermore, 109 RDPs mention one or more adaptation-relevant challenges, hence only eight RDPs do not identify any adaptation challenge at all. It seems prudent to conclude that adaptation has been considered and found to be a relevant challenge in almost all RDPs.

Risk management and natural hazards

Considering more specific types of challenges, it is seen that the challenges classified as related to risk management and natural hazards vary considerably in focus and level of detail. A dominant tendency is to identify a broad, generic wording on climate hazards. Such examples are the Rhone Alpes RDP (France) that identifies a challenge as '*Anticipating climate change consequences and alleviating its impac*t' or the Saxony-Anhalt RDP of Germany that reads a challenge as '*Risk management with regard to climate change.*' Such broad description of the challenges does not allow for further scrutiny of whether the challenge reflects the actual needs within the region.

A majority of the Programmes, however, are more specific in identifying challenges, naming flooding (20 Central European and Mediterranean RDPs, plus Estonia and United Kingdom), forest fires (e.g. Balearic Islands, Spain) or hydro-geological risks (several Italian RDPs). The individual risks or hazards mentioned most often are, however, those related to water quality or scarcity (including drought). Other adaptation-relevant risks that could be related to coastal erosion, sea level rise and urban heat islands were not found to be identified in more than a few cases, if at all.

Water efficiency

Water efficiency has been identified 71 times in 61 RDPs. The challenge is mostly found in southern and central Europe [(76)], but Estonia, Denmark, Ireland and Netherlands also intend to address water efficiency. The geographical distribution reflects that southern and central Europe would be expected to face strong water scarcity issues with a changing climate, but the fact that e.g. Ireland and Denmark identify water efficiency as a challenge also shows that it is most often a good business case. Water efficiency challenges are often

[(76)] Southern Europe here refers to: Croatia, France, Italy, Malta, Portugal, Romania, and Spain; Central Europe: Austria, parts of Germany, Hungary, Poland and Slovenia.

formulated along the lines of 'increasing water efficiency' or 'addressing non-efficient use of water'.

Knowledge, advisory and research

Challenges related to insufficient knowledge, advisory or research on climate change adaptation in agriculture and forestry was found 72 times in the 117 RDPs scrutinized. Of these, 49 RDPs identify one or more challenges, meaning that some RDPs, in other words, identify several challenges in knowledge, advisory and research. One example is the Madeira RDP (Portugal) that identifies two challenges on environmental R&D and spreading resource-efficient practices, respectively. Consequently, more than half of all RDPs do not identify lack of knowledge, advisory or research on climate change in agriculture or forestry as a challenge. The mentioned challenges relate to FA1 (fostering knowledge transfer and innovation in agriculture, forestry) which is cross-cutting in itself because it contributes to all selected FAs of the respective RDPs.

Most challenges identified concern a lack of knowledge on the part of farmers about the impacts of farming on the environment, and just 26 challenges explicitly mention climate change. An example of that approach is the Sardegna (Italy) RDP, which points to the need for more innovation and transfer of knowledge on rational use of water. Another similarly interesting case example is the Cyprus RDP, which identifies that it is necessary to increase efforts on innovation on techniques for climate adaptation in agriculture. In addition, the National Italian RDP outlines how enhanced data on generic resources and greenhouse gas (GHG) profiles of livestock breeds is necessary to build a resilient livestock sector. However, these examples do not pre-empt the overall impression that the RDPs show an overall preference for action rather than building knowledge.

Note on adaptation of livestock and farm animals

In addition to the above findings, it is noteworthy that 38 challenges have been identified concerning livestock and animal husbandry. As Ireland, Aragon and Cantabria (Spain) and Bolzano (Italy) identify more than one challenge, it means that 33 programmes deal with adaptation (and mitigation) in the livestock production sector. All but nine of these concern adaptation of the herd, and not reduction of emissions, which would correspond to FA5d.

3.9.2 Climate change adaptation in Programme objectives

In the RDPs, a number of challenges are selected and often combined into several programme objectives, usually numbering two to seven. As such, when moving from challenges to objectives, a number of climate-relevant challenges are not taken forward to the objective level or combined with other relevant challenges. At the Union level, 747 climate-relevant challenges have resulted in 340 climate- or environment-related objectives. The objectives, which can be found in section 5.1 of the RDP, are often more general in their formulation than the challenges, and often result from combinations of challenges.

In Table 3-14 below, 339 climate-relevant objectives have been divided into four categories, corresponding to relevant UPs for rural development and FAs. The

'No. of RDPs' column refers to the unique number of programmes hosting the counted objectives. It means that, in all cases, there are several programmes that have not identified an objective of the aforementioned category. In fact, only two programmes have identified objectives in the three uppermost categories, namely the National Swedish RDP and Asturias (Spain). Both of these have identified adaptation, mitigation and low-carbon bio economy objectives.

Table 3-14: Overview of the count of objectives as observed in the RDPs, for each of the four categories of climate objectives.

Category of objective [77]	Relevant UP/FA	Count [78]	No. of RDPs	Share (%) of cc objectives
Climate adaptation objectives	3b, 5a	69	57	20
Climate mitigation objectives	5b, 5d and 5e	62	49	18
Promotion of low carbon bio economy	5c	43	38	13
Environmental management supporting climate action	UP4 [79]	165	97	49

The table above shows that a total of 69 objectives identified from 57 RDPs encompass climate adaptation explicitly (20 %). This includes 27 specific references to 'climate adaptation', while the remaining includes objectives concerning risk management, resilience building and preparing for climate change, etc.

One can further see from the table that the majority of objectives concern more general environmental issues. The 165 objectives found on environmental management include ecosystem protection, sustainable management, biodiversity conservation, etc. and are often described with a view to natural resource management. As such, the objectives do not explicitly mention climate action, neither general action nor adaptation or mitigation action. They include reference to either one or more to those of the soil, water, and biodiversity, and most importantly, climate relevance has been identified based on the description

[77] Research, innovation, knowledge management and advisory related objectives have not been counted as climate-relevant in this overview, as no objective was found that explicitly or exclusively targeted climate-relevant content. While this is an observation in itself, it does not preclude that climate research, knowledge or advisory is in fact included in the understanding of the objective by the managing authority, but it has not been possible to identify that from the text.

[78] An objective can contribute to more than one category, and as such, numbers will not add up.

[79] Few of these objectives are formulated uniquely to cover soil, water or biodiversity, or indeed livestock or genetic resources, and hence they have collectively been referred to UP4 instead of individual FAs.

in the RDP section, not the objective itself. Furthermore, it is worth noting that almost a fifth of all RDPs do not include an environmental management-related objective.

If compared to the relative distribution of challenges in Table 3-13 above, a number of interesting observations can be drawn out. Most importantly, UP4 objectives increase their share relative to UP4 challenges, and at the expense of all other climate action categories. This could indicate a tendency for managing authorities to integrate specific climate challenges into more general environmental challenges in the process of defining objectives. As managing authorities are encouraged to combine and integrate areas of intervention to simplify and streamline programming, this tendency is not surprising and not in itself concerning. However, the fact that specific climate-change and, in particular, climate-adaptation reference is lost, could mean that it becomes less transparent if the programme will target these issues.

As the actual environmental or land management actions that beneficiaries are foreseen to undertake in response to or prevention of environmental challenges would often have intended or unintended positive side effects relevant for the other challenges, this tendency is by no means surprising. However, it shows at the same time that it is difficult to assess to what extent climate action is prioritized at the strategic, non-financial level in RDPs. Also, it shows a tendency for UP4 to become a very broad, all-encompassing priority, to which all objectives more or less can be attributed.

In understanding the above tendencies, one should keep in mind that objectives are formulated in a more general way than challenges, and that this is a reasonable outcome of an aggregation and prioritization process. That said, a few exceptions to this tendency worth mentioning are the Marche RDP (Italy), which presents a number of specific objectives, all related to target indicators, such as an increase in the share of land under management contracts beneficial to biodiversity, or the Wallonia RDP (Belgium), which includes six detailed objectives specific to climate and environment. Regardless of the level of detail in the mentioned 165 objectives, the environmental objective is combined with a specific mention of climate adaptation in only 36 cases (hence relevant to both FA3b and UP4).

The promotion of the transition of the economy into a bio-based, low-carbon, circular economy with high resource efficiency (FA5c) has also a distinct climate adaptation component, though mostly indirectly. This is mentioned in just 43 objectives in 38 RDPs and does not stand out as an overall priority. Seen against the 119 times in 75 RDPs where this transition was identified as a challenge, it is interesting that in almost half of the RDPs, this did not lead to a corresponding objective, or it was integrated with other, broader objectives.

Lastly, concerning objectives, it is noteworthy that only one programme included EU2020 targets in an objective (National Framework, Germany). In the strategy section of the RDP, about half of the RDPs mention the 2020 targets, often stating the RDP will contribute to it, but without adding further explanation on how. As such, the 2020 targets do not seem to have played a strong role in the

programming. This finding could be discouraging in terms of mainstreaming climate action, but at the same time means that mitigation, as represented by the GHG emission reduction target for 2020, has not been promoted more than adaptation. In other words, adaptation and mitigation have been given equally little attention at this stage.

Outermost Regions

In all of the Outermost Regions (OR), climate adaptation is an important issue, as in many cases agriculture in these regions will be disproportionally affected by climate change. Most ORs have a distribution across measures that somewhat emphasise adaptation over mitigation strategies, consistent with the climate challenges faced by these regions. Compared to non-OR RDPs, the climate allocation of OR RDPs allocates a comparatively larger share of the climate funding to FA6b, e.g. 36.5 % and 38.8 % in Mayotte and Guyane (France), respectively. This likely relates to the fact that local development, e.g. through M19 (LEADER), technology transfer, and capacity building is important in the agricultural sectors in these regions.

Due to the nature of the farming sector in these regions, investment in physical assets (M04) is the most important measure in all of the OR RDPs. However, the percentage of funding allocated to this measure dedicated to climate action varies widely, from as little as 0.7 % and 1.2 % in Mayotte (France) and Azores (Portugal), respectively, to as much as 37.6 %, 44 %, and 52.7 % in Guadeloupe, Reunion (France), and Madeira (Portugal).

Similar to the other RDPs, OR RDPs also allocate a significant portion of climate allocation to UP4. Adaptation related to water use and water efficiency features prominently in these RDPs, consistent with the challenges related to water faced by many of these areas. This is the case in Madeira (Portugal), Reunion, and Guadeloupe (France) where, respectively, about 20 %, 33 %, and 48 % are allocated to FA5a under measure M04.

3.9.3 Financial allocations

The allocation of EU support to UPs and FAs at the EAFRD level is shown in the table below. This table indicates which of the UPs and FAs are found to be relevant for climate adaptation and mitigation action.

Table 3-15: Percentage distribution of EU support among climate-relevant UPs and FAs, accompanied with the degree of relevance (Primary, Significant).

UP	**3**	**4**			**5**					**6**
Total (%)	1.9	77.0			13.5					7.5
FA	**b**	**a**	**b**	**c**	**a**	**b**	**c**	**d**	**e**	**b**
Total (%)	1.9	26.0	25.5	25.6	3.9	1.4	1.4	2.5	4.4	7.5
Climate relevance										
Adaptation	P	P	P	P	P					P
Mitigation		S	S	S		P	P	P	P	

As is seen above, this report works from the understanding that, in EAFRD, FA3b, FA5a and FA6b are the main adaptation focus areas, while FA4a, FA4b, and FA4c target adaptation through environmental management or biodiversity-related measures [80]. Consequently, 90.4 % of the total climate allocation is adaptation-relevant, either directly or indirectly. In absolute numbers, EUR 50.9 billion is allocated to adaptation at the EAFRD level.

Table 3-16: EU support for adaptation (dedicated and through environmental management [81]) for EAFRD in absolute numbers, and as % of climate allocation.

Dedicated Adaptation (FA 3b, 5a, 6b) (MEUR)	Adaptation through environmental management (FA 4a, 4b, 4c) (MEUR)	Dedicated adaptation as percentage of total climate allocation across EAFRD	Adaptation through environmental management as percentage (%) of total climate allocation across EAFRD
7,478.8	43,375.9	13.3	77.0

The largest EU support allocated to dedicated adaptation is in the large Member States of Germany, Italy, France and Spain (each having allocated above EUR 700 million). However, the largest percentage of total EU support allocated to dedicated adaptation is in the Mediterranean and Southern Member States of Portugal (25 %), Bulgaria (23 %), Greece (23 %), Romania (20 %), Malta (19 %), Croatia (19 %), Spain (17 %), Italy (17 %) and Cyprus (17 %). In addition, Germany (17 %), Poland (16 %) and Hungary (14 %) also spend a relatively large proportion on adaptation. The remaining Member States all spend around or below 10 %. Some, (mostly Western and Northern Member States) spend very little on adaptation, e.g. United Kingdom (2 %), Czech Republic (3 %) and Denmark, Finland, Ireland, Luxembourg and Slovenia (all 4 %). This difference in allocation to dedicated adaptation measures makes sense from a climate and environment perspective, as the Southern and Mediterranean Member States face more severe adaptation challenges related to climate change, notably erosion and drought, while Northern and Western Member States are expected to be less burdened by climate change in relation to agricultural production.

Concerning allocations to environmental management (UP4), which can indirectly yield both adaptation and mitigation benefits, the brunt of the climate allocation within each Member State is allocated to this. In absolute numbers, the largest sum is allocated in France, where EUR 6.4 billion is distributed under this UP. Relative to total climate allocation in each Member State, several Member State allocate 90 % or more of their climate contribution to this UP; this includes Austria, Czech Republic, Finland, Luxembourg, Netherlands, Sweden, Slovenia and United Kingdom, while another six Member States allocate 80 % or

[80] The allocations have been made at the level of UP and FA allocation as reported in RDPs. The specific measures to which this support is allocated at RDP level varies. See later analysis for more detail on FA and measure allocation linkages.

[81] For the purpose of this study, environmental management refers to actions taken under measures linked to UP4.

more. The smallest percentage allocated to this UP is in those Member States where direct adaptation is featured more prominently, notably Portugal, Bulgaria, Hungary, Croatia, Greece and Malta, which all allocate less than 65 % of climate allocation to UP4. This indicates that in those Member States where direct adaptation measures (including focus on water usage, drought, and soil erosion) are important, less emphasis is placed on environmental and ecosystem-related support (which only indirectly provides adaptation benefits). On the contrary, those Member States with less challenges in these areas can prioritise support for environmental management.

EU support for adaptation across measures

The table below shows the allocations of climate action across all measures. Throughout the range of measures, dedicated adaptation is allocated EUR 7.5 billion, corresponding to 13 % of total climate change allocation under EAFRD. Adaptation through environmental management is allocated EUR 43.4 billion, corresponding to 77 % of total climate change allocation under EAFRD. As such, dedicated adaptation contributes 15 % of total adaptation allocation of EUR 50.9 billion, while adaptation through environmental management contributes 85 %.

Table 3-17: EU support allocation for climate change adaptation (direct: 3b, 5a, 6b; and indirectly: 4a, 4b, 4c) and percentage of total allocation for each measure and total climate change allocation across all measures.

	Dedicated adaptation (FAs 3b, 5a, 6b) (MEUR)	Adaptation through environmental management (FAs 4a, 4b, 4c) (MEUR)	Dedicated adaptation as % of total allocation for each measure	Adaptation through environmental management as % of total allocation for each measure	Dedicated adaptation as % of total CC allocation	Adaptation through environmental management as % of total CC allocation
M01	52.4	333.0	11	71	0	1
M02	24.9	307.4	7	81	0	1
M04	2,069.6	1,623.2	38	30	4	3
M05	379.1	–	100	0	1	0
M07	1,385.9	835.4	58	35	2	1
M08	4.4	2,272.1	0	54	0	4
M10	23.9	15,473.3	0	95	0	27
M11	–	6,056.9	0	97	0	11
M12	–	602.2	0	99	0	1
M13	70.5	15,348.4	0	98	0	27
M15	–	269.9	0	96	0	0
M16	106.0	253.1	22	51	0	0
M17	682.2	–	100	0	1	0
M19	2,678.1	–	100	0	5	0
Total	7,478.8	43,375.9			13	77

**Measures 03, 09, 14 and 18 are not shown, as no EU support has been allocated to adaptation under these measures.*

Dedicated climate change adaptation support

The largest 'absolute' allocation of EU support to *dedicated climate change adaptation* action is disbursed through M19, M04, and M07, contributing 5 %, 4 %, and 2 %, respectively, of total climate change allocation. The notion of 'dedicated climate change adaptation' as used in this report, refers to action explicitly dedicated to prevent or minimise the damage climate change can cause, or taking advantage of opportunities that may arise. In an EU context changes in the water cycle and extreme weather are the main threats and building local resilience while creating jobs and growth a key response.

Based on this understanding and these figures, the largest climate adaptation benefit should come from M04, M07 and M19. The analysis supporting this report have found that for these measures, the climate adaptation benefits are

most explicitly recognized in RDPs by the managing authorities. It must be noted though, that M07 and M19 are not seen as climate-relevant measures according to article 59(6) of the EAFRD regulation [82]. This means that dedicated adaptation is not included in the climate tracking, leading to dedicated adaptation being underestimated when using the climate tracker approach.

The below sections provides more details on the five measures allocated most dedicated adaptation support, namely M19, M07, M04, M05 and M17.

M19: LEADER

EU support for climate adaptation disbursed through M19 is allocated exclusively to FA6b, which focuses on fostering local development in rural areas. No EU support is allocated to the other two dedicated adaptation FAs (FA3b and FA5a). The measure is used in all Member States, though relative to total Member State climate allocation, the measure is most important in Estonia, Germany, and Spain, where the measure contributes 10 %, 9 %, and 8 % of total Member State climate allocation, respectively. Most Member States spend around the same as the EU average of 5 %, with the exception of United Kingdom, which spends just 1 %.

109 RDPs have programmed M19, leaving just eight RDPs without this measure (National Framework and Network programmes). It appears from the measure's text that in most cases the climate content is dependent on the (local action) groups, partnerships and collaborations that are set up under CLLD/LEADER. In fact, reading by the letter, almost all measure descriptions hold no climate reference. In total, 42 of the 109 RDPs where found to consider climate adaptation in M19, although mostly indirectly. It thus appears as if M19 provides sparse and uncertain climate adaptation action. For this measure in particular, however, the outcome of Local Action Groups (LAGs) and Local Development Strategy (LDS) processes cannot be revealed in the programming phase, simply given the difference in timing. Hence, the 42 RDPs that include climate adaptation in M19 hold the potential to deliver significantly more climate adaptation than can be found in the RDPs, depending on the outcome of the LAG processes.

M07: Basic services and village renewal in rural areas

EU support for climate adaptation disbursed through M07 is allocated mainly to FA6b, which focus on fostering local development in rural areas. This FA receives 58 % of total EU support for M07, while no EU support under M07 is allocated to the other two dedicated adaptation FAs (FA3b and FA5a). M07 concerns basic services and infrastructure in rural areas, and can also be used for maintenance, restoration and upgrading of the cultural and natural heritage of villages and rural landscapes. Finally, investments can be used to relocate activities within rural areas. Adaptation under this measure is thus mainly achieved through upgrading infrastructure that serves the villages and rural areas. The measure is used in 19 Member States, and the largest proportion of the spending is in Germany, Poland, and Bulgaria (23 %, 18 % and 13 % of total, respectively), although the importance of the measure in relation to total Member State climate allocation is largest in Bulgaria, Croatia, and Poland, where it contributes

[82] Regulation (EU) No 1305/2013 on support for rural development by the EAFRD.

14 %, 10 %, and 8 %, respectively, to total EU support for climate change in the Member State.

Of 117 RDPs, 93 make use of M07, meaning that 24 RDPs did not. There is no clear regionalisation, as e.g. Lithuania, Luxembourg, and Malta are the only Member States not using it. The climate action under M07 varies significantly. While some RDPs, such as Hesse (Germany), Extremadura (Spain) and the national Denmark programme use the measure without any clear climate contribution, other RDPs such as Thuringia (Germany), Galicia (Spain) and Wallonia (Belgium) have a clear climate profile, including adaptation and mitigation actions. Recognising that indirect climate adaptation benefits from use of M07 can be identified in most of the RDPs, and explicit climate adaptation in 53 of them (57 %), the overall impression is that climate action is very diverse and difficult to identify. Scrutinizing all measure descriptions for M07, we found that 53 of the RDPs included some sort of climate adaptation component.

M04: Investments in physical assets

Contrary to the previous two measures, EU support for climate adaptation disbursed through M04 is through FA5a, which receives 38 % of total EU support for this measure, while no EU support is allocated to the other two dedicated adaptation FAs (FA3b and FA6b). FA5a concerns increasing efficiency in water use by agriculture, and as the measure concerns investments in physical assets, allocation of EU support under this measure targeted at adaptation is mostly related to improving overall water use efficiency. This includes modernising equipment or investment in infrastructure which can upgrade the water supply system or save water. Measure M04 in combination with FA5a is used in 13 Member States, and with the exception of Germany and United Kingdom, all of these are located in Southern Europe. Most of the spending under this FA/measure combination takes place in Greece, Romania, Spain and Portugal (24 %, 18 %, 16 %, and 16 %, respectively), although in relation to Member State spending on climate change, Greece and Portugal stand out, allocating 15 % of their total spending to this FA/measure combination. Given the use of this FA/measure combination in countries likely to experience drought and water stress as a result of climate change [(83)], it seems reasonable to expect that climate adaptation through water management will be achieved as a result of the interventions made under this FA/measure combination.

M04 is programmed in 104 RDPs and in general, the measure is programmed along the lines of investments in agricultural holdings, infrastructure and programmatic approaches to help farmers make a transition towards agricultural production with less adverse impacts on nature, biodiversity and landscape. While this is overall in line with both mitigation and adaptation, the many investments in water infrastructure (such as improved efficiency of irrigation systems infrastructure and water use technologies, drainage systems, storage tanks, storage and preventive mechanisms against adverse effects of climate-related extreme events cleaning facilities etc.), but also in manure, livestock and energy systems, are of particular adaptation relevance. The climate adaptation

[(83)] used in Bulgaria, Cyprus, Greece, Hungary, Italy, Malta, Portugal, Romania, and Spain besides Germany and United Kingdom

contribution or even priority of M04 is often articulated in the measure descriptions in the RDPs: 71 of the RDPs mention adaptation and the remaining include actions that will support adaptation.

Measures M05 and M17

All of the EU support disbursed through M05 and M17 is allocated to dedicated adaptation through FA3b. M05 focuses on restoring agricultural production potentially damaged by natural disasters and catastrophic events and the introduction of appropriate actions to prevent such events. As such, it has a very strong link to adaptation, since investments are targeted at reducing the consequences of adverse climatic events. The allocation to measure M05 under FA3b is not used in 17 Member States, and the brunt of the sum allocated is disbursed through the national Poland RDP and five of the German RDPs (Berlin; Lower Saxony; Schleswig-Holstein, Mecklenburg Pomerania, and Sachsen-Anhalt), which spend 28 % and 33 % of the total allocation, respectively. The remaining allocation is spread out over four national RDPs (i.e. Croatia, Estonia, Hungary and Slovakia), and in some Italian and Portuguese RDPs. Given that adaptation would arguably be seen as a more serious problem in Southern Europe, this means that the full adaptation benefit of this measure is not utilized, as the measure finds only very little use in the Member States of Southern Europe.

A total of 39 RDPs programme the measure, while the remaining 77 do not make use of it, for climate adaptation or other purposes. Many Italian, German and Spanish RDPs make use of it, but only three French. Additionally, mostly Mediterranean and Central European Member States programme it. This means a rather regionalised programming, as no north-eastern Member States have chosen it. Seen across the 39 RDPs, focus is on either risk prevention or recovery after natural hazards, which is fully in line with the allocation to FA3b, and the FAs description in the regulation. However, it could be challenged why, in regions dominated by agricultural activity, the measure may be targeted at farmers, while in regions with significant forestry sector interests, the measure is eligible for forest owners as well. Overall, the measure descriptions are quite clear and similar in nature, reflecting a targeted measure conceptualised in the regulation, and a clear and consistent allocation to FA3b.

Measure 17 concerns the management of risks, and can be used to pay financial compensation to farmers through insurance or mutual funds to cover losses caused by adverse climatic events, or as an income stabilization tool to farmers who experience a severe drop in their income. As such, the measure is used to alleviate the economic plight of farmers, who suffer losses as a result of e.g. climate change. Of the EU support, 77 % provided through M17 under FA3b is disbursed under the National RDP of France and Italy (35 % and 42 %, respectively), with 21 % disbursed through the RDPs of Romania (10 %), Hungary (5 %), Portugal and Croatia (3 % each) and Netherlands (1 %). The allocation to measure M17 under FA3b is not used in 16 Member States. Only 13 RDPs make use of M17. Only one French and one Italian RDP have chosen this, together with Belgium, Malta and Netherlands, without making use of M05. No Spanish RDP has programmed M17. The measure descriptions are quite similar in nature, as almost all RDPs use the measure to provide or support risk insurance for farmers.

In relative figures, the total allocation for these two measures is 2 % of total climate allocation. This means that although the two measures are dedicated to climate adaptation and are more directly targeted at achieving climate adaptation benefits than the three measures above (M19, M07 and M04), the absolute adaptation benefit achieved is less than realized, due in part to the limited funding and use of these measures. This is also the case in the Polish RDP (see case study), where about 3 % is programmed for dedicated adaptation through M05, and M17 is not programmed at all, meaning that the brunt of the expected adaptation action to be achieved through environmental management under UP4 programmed using M10 and M13.

The below sections provides more details on the three measures allocated highest levels of adaptation support under UP4, namely M10, M11, M13.

Adaptation through environmental management

The largest allocations (in absolute numbers) to adaptation are provided through environmental management and biodiversity activities, disbursed through M10 (Agri-Environment-Climate Measure) and M13 (Support to areas facing natural constraint). Together, under just UP4, these two measures are allocated 60 % of all EU support targeted at climate adaptation, or about 54 % of all EU support allocated to climate change. To a lesser extent, adaptation through environmental management is disbursed through M08 (Investments in forest area development and improvement of the viability of forests), M11 (Organic Farming), and M04, the three of which receive EU support totalling about 18 % of total climate allocation under EAFRD. As no Member State except Lithuania has made specific allocations to FA4a, FA4b, and FA4c, but allocated a lump sum to UP4, defining which adaptation benefits will be achieved in each Member State using these measures becomes difficult.

M10: Agri-Environment-Climate

The objective of M10 is to *'preserve and promote the necessary changes to agricultural practices that make a positive contribution to the environment and climate.'* The measure is one of the most widely used, and contributes EUR 16.2 billion to climate change across all FAs, equal to 27 % of all EU support for climate change. With regard to adaptation, benefits are mostly to be found under UP4 (FAs 4a-c). The FA/measure combination is used in every Member State, though the allocation varies significantly between them. In relation to the Member State spending on climate change overall, those allocating most under this UP/measure combination are Estonia, Netherlands and United Kingdom, respectively allocating 64 %, 63 %, and 57 % of their total climate allocation to this FA/UP combination. At the other end of the scale, Bulgaria, Croatia, Greece, Malta, Lithuania and Slovakia all allocate less than 15 % to the UP/measure combination. Climate actions found here mostly concern indirect adaptation benefits through enhanced biodiversity, protection against erosion and loss of soil carbon, and water management. Adaptation actions thus indirectly follow from environmental management and maintenance of ecosystem services, and are not the primary objective of EU support for M10 under UP4.

M13: Payments to areas facing natural or other specific constraints

The objective of M13 is to compensate farmers for the additional costs related to the constraints for agricultural production in mountain areas and other areas facing natural or other specific constraints. This UP/measure combination contributes 27 % of the overall allocation of EU support to climate change, and is used in all Member State except Denmark, Estonia and Netherlands. Relative to overall Member State spending on climate change, the largest allocation to UP4/M13 takes place in Finland, France, Luxembourg, Slovakia and Slovenia, allocating 56 %, 47 %, 45 %, 45 %, and 44 %, respectively. Belgium, Hungary, and United Kingdom, on the other hand, allocate less than 10 % of total climate funding to this measure under UP4. Overall, the measure is programmed in 93 RDPs, but little dedicated adaptation action can be found. The adaptation benefits of this mostly concern maintaining lands that would otherwise be abandoned. Although a significant portion of EU support for climate change is allocated to M13 under UP4, no direct reference to climate change exist in the regulation text for this measure, making direct adaptation benefits very limited.

M11: Organic Farming

EU support disbursed through M11 under UP4 is intended to support organic farming practices related to restoring, preserving and enhancing ecosystems-related to agriculture. Of total climate allocation, 11 % is disbursed through M11 under UP4, and all Member States except Netherlands allocate EU support to this. Relative to total Member State support for climate action, eight Member States allocate the most, all disbursing more than 15 % of total climate support through M11 under UP4, while Ireland, Malta and United Kingdom allocate also a few percent. Within RDPs, allocation varies from 0 % to 49 % of climate allocation, and the measure is widely used. Often, no specific adaptation focus is found in RDP programming, but as organic farming practices are low-input, prevent pollution, and increase resilience, adaptation benefits do indirectly result.

The above findings should be seen against the backdrop that the EAFRD regulation text only includes requirements ('shall') for incorporation of climate adaptation action into M04 and M16, while it is suggested for M01 and M10. Despite the absence of such recommendations, much adaptation-relevant support has been allocated, and many actions are reflected.

Further it should be noted that M16 – cooperation and European Innovation Partnership (Art. 55-57) offers opportunity to develop innovative approaches and fill the gap between research and practical application for example: Farm adaptation to climate change – prevention and management of risks (FR-Reunion), or co-operative activities to raise awareness of animal diseases and improve preventive activities (UK-E).

Lastly, it could be noted that allocations for adaptation action are found to cover both forests and agriculture, and that a number of measures are dedicated to forests. However, the structure and intent of the above sections are to present the most important measures in terms of financial allocation at Union level. As

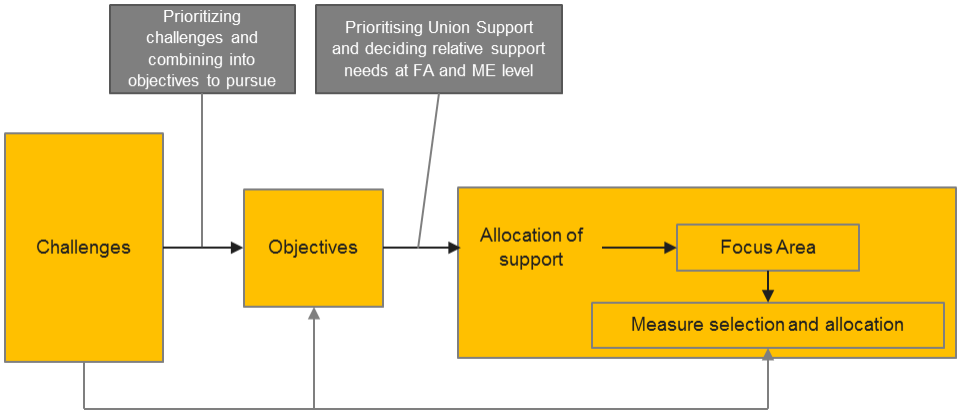
none of the forest measures qualify for this, forests are not explicitly covered [84].

3.9.4 Programming adaptation

Linking challenges, objectives and allocation

The processes of programming, as performed by managing authorities, ultimately results in the allocation of EU support to UPs (and FAs) and hence to measures. In the initial parts of this process, stakeholders and decision making ensures that challenges, objectives and EU support allocation work together and are internally coherent, i.e. that most support is allocated to meet the objectives that address the challenges that have been found to be most important. In the below diagram (Figure 3-9), a simplified and idealised version of this process has been depicted. In fact, the process may be more iterative, with the same steps and decisions being revisited several times (e.g. in the context of stakeholder meetings or hearings).

Figure 3-9: Schematic overview of the programming process. The blue arrows indicate expected consistency between allocation of EU support to measures appropriate to address the objectives that has been identified based on the relevant and most important challenges



Consistency between challenges, objectives and allocation

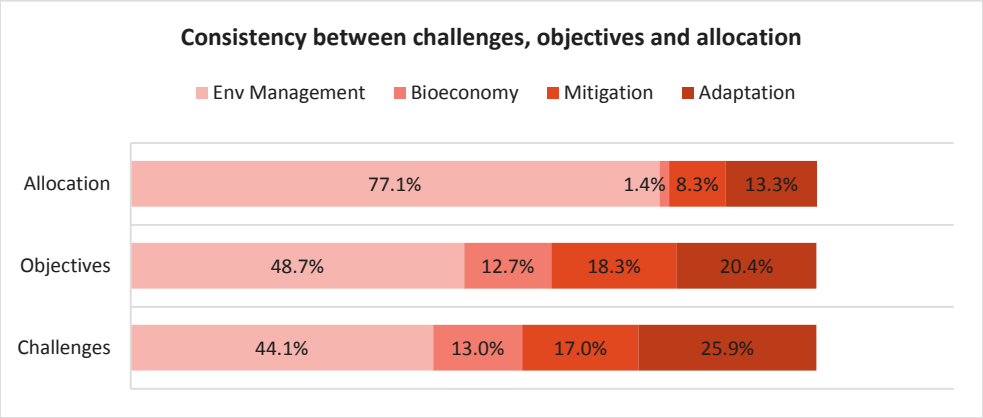
As a result of the programming process, some extent of consistency could be expected between identified challenges, the chosen objectives and the allocation of support. Figure 3-10 below shows the relative consistency at the EAFRD level for the four categories of climate action. The illustration shows that the share of climate-relevant challenges, objectives and allocation out of the corresponding totals is more or less unchanged, and hence appears to be consistent.

From Figure 3-10, it can be seen that while the shares across the four topic areas (environmental management, bio economy, mitigation, and adaptation) are fairly consistent across challenges and objectives, this is not the case for the allocation of EU support. For instance, while environmental management is identified in less than 50 % of the challenges and objectives, it is allocated 77 % of the funds. On the contrary, adaptation is identified in more than 25 % of the challenges found across RDPs and more than 20 % of the objectives, but

[84] This is no indication that climate change adaptation in forests is not relevant or happening, rather that dedicated allocations to forests are concentrated in a few MS

allocation to this area makes up 13 %, meaning there is disagreement between identified challenges and allocated funds.

Figure 3-10: Share of challenges and objectives (as percentage distribution of total number of climate relevant challenges and objectives) relevant to each of the four types of climate action (as defined above and identified using shades of red) [(85)] *.*



Allocating adaptation support to measures

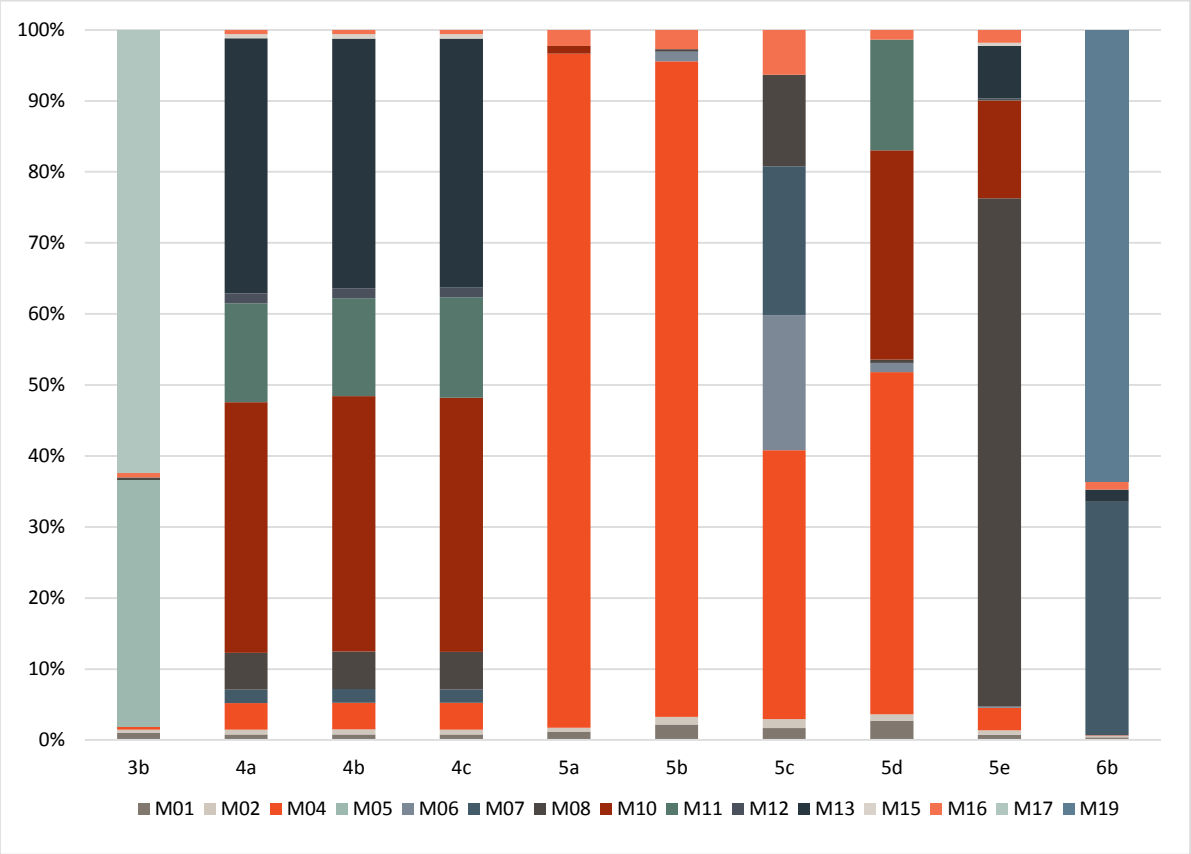
EU support across FAs and measures is shown in Table 3-18 below. Concerning adaptation, it can be seen that some measures are programmed more often under FAs related to dedicated adaptation (FA3b, FA5a, and FA6b) than others, while other measures again are programmed more often under FAs related to adaptation through environmental management. Measures M05, M17 and M19 are programmed only under one FA (FA3b, FA3b, and FA6b, respectively), while M07 is split 2:1 between FA6b and UP4. Contrary to this, measures M10, M11, M12, M13, and M15 are used almost exclusively under UP4, somewhat under mitigation and low-carbon development measures and not at all under dedicated adaptation measures. Measures M01, M02, and M16 are programmed under all UPs, which makes sense, given that the measure description is broad and relates to all of the different UPs and FAs.

[(85)] The top line shows the percentage distribution of climate-relevant EU support allocated to each of the four types of climate action across all FAs. The bottom two lines (Objectives and Challenges) show the percentage distribution of climate relevant challenges (bottom) and objectives (middle) identified under each of the respective categories in relation to the total amount. The percentages are relative to total climate-relevant challenges (bottom), objectives (middle) and support (top), respectively, and hence add up to 100 %.

Table 3-18: Allocation to FAs across each measure in percentage of total climate allocation for each measure.

Measure number and name			Share (%) of total climate allocation					
		UP	3	4			5	6
		FA	3b	4a	4b	4c	5a	6b
M01	Knowledge transfer and information actions, art. 14		2	24	23	24	6	3
M02	Advisory services, farm management and farm relief services, art. 15		1	27	27	27	3	2
M04	Investments in physical assets, art. 17		0	10	10	10	38	0
M05	Restoring agricultural production potential damaged by natural disasters and catastrophic events and introduction of appropriate prevention actions, art. 18		100	0	0	0	0	0
M07	Basic services and village renewal in rural areas, art. 20		0	12	12	12	0	58
M08	Investments in forest area development and improvement of the viability of forests, Art. 21-26		0	18	18	18	0	0
M10	Agri-Environment-Climate, art. 28		0	32	32	32	0	0
M11	Organic farming, art. 29		0	32	32	32	0	0
M12	Natura 2000 and Water Framework Directive payments, art. 30		0	34	33	33	0	0
M13	Payments to areas facing natural or other specific constraints, art. 31		0	34	32	32	0	0
M15	Forest-environmental and climate services and forest conservation, art. 34		0	32	32	32	0	0
M16	Co-operation, art. 35		1	17	17	17	10	10
M17	Risk management, art. 36		100	0	0	0	0	0
M19	LEADER, art. 42-44		0	0	0	0	0	100

Figure 3-11: Relative distribution of each FA to the respective Measures (as a percentage of total climate allocation).



Dedicated adaptation confined to a few measures

Figure 3-11 above shows the relative distribution of measures for each climate-relevant FA. As is evident, the number of measures used for dedicated adaptation (under FA3b, FA5a, and FA6b) is relatively small; under FA3b, M06 and M17 dominate; under FA5a, investments in physical assets (M04) enabling water efficiency is the main measure by far; while FA6b is programmed using M07 and M19. Interestingly, these measures are rarely used under the remaining FAs, showing that a specific set of measures is used for adaptation purposes, despite the lack of a dedicated adaptation FA. This is not the case for adaptation through environmental management (UP4), under which numerous measures are programmed, most of which are also used within mitigation oriented FAs (FAs 5b-5e).

The identical allocation observed for FA4a, FA4b and FA4c is the result for all but the national Lithuanian RDP, providing information on allocation of support at the UP4 level only.

Figure 3-12: Relative distribution of each Measure to the respective FAs.

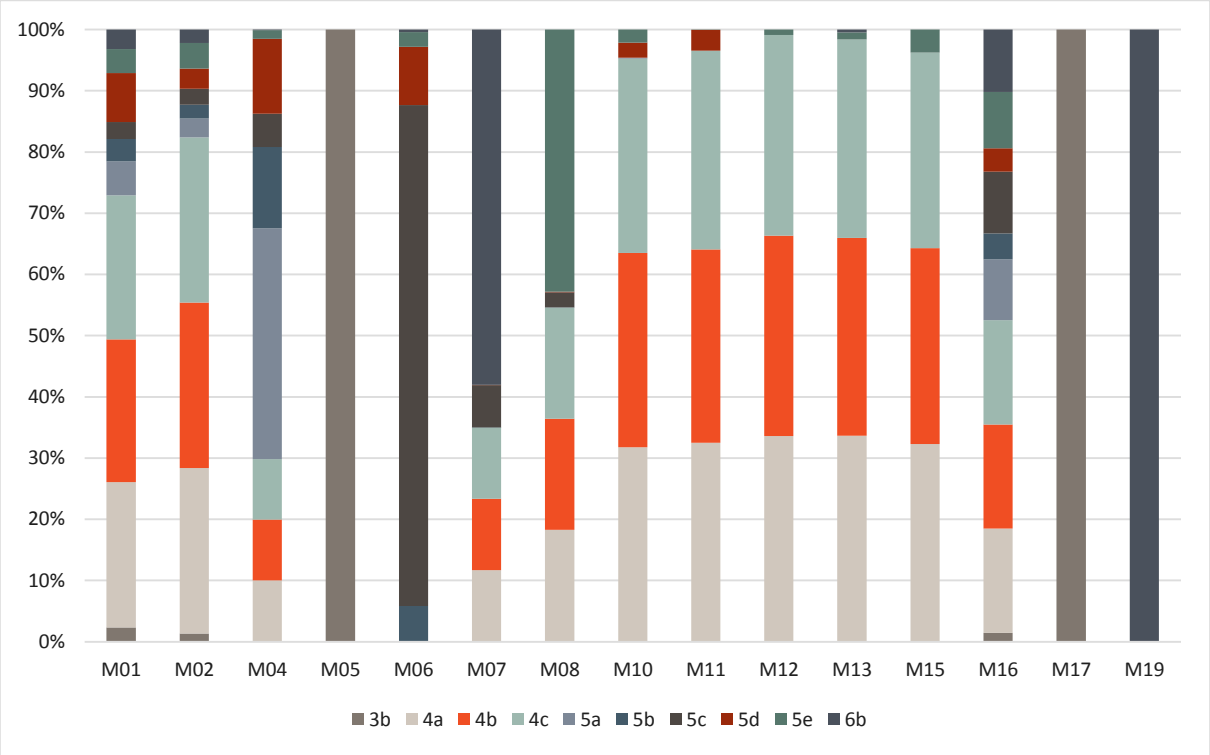


Figure 3-12 above shows the relative distribution of the FAs across each individual measure. Measures M05, M06, M17, and M19 are only or mainly used under one FA, in three cases focusing on adaptation. The clear link between measure and FA means that it becomes easier to establish whether, to what extent, and which type of adaptation actions and benefits can be expected from the actions programmed under the measure. This also means that adaptation actions programmed under M04, M07, M08 and M16 are difficult to discern, due to the many FAs to which the measure has been programmed. It is also striking that the allocation to FAs is almost identical for the five measures M10, M11, M12, M13, and M15. It follows from this that allocation to any of these five measures falls under UP4, which means that any adaptation action will be the result of environmental management. Combining the information above (Figure 3-12) with the information contained in Figure 3-11, the outcome is that adaptation actions through environmental management are mainly the result of actions programmed under M10, M11, and M13. Given the focus in M11 on organic farming, adaptation actions can only indirectly be expected from this; under M10, climate benefits can be expected (adaptation and mitigation alike), but the allocation to UP4 makes it difficult to discern exactly which benefits can be expected.

Measures can serve one or many FAs

The findings from this analysis are that measures can be divided into and perceived as single-FA and multiple-FA measures. The former provides for transparent assessment of the contribution, and the measures are often quite well defined and framed. The latter are measures such as M04, M10, M11 and M13 that are used to serve many purposes at the same time. However, this

means that it is difficult to discern how and to what extend different actions justify the actual allocation and, in the case of adaptation, the consequence is that the majority of the adaptation-related EU support is inferred indirectly from opaque allocations to these measures. This is a challenge when assessing for adaptation action, and partly results from the FA setup and the climate tracking methodology.

FA3b, FA5a and indirectly UP4

A second finding, related to the climate tracking methodology, is that the climate contribution related to adaptation (FA3b, FA5a and indirectly UP4) is often found in measures not included in the list of measures attributable to climate change, as stipulated in Article 2 of the regulation on climate tracking [(86)]. Measures M05, M07 and M17 are not included in the list, but contribute to adaptation. This inconsistency may have discouraged use of these measures, and furthermore means that any number given for climate allocation based on this methodology will underestimate the adaptation allocation of support. As a result, some managing authorities may have resorted to programming more actions under M10, M11 and M13, as this would count towards the climate tracking account. Hence, these measures may have become broader and more complex than was necessary. That said, it is difficult to verify any of these findings based on information provided in RDPs.

Addressing adaptation and other crosscutting challenges

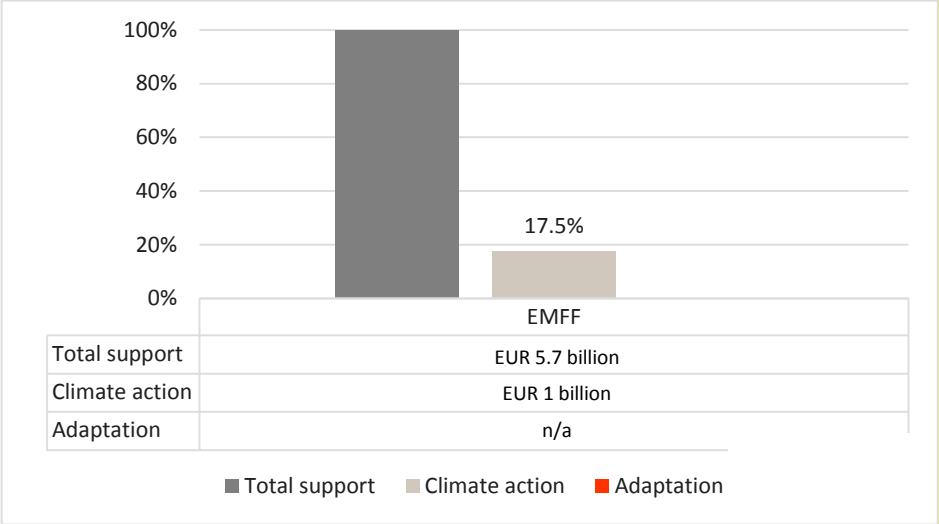
Dedicated adaptation can be found in M05 and FA3b and FA5a, but the bulk of adaptation-relevant support is disbursed using M104, M10, M11 and M13 and allocated to UP4. Furthermore, much of the allocation targets UP5 FAs, but in parallel to mitigation allocations and because the difference in actual action is not distinguishable in ME descriptions, it is difficult to track.

3.10 European Maritime and Fisheries Fund

Under the EMFF, 27 Member States (with the exception of Luxembourg) prepared OPs. The total support dedicated to climate action in the EMFF amounts up to EUR 1.0 billion. However, the structure of the EMFF OPs does not enable the tracking of climate change adaptation based on financial allocations, as figures on climate action are only provided at the OP level. A breakdown of climate action by UPs, Specific Objectives (SOs) or measures is thus not possible. In light of these properties, climate adaptation is in the following section assessed on a qualitative basis.

[(86)] Commission Implementing Regulation (EU) 215/2014, as amended by Commission Implementing Regulation (EU) No 1232/2014.

Figure 3-13: Share of ESIF support for climate action and adaptation in EMFF, including the respective allocations (in EUR billion)



3.10.1 Strategy and Strategic objectives

EMFF Regulation

The EMFF addresses climate change adaptation. Still, it is not an explicit part of the regulation's objectives. Instead, climate adaptation is implicitly addressed by establishing *'environmentally sustainable […] fisheries and aquaculture'*, which can, for example, lead to a better resilience of ecosystems to climate change [(87)]. Furthermore, the CPR requires that sustainable development, which also addresses climate change adaptation, is implemented throughout the OPs as a horizontal principle [(88)]. Therefore, climate adaptation must be considered by all programmes and across all themes.

Adaptation in UPs and SOs

The OPs are built around six UPs, which in some cases are further divided into SOs. Again, adaptation is implicitly contained in UPs and SOs that address environmental issues, such as protecting aquatic biodiversity (SO1b) or reducing the environmental impact of fisheries (SO1a), but also through local development strategies (UP4) or the implementation of the Integrated Maritime Policy (IMP, UP6). For each SO, Member States can allocate a specific set of pre-defined measures (i.e. Articles in the EMFF regulation), which in turn describe the specific actions to be supported in each OP. Further descriptions of the individual actions in each OP are not required.

Adaptation at strategic level

Nearly all OPs (24) identified needs that relate to climate change adaptation. However, climate change adaptation is only an explicit part of the OP strategy in a limited number of OPs (5). In comparison, climate change mitigation is prevalent as a part of the strategies in a higher number of OPs. Nevertheless, 20 OPs include the protection and enhancement of the environment as part of their

(87) Regulation (EU) 508/2014 of the European Parliament and of the Council of 15 May 2014 on the EMFF.

(88) Article 8, Regulation (EU) 1303/2013.

strategy. Climate change adaptation is therefore indirectly addressed through environmental measures in most OPs.

Horizontal principles

Throughout the EMFF, climate change adaptation is commonly not a concrete part of the horizontal principle on sustainable development. In 10 OPs, climate adaptation is directly mentioned as part of this principle, while indirect climate adaptation through environmental sustainability is found in eight additional OPs. Hence, about two-thirds of the OPs mainstream climate change adaptation throughout their programmes.

Links to NAS

Some Member States (e.g. Denmark and Finland) indicate that their actions under the EMFF are insignificant in relation to their NAS, given that the contribution to climate change adaptation through other ESI Funds is substantially greater. Indeed, only a fifth of the OPs mention explicit links to the relevant NAS. However, it must be underlined that the EMFF regulation does not explicitly require Member States to include or refer to national adaption strategies, which may explain why explicit references or links to NAS rarely exist. For example, the Spanish OP, which by far foresees the most climate action, does not refer to the Spanish National Climate Change Adaptation Plan (PNACC), in spite of the fact that the PNACC explicitly addresses fishing and the marine environment [89].

Links to the MSFD

While NASs take a rather subordinate role in the EMFF OPs, a comparably greater number of OPs mention links to EU directives. The most commonly mentioned directive identified in the OPS is the Marine Strategy Framework Directive (MSFD), which aims at a good environmental status of marine waters, therewith building up the resilience of marine ecosystems to climate change [90]. A total of seven programmes use the EMFF to support the implementation of the MSFD, of which 4 specify a result indicator that measures the change in the coverage of spatial protection measures under Article 13.4 of the MSFD. Typically, its implementation is found under UP1, UP3 and UP6.

3.10.2 Adaptation-relevant measures

As previously mentioned, the EMFF does not require further descriptions of the supported actions in an OP. The assessment of climate adaptation action in the measures is thus limited to the standard descriptions of the measures in each of the regulation's articles [91].

Direct climate change adaptation

Throughout the EMFF, two measures concretely address climate adaptation as part of their actions. Articles 35 and 57, in Table 3-19, respectively address compensatory schemes for fisheries and aquaculture for, inter alia, adverse climatic events. Eleven Member States selected at least one of these two measures.

[89] http://climate-adapt.eea.europa.eu/countries/spain

[90] Maritime Strategy Framework Directive, Directive 2008/56/EC.

[91] Regulation (EU) 508/2014 on the EMFF.

Table 3-19: Measures with direct climate adaptation content, including the corresponding UP, SO, TO, climate marker, and number of OPs selecting a measure in a climate-relevant context

UP	SO	Measure	TO	Coeff.	# of OPs
1	4	Article 35 Mutual funds for adverse climatic events and environmental incidents	3	40	5
2	4	Article 57 Aquaculture stock insurance	6	40	10
4	1	Article 63 Implementation of local development strategies	8	40	20

Supportive climate change adaptation

As indicated earlier, most climate adaptation actions are included in measures that protect or enhance the marine environment. In terms of fisheries, the most frequently selected measure preserves or enhances the marine environment, biodiversity or biological resources (Articles 38-40). For aquaculture, the most frequently selected measure aims at a reduction of the environmental impact of aquaculture (16 OPs, Article 51). Climate change adaptation in the EMFF is in parts also linked to the CFP and IMP through data collection activities (Article 77, CFP), and maritime surveillance and the promotion and protection of the marine environment (Article 80.1.a-c, IMP).

Adaptation in CLLD

Climate change adaptation in the EMFF is also present at the de-centralised level, by promoting climate changes actions in CLLD (Article 63). In all, 20 OPs include measures under Article 63 (see Table 3-19). The concrete contents of those adaptation actions are not defined in the OP due to the bottom-up nature of CLLD. Furthermore, the regulation does not explicitly accommodate climate adaptation, though the scope of actions leaves room for such. For some OPs, such as in Italy, actions that address environmental issues are explicitly mentioned. The actions in this OP will support climate adaptation through e.g. providing support to reducing pressure on marine ecosystems.

4 Enabling factors and barriers

This chapter looks further into key characteristics of the current framework (i.e. regulatory, financial and political) that have contributed as 'enablers' to the observed achievements with regard to the mainstreaming of climate change adaptation into ESIF. It also seeks to identify the key characteristics of the same framework that may have constituted a 'barrier' (or challenge) for an even higher uptake of adaptation themes in the programming.

It is important to note in this context that the requirements of the relevant EU regulations, the relevant policy targets, and the scope and content of fund-specific guidance should all cater to promoting climate adaptation action. If found to do so, these could be perceived as enabling factors. At the same time, however, specific elements and sometimes even the same enablers could prevent or make climate adaptation more difficult, hence becoming barriers to climate adaptation.

The assessment has taken into account the legal wording of the CPR and the fund-specific regulations in relation to climate change adaptation (or lack of the same); the impact of earmarking of funds; the scoping of TOs and the content of TO5; the scope of the Horizontal Principles (Article 8 'Sustainable development' of the CPR); adaptation aspects of the common methodology for the tracking of climate-related expenditure; the ex-ante conditionality on risk assessment referring to climate change adaptation strategies where appropriate; implementing acts related to ESIF, e.g. specific adaptation requirements for major projects; the availability (or not) of national, regional or sectorial adaptation strategies and related actions plans; and specific programming-related issues such as the role of the Position Papers or focus on the EU 2020 Strategy, which includes headline targets for mitigation but not for adaptation.

In terms of overall policy targets, there has been no overall target for climate adaptation. With clear and well-articulated mitigation targets for 2020, and no emphasis on adaptation, one might fear that adaptation would gain less attention and hence less adaptation support and action would be programmed. The absence of adaptation in the overall 2020 targets may thus be seen as a barrier. A clear earmarking of funding for adaptation is thus to be preferred to

actively drive and steer a higher uptake of adaptation measures in the next MFF period.

A general possible barrier to the uptake of adaptation and mitigation measures in the ESI Funds for the 2014-2020 period has been the delay in completing the full legislative package: Ideally, Partnership Agreements would have been subject to detailed prior negotiations before embarking fully on preparing the programmes. However, the available budget was established rather late in this process, and the final legislative framework for preparing full PAs was delayed (delays inter alia in finally approving the EAFRD and the EMFF regulations). Further, the common methodology for tracking climate action was not issued until late in 2013 (and only finally approved in 2014). As a consequence of the late completion of this methodology, the first versions of PAs and even of some programmes did not contain detailed information on the financial expenditure for adaptation action or mitigation. This implied that the Commission, when reviewing the early versions of PAs and OPs, could not take the envisaged distribution of expenditures into account.

Whereas the ex-ante conditionality on risk assessments based on climate change adaptation strategies in principle is an enabler, the formulation could be further strengthened to ensure that sufficient information on the country's main climate risks and challenges is provided, and that the most optimal climate change adaptation actions to be addressed with ESI funding are identified. This requires close cooperation between the relevant authorities at the Member State level.

Fund-specific enablers and barriers are described below.

4.1 European Regional Development Fund and Cohesion Fund

Many of the factors and conditions that have enabled the mainstreaming of climate change adaptation in the ERDF and CF relate to the general framework for the ESIF. As mentioned above, a factor can enable adaptation in one case and be a barrier in another.

The discussion is organised by two factors:

- The legislative framework (in particular the ERDF and CF regulations); and
- The readiness of the concerned Member State administrations to consider climate action. Readiness in this context relates not so much to willingness per se, but more to familiarity with the subject and the possession of the relevant knowledge and insights.

This section discusses these two factors in more detail.

4.1.1 The legislative framework

ERDF/CF regulation

In the specific regulation for ERDF and CF, TO5 on adaptation is included as one of the priorities. How much EU support should be allocated for TO5 is not specified, so while explicitly including adaptation as a key priority is likely to have been a driver for the inclusion of adaptation in the ERDF and CF OPs, it has also allowed Member States to place less weight on adaptation actions.

Earmarking

The combination of the thematic concentration requirements for TO1, TO2, TO3 and TO4 and the specific earmarking requirement for TO4 could potentially limit the focus on adaptation. It is difficult to judge the effects of not giving a full level playing field for mitigation and adaptation. For the developed regions, the concentration requirement is 80 %, and it can be observed that these regions on average have allocated less for adaptation compared to transitional and less developed regions. This assessment is complicated, as countries where all or most regions are less developed are also eligible for CF, for which there is no thematic concentration requirement. The share of climate change adaptation allocations in CF is higher than that for the ERDF. The allocation for climate mitigation and adaptation are illustrated in the figure below.

Figure 4-1: Relative allocations for adaptation and mitigation by Member State in % of total ERDF and CF budgets (orange dots are Member States with CF)

The figure above shows how the allocation for adaption is higher for Member States with CF. The Member States without CF and relatively higher adaption allocations are where a larger share of the funding is for less developed or transitional regions. This could suggest a possible effect of the concentration requirement having resulted in less allocations for adaptation compared to mitigation.

Guidance material

The guidance material has provided suggestions for adaptation issues to cover and measures to apply. There is also guidance on how to climate-proof

investments. This guidance has been provided as part of the requirement for major projects to be made climate change resilient, but the approach could also provide guidance on how to include climate proofing for smaller projects.

Ex-ante conditionalities

The ex-ante conditionality on the existence of national or regional risk mapping (taking into account, where appropriate, NAS) is an important enabler for increasing readiness and providing a basis for effective and efficient programming promoting integration of climate change adaptation and disaster risk reduction policies. Also, the ex-ante conditionality 6.1., on the water sector, is an important enabler, according to which the Member States should take into account the social, environmental and economic effects of the recovery as well as the geographic and climatic conditions of the region or regions affected.

4.1.2 Adaptation planning in Member States and regions

Adaptation strategies and plan

Implementation of ex-ante conditionalities should be seen in relation to the availability of NAS and action plans at the national and regional levels. By mid-2016, 20 NAS had been adopted by Member States, and nine NAP. Most Member States have thus developed, or are in the process of developing or reviewing, strategies for adaptation that are expected to increase readiness at the national, regional and/or local level.

The national and regional work in adaptation strategies has been supported by the 2013 EU Adaptation Strategy as well as the Guidelines for Adaptation Planning [92], which has provided best practice examples and guidance on how to develop adaptation strategies.

The EU and national adaptation work should have helped the Member States to identify gaps and key actions. In principle, this should support the identification and assessment of areas where the ERDF or the CF could provide funding or leverage national funding. The majority of the OPs have also referred to the NAS or NAP where available. ESI Funds for 2014-2020 will be used to support the development and update of NAS and action plans (NAP) in some Member States and regions. According to Partnership Agreements and Climate-ADAPT, at least eight Member States, i.e. Bulgaria, Croatia, Cyprus, Greece, Poland, Portugal, Romania and Slovakia, mention explicitly the use of ESIF for development and implementation of NAS and NAP. For instance, the Greek Partnership Agreement states that the TO5 objective is to complete the NAS, while the ESIF in Bulgaria will be used to finance different climate adaptation studies needed for development of the NAP. The key elements from the Slovakian NAS are incorporated in the OP 'Quality of the Environment 2014 – 2020'.

Coordination

Adaptation is a cross-cutting issue in which coordination is vital for achieving the most effective and efficient results in the OPs. Compartmentalised environmental and climate change management approach adopted by some Member States may hinder the full utilisation of potential adaptation synergies.

[92] Guidelines on developing adaptation strategies SWD(2013) 134 final.

As discussed in Section 3.1.2, it is not clear to what extent the potential for coordination with water management in relation to implementation of environmental policies, such as the Water Framework Directive and the Floods Directive, has taken place. Often, the OPs do not refer to the synergies that can be achieved. For example, implementing green infrastructure has multiple benefits. Green infrastructure has been included as an action under nature protection, but explicit mention of climate adaptation effects is often missing. Green infrastructure investments are generally a type of measure that have multiple benefits including climate adaptation, mitigation and nature improvements. Hence, they are included under several TOs.

4.2 European Territorial Cooperation

For the ETC, five key factors have been identified, which may enable climate adaptation:

- Scoping of the ETC programmes;
- Macro-regional strategies;
- Thematic concentration;
- ETC regulation; and
- Sustainable Development

4.2.1 The legislative framework

Scoping of ETC programmes

The scoping of the ETC programmes is generally carried out through a SWOT process in which key issues for a cross-border or transnational region are identified. Needs are identified through a combination of national, regional and transnational strategies. Regional stakeholder processes are often used to verify needs and priorities. Due to the ETC's geographic focus on physical borders and basins and the therewith associated opportunities for joint actions, climate change adaptation is prominent in both cross-border and transnational programmes. The scope and scoping process is therefore an enabling factor for the ETC, especially given that issues such as the flood protection of border rivers are most meaningful if addressed on both sides of the border. There is, however, a need to remark that NASs are often difficult to use directly as a framework for programming/scoping, given that these are not specific on the needs of cross-border or transnational regions.

Macro-regional strategies

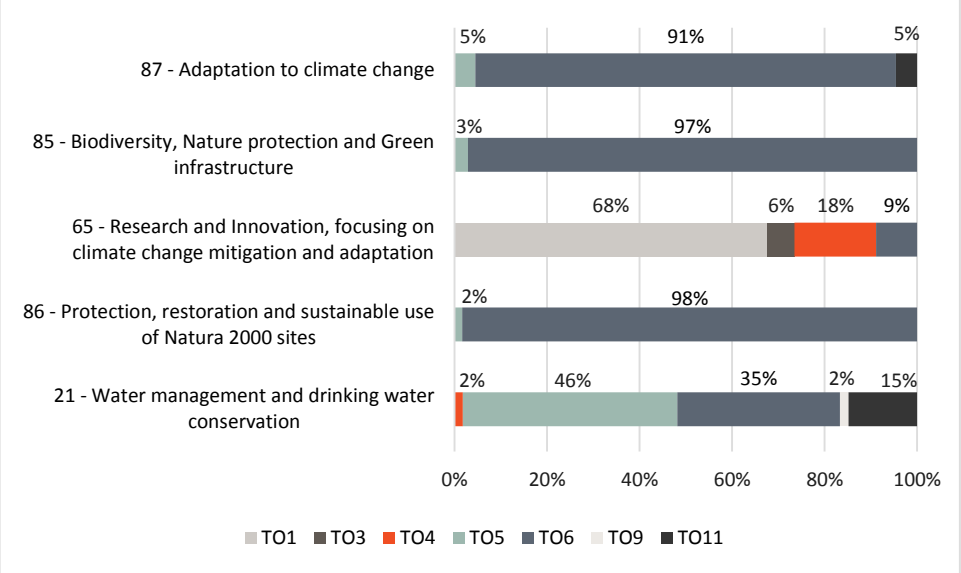
Whereas cross-border regions are limited to their own cross-border area strategy in some cases, many CPs are also covered by macro-regional strategies, which provide a framework for the scoping of programmes. All macro-regional strategies have a strong focus on climate change in general and on adaptation, which enables a stronger prioritisation of climate adaptation

action in the CPs, due to the ETC's requirement to identify a programme's contribution to applicable strategies [93]. Here, there is a need to underline that the macro-regional strategies are more relevant for transnational programmes than cross-border CPs, as the macro-regional strategies are less specific in relation to the cross-border areas. Based on this evidence, it is a valid conclusion that the macro-regional strategies and the ETC's requirement to identify applicable strategies have an enabling character.

Thematic concentration

The ETC's requirement to thematically concentrate 80 % of the ERDF allocation on a maximum of four TOs may have reduced the explicitness of climate adaptation action [94]. In light of the fact that TO6 covers more types of activities than TO5, managing authorities may have been led to prefer TO6 over TO5, to be able to address matters that relate to the environment, cultural heritage (tourism) and climate adaptation, which is not possible under TO5. Figure 4-2 below lists all adaptation-relevant IFs and further shows with which TO those were combined. As is evident, 91 % of the CPs use IF087 in the context of TO6, while TO5 is selected in merely 5 % of the cases. From a more general perspective, it becomes clear that TO6 is the main adaptation TO throughout the ETC, while TO5 takes a rather subordinate role, with the exception of actions on water management and conservation (IF021). As the evidence suggests, the thematic concentration requirement may have concealed climate adaptation behind TO6 instead of TO5, and could therefore be considered a deterring factor.

Figure 4-2: Intervention Fields on climate adaptation, and the distribution of their Thematic Objective combination (%) (percentages are rounded)



[93] Article 8.3.d, Specific Provisions for the support from the ERDF to the ETC goal, Regulation (EU) 1299/2013.

[94] Article 6.1, Specific Provisions for the support from the ERDF to the ETC goal, Regulation (EU) 1299/2013.

ETC Regulation

The ETC regulation does not constrain ETC programmes to a specific focus among TOs, which enables cooperation programmes to select and combine TOs freely. As compared to the ERDF regulation, a bias towards climate change mitigation (i.e. TO4) does not exist, which may have induced a stronger focus on adaptation. It is nevertheless difficult to clearly identify whether this could have been an enabling factor, as this effect cannot be isolated in the scope of this report. Another aspect that could have hampered an even more intensive utilisation of the ETC for climate adaptation is that climate change and, more specifically, adaptation is not emphasized in the ETC regulation. Therefore, some adaptation potential may have remained unused.

4.2.2 Readiness of partners

Selection criteria & sustainable development

The selection criteria or guiding principles for selection criteria are developed very differently across the CPs and generally do not include adaptation themes and only climate change in general. Commonly, the guiding principles refer to the fact that the selection criteria will be developed in the programme manuals. In addition, a common finding is reference to the horizontal principle of sustainable development. The horizontal principle of sustainable development is developed differently in the CPs, which leads to an inconsistent quality and is thus an unreliable tool in assuring the mainstreaming of climate change adaptation throughout all actions. The available guidance on the development of the horizontal principle is limited, especially on how to ensure that these include and secure climate change adaptation. The lack of guidance therefore deterred mainstreaming potentials through the horizontal principle.

4.3 European Social Fund

Two key factors influence the extent to which climate change adaptation is on-boarded in ESF programmes. This applies to all factors that they have, on the one hand, had a positive role to play in, and, on the other hand, they have not helped to the fullest extent to realise potentials:

- The legislative framework, in particular Article 3.2 (b) of the ESF regulation; and
- The readiness of partners to consider climate action. Readiness in this context relates not so much to willingness per se, but more to familiarity with the subject and the possession of the relevant knowledge and insights.

This section discusses these two factors in more detail.

4.3.1 The legislative framework

The ESF regulation

Compared to previous programming periods, climate change adaptation has a more prominent position in the current legislative framework. Actually, it is the first time that the ESF regulation specifically refers to climate action (Article 3.2 (a)) that mentions the ESF shall contribute to thematic objectives (other than TO8, TO9, TO10 and TO11, which are the TOs covered by ESF) 'by supporting

the shift to a low-carbon, *climate-resilient*, resource-efficient and environmentally sustainable economy…'. Last, the mission of the ESF, whilst largely focused on the overarching, more horizontal themes of e.g. employment, jobs, education, training, combat of poverty, social inclusion and non-discrimination, also mentions the facilitation of the adaptation of workers to changes in production systems needed for sustainable development.

The climate markers

Furthermore, the implementing regulation on a common methodology for tracking climate support mirrors this. It provides the opportunity to mark a certain amount of funds – under a given Priority Axis – as '*supporting the shift to a low-carbon, resource efficient economy',* thus not directly referring to climate change adaptation. Progress reports [(95)] will inform on support for climate action, depending on how Member States report on this.

Climate action is thus embedded in relevant legislation

All these legislative developments provide an explicit and legally anchored coverage of climate change adaption. This provides attention to climate action, including climate change adaptation in the programming of ESF, and is likely to have contributed positively to the coverage of climate action in the programmes.

A slight bias towards climate change mitigation

From the climate change adaptation perspective, there is, however, a potential weakness in the way that it is covered in legislation. Article 3.2 (a) explicitly refers to climate change adaptation, whereas secondary theme 01 only mentions the low-carbon economy and resource efficiency. This may divert attention away from climate change adaptation.

Synergetic options not captured at programme level

Furthermore, analysis of the ESF programmes suggests that opportunities for ESF to support climate change adaptation in other programmes (for example, ERDF and EAFRD programmes) is not captured to a significant extent. While this does not hinder synergetic effects that may be realised during implementation, it is still worth noting that reflections on this are not explicitly apparent.

Lack of 'hard' commitments/bench marks

Last, and put simply: There are no regulatory mechanisms to ensure that ESF actively promotes climate action, not to mention climate change adaptation. In line with the overall mission of the ESF, it suffices to cover climate action or green/environmental sectors at the overall/strategic level, possibly combined with mentioning the same themes when describing the actions envisaged. Even considerations for project selection can be relatively weak in these aspects. This can be argued to be in the spirit of the mission of the ESF. However, it renders it difficult to assess the climate change aspirations and achievements of the programmes and their implementation.

4.3.2 Readiness of partners

In reality, there are many partners involved in programming. However, this section looks at the two key partners in shared management: the EU Commission and the Member States. When considering how readiness has been built up, one can distinguish between two consecutive stages of programming:

[(95)] Commission implementing regulation (EU) 2015/207

- The period up to the first official submission of the programme; and
- The period from the first official submission of the programme and until final approval.

Period up to first official submission

In this period, the key structures and principal orientations and priorities of the programmes are established. This happens with a view to the contents of the Commission Position Papers. It is also during this period that efforts (e.g. guidance materials and workshops) to also guide the orientation of programmes towards climate action and specifically towards climate change adaptation (where relevant) have the opportunity to provide a significant impact on programmes.

The Commission, in particular DG EMPL, put an effort into stimulating orientation of stakeholders toward green jobs – not just in the scope of ESF, but in a wider context. An important example is Green Employment Initiative [96] and the efforts that preceded it. Thus, the EEO Review 2013: Promoting green jobs throughout the crisis – a handbook of best practices in Europe (2013) did provide climate-oriented inspiration also of relevance to the ESF. However, specific guidance on how to address climate change, in particular climate change adaption in the ESF programmes, was scarce at the time. Consulting experience from the past 2007-2013 period provided examples of specific ESF projects of climate relevance, but virtually none on adaptation [97]. Similarly, the Common Strategic Framework (CSF) of 2012 [98] only provided limited specific considerations as to the contribution of ESF to climate action, and none on climate change adaptation. Thus, Member States were challenged in that a thematic or sectorial focus, such as one on climate action, was fairly new in ESF programming and limited guidance and inspirational material and past experience was available (in particular on climate change adaptation).

Period up to final approval

In the period between the first official submissions of programmes and up to final approvals, two factors facilitated a stronger integration of climate action:

- The common methodology provided a legislative hook for discussing if and how to increase allocations for climate action.
- The ISC process provided for other DGs, including DG CLIMA, to provide their comments to the programmes.

It is evident from the process that these factors contributed to increasing financial support for climate action, but also to a strengthened mentioning of

[96] Communication on Green Employment Initiative, tapping into the job creation potential of the green economy, 2.7.2014.
[97] This could reflect that climate change adaptation also had a much less prominent position in the ERDF and CF legislative framework for that period.
[98] Elements for a Common Strategic Framework 2014-2020, Commission Staff Working Document, 13.3.2012.

green and environmental themes. That said, climate change adaption still has a less prominent role in the programmes than mitigation.

4.4 European Agricultural Fund for Rural Development

4.4.1 Ex-ante conditionality on adaptation and Focus Area 3b

The ex-ante conditionality should indeed induce evidence-based and reasoned identification of risks, leading to a solid and comprehensive SWOT analysis guiding the choice of challenges and objectives, and promoting the drafting of National or Regional Adaptation Strategies where not yet available. The conditionality would hold the potential to become a key enabler.

One enabler is the clear formulation and scope of FA3b and Measures M05 and M17

Bearing in mind that only programmes that meet the ex-ante conditionalities could be approved, all the RDPs subject to analysis in this report should have conducted the risk screening and most likely worked on some sort of strategic approach to adaptation. While this is not verifiable from the available material, it is apparent that the purpose-specific FA3b, in combination with dedicated measures M05 and M17, has been used widely, and that in general these measures have been aimed at the climate hazards identified as challenges in the individual programmes. A key finding is that the clear formulation and relevant scope of FA3b – and measures M05 and M17 – have been an enabler for climate adaptation, but that transparency could have been further increased had more information on the ex-ante conditionality been provided.

4.4.2 The Union Priorities and Focus Areas

Lack of clearly mentioned adaptation in UP4, a barrier for transparency and programming

It is interesting that more adaptation than mitigation challenges have been identified and that the total allocation to adaptation action (dedicated and indirect) is much larger than that for mitigation. This, however, was found mostly to be the case because of the predominant indirect adaptation contribution from UP4 and the multi-FA measures (M04, M10, M11, and M13). For comparison, a climate mitigation component is found in almost all measures, but in a much more transparent way, as it has been allocated to the dedicated FAs, 5b-e. Climate adaptation is there at FA level but may not have similar clear options for allocation at the FA level, and it is hence difficult to delimit what the adaptation action at the FA level is, except for FA3b and FA5a. In this context, the lack of a clear adaptation FA and the broad scoping of measures were found to be de-facto barriers for transparency and clear, consistent programming, and may have led to perceived overestimation of the allocation of EU support to climate adaptation action.

Adaptation for livestock and animal husbandry

Concerning the applicability of the FA/measure split on the adaptation challenges identified in RDPs, a similar picture appears. While climate mitigation and environmental management-related challenges can be sorted for individual FAs, the adaptation- and mitigation-relevant issue of livestock and animal husbandry

has been difficult to allocate and programme. A fourth of all RDPs identify challenges related to livestock and animal husbandry, which indeed is a pressing concern from a climate change point of view, mitigation and adaptation alike. The EAFRD funds and measures can help farmers adapt their livestock production to the changing climate. There are some measures that can contribute to this objective, for example knowledge transfer and financing technical solutions (improving animal housing systems, shelters, using water more efficiently, reducing water losses, animal welfare, etc.).

Despite such possibilities, how and to what extent livestock issues have been addressed cannot be tracked in the programming at the FA or measure levels Therefore, adaptation actions related to livestock or animal husbandry (i.e. genetic improvements, breeding programmes and the like), seem to disappear in the programming of measures, though these issues are quite often mentioned as a challenge. One reason could be that actions to that end are difficult to attribute to a UP or FA, in particular if not directly related to reducing ammonia emissions (FA5d, hence mitigation).

Thus, much of the adaptation action could end up as implicit in other actions and not attributed in a consequent and transparent manner. As a result, it is not possible to give an overview of the level of action on adaptation of livestock or other farm animals. A first step would be to examine further how to provide for clearer identification of adaptation measures in the livestock sector.

4.4.3 Climate tracking in EAFRD

Climate adaptation-relevant measures not included in tracking

Notwithstanding the actual allocation levels and programming of measures discussed above, the climate tracking method itself posed a barrier in terms of transparency of action and support for adaptation. The measures considered climate-relevant according to the tracking methodology do not include several adaptation-relevant measures (M05, M07 and M17), which deliver around 6 % percent of total climate adaptation support and about 30 % of the total EU support allocated to dedicated adaptation action. Accordingly, any number shown or reported following the climate tracking methodology underestimates the actual support for direct adaptation and for climate action and, as a result, some managing authorities *may* have programmed adaptation action under less relevant measures to avoid this loss in tracking. Alas, the tracking methodology may have constituted a barrier for transparent climate adaptation.

On the other hand, the measures programmed under UP4, which in this report have been identified as environmental management initiatives supporting climate action, are included in the climate tracking but although delivering substantial adaptation benefits, they have been found that their primary objective is not, at least only, adaptation . As such, the selection of measures under the current climate tracking methodology should be revised to adequately reflect the potential adaptation benefits. Some measures not included can deliver significant adaptation benefits, while some included measures deliver benefits at large different extent. As a result there is the possibility that the

application of the current tracking methodology gives an imprecise result regarding the actual adaptation action delivered via RDPs.

This aside, the methodology used in this study reflects the adaptation benefits that can be expected from programming and measures used, and it shows that 77 % of the total EU support for climate action delivers adaptation and/or mitigation benefits, while 13 % delivers dedicated adaptation benefits. As mentioned, however, quite often mitigation and adaptation effects are interlinked. Further observations on the tracking methodology and how it captures climate adaptation action in various measures can be found in the next section. In section **Error! Reference source not found.**, suggestions for adjusting the methodology to better track adaptation are made.

4.5 European Maritime and Fisheries Fund

Four key factors had a particular influence on the extent to which climate adaptation was mainstreamed in the EMFF:

- the absence of TO5;
- the descriptions of the measures; and
- the design of the Output Indicators.

4.5.1 The legislative framework

Scoping of TOs

Although the EMFF translates all measures into TOs, the choice of TOs (TO3, TO4, TO6 and TO8) may have deterred an optimal amplification of mainstreaming climate adaptation. Since the adaptation TO (TO5) is not included in the UPs for EMFF, measures that naturally fit this TO have been allocated to TO3 and TO6 (in UP1 and UP2) instead. For example, those measures that foresee compensation schemes for adverse climatic events are linked to TO3, although these could equally well suit TO5 (Articles 35 and 57) [(99)]. Subsequently, the explicit translation of TO5 into one or more UPs could have resulted in a stronger emphasis on climate adaptation throughout the programmes than currently observed.

Measure descriptions

For the measures selected by Member States, there is no requirement to further detail the actions to be supported. While this may facilitate the programming of the OPs, it may negatively affect the quality of climate adaptation actions, since no information can be inferred about the expected quality or effectiveness of a measure. The absence of OP-specific descriptions of the measures makes it difficult to assess the intended actions during the drafting of the OP. The lack of detail will also hamper setting indicators and monitoring the outcomes.

Output Indicators

[(99)] Regulation (EU) on the EMFF, No 508/2014.

Several output indicators are provided in the EMFF guidance that indirectly relate to climate adaptation, yet these are not exclusively dedicated to adaptation outputs [100]. A direct tracking of climate adaptation with the available indicators is thus challenging. The development of common indicators that are tailored to climate change adaptation or the introduction of programme-specific indicators in the OPs may facilitate tracking of adaptation performance.

4.5.2 Readiness of partners

Guidance

The EMFF guidance provided to Member States did not fully utilize the potential of facilitating the mainstreaming of climate change adaptation. The OP document format (template) includes neither a specific section for climate action or considerations nor does it leave space for these to be included (for example, in the strategy section). Most of the existing guidance focuses on the type of actions that can be included and considerations that should be made in advance. More explicit guidelines and templates that consider how climate actions should be included and documented in the programmes can support a more decisive approach to climate adaptation. Similarly, more precise/specific ex-ante assessment guidance and SEA guidelines in relation to climate change adaptation would help raise the awareness. Specific guidance to the managing authorities for ex ante assessment and SEA would ensure that climate action is incorporated in the programmes.

[100] For example, Indicators 1.04 (Conservation measures, reduction of the fishing impact on the environment and fishing adaptation to the protection of species) or 2.06 (Aquaculture stock insurance), Regulation (EU), No 1014/2014.

5 Lessons learned

This chapter briefly describes the lessons learned (positive and negative) in the programming of adaptation action across the ESIF programmes, with a view to devising an approach for strengthening the adaptation component in the post-2020 MFF. Lessons learned are provided inter alia in terms of the use of earmarking, use of the common methodology for tracking of adaptation actions, and whether the tracking methodology offers the possibility to distinguish sufficiently between adaptation and mitigation; scoping of the TOs for climate adaptation; use and implementation of the horizontal principles of the CPR on sustainable development and its effect (or lack of same) for adaptation; use of ex-ante conditionalities, and whether these have promoted the programming of climate adaptation actions; and whether the Member States have made sufficient use of their national/regional/sectorial adaptation strategies (when available) for prioritising adaptation actions to be funded by ESIF.

5.1 European Regional Development Fund and the Cohesion Fund

Achievements

Adaptation has been mainstreamed into the ERDF and CF, and about 40 % of the OPs include financial allocation of EU support specifically for adaptation through TO5. Overall, financial allocation for adaptation amounts to 11 % of the total allocation for climate action in the ERDF and, out of the total financial allocation, support for climate change adaptation accounts for 2 %. These percentages represent the specific climate change adaptation allocation. Additionally, the allocations that are supportive for climate action could provide funding for adaptation-relevant actions.

The assessment has indicated that most of the specific adaptation support is coming through TO5. It means that synergies, in particular with water management under TO6, have only been partly utilised. Green infrastructure is an example of a measure that can achieve multiple benefits. It is also a measure that might be difficult to finance through markets or private funding. Hence, it is a measure that is very well suited for being part of ERDF and CF action.

Climate change resilience

Climate change resilience is included as a specific requirement for major projects (CPR Article 101 (f)) [101]. For other projects, which are selected and approved by the Member States, it is not specifically required in a similar manner. The OPs do not include the requirement in a systematic and consistent way. Whether supported actions will ultimately be climate-proofed is therefore the sole responsibility of the Authority in question.

Climate tracking

The common methodology on climate tracking provides only a partial understanding of adaptation allocations. The two intervention fields with clear climate change adaptation content are IF087 and IF100. They have a climate share of 100 %, all of which can be counted toward adaptation. For intervention fields related to environmental and transport infrastructure, the percentage defined as relevant to climate change (which is 40 %) could include both mitigation and adaptation impacts. The descriptions of the actions proposed for support give some indication of the degree of support for adaptation. The actions under environment are likely to contribute to adaptation, while the actions under TO1 and TO7 are less likely to provide much adaptation support.

For some types of infrastructure, such as wastewater treatment and road infrastructure, the climate marker is zero. In both cases, climate resilience is a relevant issue and the contribution to adaptation that could be provided when these types of infrastructure are climate-proofed is not counted in the estimate of the financial allocation for climate change adaptation.

The overall implication is that it is difficult to give a full overview of the intended support for climate change adaptation.

5.2 European Territorial Cooperation

Achievements

Despite no minimum requirement for climate action in the ETC and the fact that climate action in the ETC is not attributed to the overall mainstreaming performance of individual Member States (instead the 20% climate expenditure target has been pursued overall for the group of ETC programmes), the ETC succeeded very well in mainstreaming climate adaptation. Moreover, it demonstrates that all Member States are strongly committed to climate adaptation and utilising the ETC's opportunities to cooperate on climate change adaptation, since climate change is not stopping at borders.

Scoping of TOs

Overall, the mainstreaming of adaptation into ETC programmes is high. Nearly all adaptation action is found under TO6, as shown in Figure 4-2. The motivation behind the strong preference of TO6 over TO5 is likely due to TO6's flexibility in supporting a wider set of activities in the area of the environment, climate change and cultural heritage (tourism). Given the high content of climate adaptation despite the rare use of TO5, a different scoping of TO5 or TO6 may not necessarily result in a further increase in adaptation focus in the ETC.

[101] Regulation (EU) No 1303/2013, laying down common provisions on the ERDF, the ESF, the CF, the EAFRD and the EMFF.

Nonetheless, a different scoping of both TOs and no thematic concentration may lead to more climate adaptation actions that occur under TO5 instead TO6. In light of the thematic overlap between these TOs, they could alternatively be merged. While this naturally comes at the expense of the immediate traceability of climate change adaptation action, the current IFs would still enable a tracking of direct climate change adaptation (IF087).

Horizontal principles

The horizontal principle of sustainability is in general not used to mainstream adaptation in ETC programmes. Whereas most ETC CPs have a reference to climate change in general under sustainability, this is often not explicit nor detailed with regard to adaptation. The horizontal principles are also used differently – with some programmes explicitly using the horizontal principles as reference points for the selection criteria. Future guidance on how to develop and use the horizontal principles and to include topics such as adaptation may help to provide a more standardised approach and ensure that adaptation is also mainstreamed into the selection criteria.

5.3 European Social Fund

Achievements

The explicit coverage of climate action in ESF programmes was a novelty to managing authorities and the European Commission. Traditionally, ESF programmes have pursued the ESF mission and objectives through a purely horizontal perspective. In that perspective, the achievements should be recognised.

The majority of ESF programmes reference such general themes as green jobs, green growth and green sectors, which do not per se exclude climate change adaptation. At the level of priority axes or investment priorities, programmes consider training, education, entrepreneurship, and job generation in these areas. There are 31 programmes that specifically mention climate change adaptation.

Tracking support for climate change adaptation

The common methodology for tracking climate expenditure does not allow for a distinction between support for climate change adaptation and for climate change mitigation. Secondary theme 01 only explicitly refers to climate change mitigation and not to adaptation. Adding climate change adaptation in its title may be considered.

The analysis of the programmes shows a high level of disparity in the way that the option for allocating specific amounts of support for climate action is used, and in whether and how the contents of the programme reflects such allocations. It may be argued that this flexibility fits reasonably with the overall mission of the ESF. On the other hand, there is a risk that the intentions of Article 3.2 (a) of the ESF regulation [(102)] may not receive sufficient attention – and a chance that ESF programmes eventually come to deliver much more than what is indicated explicitly in the programmes on climate action.

[(102)] Regulation (EU) No 1304/2013 on the ESF.

Guidance and experience

Guidance on how to integrate climate action into the ESF was limited. Furthermore, the immediately available past experience that could serve as inspiration tended to focus on climate change mitigation. Thus devoting a particular attention to the elaboration of guidance on how to mainstream climate change adaptation into the ESF programmes may be considered. Along the same lines, the analysis of programmes suggests that synergies across funds are only weakly addressed when it comes to how ESF can support climate action. Facilitating a stronger focus on that, in particular including how ESF can support TO5 and to some extent TO6, could provide inspiration for both the implementation period and for the next programming period.

5.4 European Agricultural Fund for Rural Development

Experiences on linking adaptation action to UPs and FAs

Clear EU support allocations for adaptation have been linked to a few dedicated adaptation FAs in combination with a few measures, but the lion's share of allocation is linked to broad environmental management actions programmed under UP4. This situation results from broad allocation to UP4 for some of the key climate measures, such as M04, M10, M11 and M13. The key finding is that the absence of one or more adaptation FAs in combination with an all-encompassing multipurpose agricultural-environmental climate measure (M10) and the fact that most of the relevant measures have multiple substantial effects, has made it difficult for managing authorities to distinguish between adaptation and more traditional environmental management related to conservation and protection of resources, habitats, biodiversity, etc.

Single-purpose vs. multi-purpose measures and FAs

Following from the allocation and programming within the RDPs, it can be seen that single-purpose measures, understood as those measures that are programmed under only one FA, and single-purpose FAs, understood as those FAs that have a clear and defined objective, allow for a clearer allocation to the respective FAs and Measures. This allocation should follow from identified challenges and objectives, and a clearer link between FA and measure increases transparency and allows for better tracking of which climate actions can be expected, given the allocation. If both FAs and measures are multi-purpose, as is the case with UP4/M10 and UP4/M13, the climate adaptation benefit resulting from the allocation becomes opaque and tracking difficult. Hence, it has to be explored how measures with multiple benefits could be classified and tracked.

The apparent consequence of the above is that allocation is non-consistent between RDPs and, since RDPs themselves hold very little text on how addressing adaptation is foreseen, transparency and comparability is low.

Climate Hazards

FA3b in combination with measures M05 and M17 is quite clearly explained in the RDPs and receives substantial funding and addresses a number of the key climate hazards such as drought, forests fires, pest, invasive species, mudslides, flooding and heavy rainfall. This – and the regional differences in use of the measures – indicates great attention to the need to address relevant climate hazards, in particular in southern and central Europe.

Indirect adaptation

Addressing climate hazards can entail both resilience building and recovery after the hazard has struck, both of which are dedicated climate adaptation. Furthermore, climate adaptation includes mainstreaming adaptation considerations in non-adaptation actions, and dealing with non-hazard issues (such as increasing resource efficiency). For both of these, no obvious FA allocation is found.

Mainstreaming of adaptation considerations into non-adaptation actions is found in e.g. M04, M10 and M13 as programmed under UP4. Unfortunately, the measure descriptions and RDP texts, such as they are, leave very little information on the considerations taken by the managing authority in doing so. And, in the absence of clear criteria in guidelines and regulations for this and, as mentioned, the lack of a dedicated adaptation FA, how to do this has been open for interpretation. One lesson learned is that specific guidance or requirements would be useful with regard to indirect adaptation.

Furthermore, non-hazard-related adaptation actions that are not linked to biodiversity, soil or water (i.e. UP4), such as issues related to livestock, are found to be very difficult to track. However, as RDPs are seldom seen to identify challenges not compatible with the FAs, a lesson learned is that the current framework of UPs and FAs is not suited for challenges not catered to in the scope of FAs.

As for examples on lessons learned and dissemination of good practices, the EIP-AGRI [(103)] was launched in 2012 with the aim to foster a competitive and sustainable agriculture and forestry and to close the gap between research and practice. Much of the work under this initiative can and will benefit efforts to adapt agriculture and forestry to changing climate. The EIP-AGRI concept is built on two policies, the CAP/RDP and H2020. The EU wide EIP network links actors, different stakeholders and many focus groups focus and focused on climate change mitigation and adaptation in agriculture and forestry [(104)].

5.5 European Maritime and Fisheries Fund

Traceability of climate action

The information provided in the EMFF OPs does not facilitate the tracking of climate adaptation action. More detailed information, such as the EMFF support for each measure, could facilitate the tracking of climate action. This would, for example, allow identifying thematic tendencies or the share of mitigation and adaptation in programmes.

Translation of TOs into UPs

The focus of the EMFF UPs and SOs does not explicitly promote climate adaptation, and rather focuses on implicit climate adaptation through the protection of ecosystems. Considering that information on EMFF support is only provided at the UP level, and not the SO level, a specific UP dedicated to climate

[(103)] The agricultural European Innovation Partnership, see: http://ec.europa.eu/eip/agriculture/en/my-eip-agri

[(104)] Exemples: http://ec.europa.eu/eip/agriculture/en/content/focus-groups

change adaptation would provide a more transparent way of allocating support for adaptation action. A more effective approach would probably be the introduction of explicit climate adaptation SOs, while concurrently providing information on the EMFF support per SO.

The reformulation of the UPs and SOs itself does not necessarily result in a more explicit promotion of climate change adaptation. Since the measures have a fixed link to the UPs, there is a strong incentive to design an OP according to the provided measures, instead of choosing measures according to a strategic choice of UPs and SOs. Therefore, the choice of UPs is more likely to be a result of chosen measures, rather than vice versa. The design of UPs and SOs that promote climate change adaptation may not have a significant effect on the promotion of climate adaptation in general, unless the incentive to design an OP according to measures is reduced.

Thematic Objective 5

The inclusion of TO5 in EMFF (with the existing TOs: TO3, TO4, TO6 and TO8) could support an increase in the strategic focus and allocation of funding to climate adaptation action in the EMFF OPs. The addition of TO5, either as an UP or SO, would increase transparency, as it would be possible to identify the allocation at UP or SO level. A challenging aspect in adding TO5 is that those adaptation measures, which also relate to the environment, also fit with TO6.

Climate change measures

Additional measures tailored to climate change adaptation can further promote the degree of climate adaptation action. In the current regulation, there are several measures available, yet not all potential areas are addressed through these. For example, Article 43.1 could have included a sub-measure that aims to strengthen the resilience of harbours to adverse climatic events, with an intervention logic connected to TO5. However, in light of the small size of this fund, whether the benefits of a more detailed and lengthy regulation outweigh its costs should be carefully evaluated.

6 Conclusions and recommendations

In this chapter, the results from the preceding analyses have been synthesized in order to provide conclusions and recommendations on achievements and contributions made to the EU Strategy on adaptation and the Europe 2020 strategy via the inclusion of climate change adaptation in European Structural Investment Fund programming. A number of key observations are presented, relevant to the next Multiannual Financial Framework in terms of potential ways to further enhance climate change adaptation in the European Structural and Investment Funds by strengthening key enablers and addressing critical barriers, as are proposals for review of the EU Adaptation Strategy.

Assessment of achievements on mainstreaming of adaptation into ESIF

Overall, a range of factors contributed positively to achievements in the mainstreaming of climate change adaptation into European Structural and Investment Funds. The aim of the Multiannual Financial Framework 2014-2020 (to ensure that at least 20 % of the European budget is in support of climate change objectives), European Structural and Investment Funds regulations, EU policy targets, the EU Adaptation Strategy, the scope and content of fund-specific guidance, and the common methodology for climate expenditures have overall set a sound framework for promoting climate change adaptation. The Commission Position Papers and informal and formal dialogue between Managing Authorities and the Commission have been instrumental in this regard.

Adaptation challenges observed

The uptake of European Structural and Investment Funds largely depends, however, on how Member States embed the available framework in their strategic and concrete programming. It appears that Member States are still faced with challenges when including adaptation in the strategic design of programmes and even more so at the level of defining concrete adaptation action at the specific Fund level. Challenges observed include weak linkages to national or regional adaptation strategies and action plans; lack of sector-specific adaptation strategies or vulnerability assessments; and less obvious integration of adaptation into other sectors (such as environment, transport, fisheries or agriculture). There also appears to be a potential for strengthening coherence between the policy on adaptation to climate change and the disaster risk prevention and management policy. Finally, there is often little explicitness in programmes about how adaptation links with existing EU policy and legislative targets (e.g. in the Water Framework Directive, or the Floods Directive). Current

gaps in Member States' own policy frameworks become a particular concern in countries with the highest probability for severe impacts, as this can severely affect the socio-economic development, growth and competition of a region and, by extension, the EU. It is also a concern for cities and urban areas with heavy concentrations of population and economic activities.

In order to fully harvest the potential for mainstreaming of adaptation into European Structural and Investment Funds, in the remainder of the current Multiannual Financial Framework period as well as afterward, and to incentivise or recommend that these Funds are spent to support the EU Adaptation Strategy objectives, Member States may benefit from more support and knowledge sharing, in particular with regard to strategic and operational adaptation planning and design.

The EU Adaptation Strategy is still in the first period of implementation, and the foreseen review of the strategy could see into how current Member State adaptation frameworks and knowledge could be further strengthened, recognizing substantial variations across the EU-28. It remains to be seen how Member States will report their concrete adaptation achievements within the European Structural and Investment Funds in their Annual Implementation Reports and Progress Reports. Appropriate indicators are deemed necessary in order to assess whether the adaptation actions can be considered to be effective.

Contribution of adaptation to the delivery on Europe 2020 objectives and Juncker Commission priorities

Delivery on the Europe 2020 objectives, including the growth and job agenda, depends on a climate-resilient EU that is both prepared for the current and future impacts of climate change and able to ensure synergies and integrated approaches across sectors and governance levels. The actual degree of adaptation mainstreaming assessed in this study shows that adaptation is well mainstreamed at the strategic level but appears to face certain difficulties at the operational programme level and can be most challenging at the concrete action level. There is thus room for the EU and the Member States to enhance adaptation efforts for the purpose of effective uptake of adaptation in the European Structural and Investment Funds support. Unless the challenges in terms of ensuring climate change resilience are addressed, it could be somewhat difficult to deliver on certain of the EU 2020 Strategy objectives and Juncker Commission's ten priorities, such as the priority on a resilient Energy Union with a forward-looking climate change policy and the priority on boosting jobs, growth and investment. The latter is dependent on climate-resilient investments and climate-resilient infrastructure for socio-economic development and competitiveness. Hampered building of European climate resilience may negatively affect implementation of adaptation-relevant aspects of the EU acquis communautaire in sectors such as water, transport, energy and agriculture.

Horizontal ways of further strengthening the EU's adaptation framework

Guidance and best practice examples on how the horizontal principles can be put into use: Due to its strong cross-cutting nature, adaptation needs to be appropriately mainstreamed into other policy areas. The horizontal principles in Annex 1 to the Common Provisions Regulation are a strong point of departure for promoting adaptation. However, it is observed that the horizontal principles are used across Member States rather unevenly and, in some

instances, very superficially, leading to unharvested potentials for mainstreaming of adaptation across sectors. Available guidance on the application of the horizontal principles and how to secure climate change adaptation is limited. Guidance and best-practice examples on how the horizontal principles can be put into use could thus benefit a number of Member States in better exploring the potential for adaptation mainstreaming, and also facilitate adaptation being integrated into selection criteria. Other horizontal ways of enhancing the mainstreaming of climate change adaptation into the European Structural Investment Funds may include:

Strengthening the role of climate change adaptation in ex ante assessment guidelines and the Strategic Environmental Assessment as part of the early stage programming process: It was observed in programmes that climate change was either not dealt with at the early stage of the programming phase, or that recommendations were not sufficiently integrated at the programme preparation stage. The adaptation part of the ex-ante conditionality on risk assessment could be strengthened through an explicit legal requirement for national risk assessments to be based on national adaptation strategies and related climate vulnerability assessments to ensure that relevant adaptation challenges are identified as key challenges for the programming. Further guidance to Member States on the how to promote synergies between adaptation and risk management may also facilitate a higher uptake of adaptation.

Clear earmarking of funding for climate change adaptation: In terms of overall political targets, there has been no overall target for climate adaptation. The absence of specific adaptation targets in the overall 2020 targets may have constituted a barrier, compared with clear and well-articulated mitigation targets for 2020. A clear earmarking of funding for adaptation is thus recommended in the next programming period, in order to facilitate a higher uptake of adaptation measures.

Strengthening adaptation in the common methodology

Common methodology for tracking climate action: The common methodology provides for a shared, consistent and mechanical way of calculating programmatic support for climate action. However, the methodology does not allow for an immediate distinction between climate change adaptation and mitigation, though support that falls under Thematic Objective 5 can be categorised as *orientated primarily* towards climate change adaptation. The lack of a clear distinction is of particular concern with regard to Rural Development, where most support for climate change adaptation is of an indirect nature. The methodology could also be strengthened to better capture adaptation expenditures in the other funds.

Clear governance set up to deal with climate change adaptation: Member States must ensure coordination, complementarity and synergies with other EU policies and instruments and avoid overlap between the Fund supports, according to the Common Strategic Framework in the Common Provisions Regulation. This implies that Member States need to have sufficient administrative capacity in place to establish and coordinate addressing of adaptation as a cross-cutting discipline in the programming. However, this is

sometimes difficult at the Member State level, with national or regional/local authorities facing resource and administrative capacity constraints. Guidance and examples of know-how and best practices on better integration between sectors when addressing adaptation priorities would facilitate such closer cooperation in Member States and thus pave the way for more effective implementation.

Scope for a potential new Adaptation Strategy

The findings and lessons learned on the mainstreaming of adaptation into the European Structural and Investment Funds and how the programming of these has supported the implementation of the EU Adaptation Strategy may furthermore be reflected in the forthcoming revision of the EU Adaptation Strategy. It may be considered to take the strategy a step further to strengthen the framework for adaptation, not least in terms of the further integration of adaptation into the European Structural and Investment Funds in the next programming period. The strategy may then put a stronger focus on the role of adaptation in the implementation of EU policy objectives and directive-specific targets on synergies between sectors, on better coherence with risk prevention and disaster management policies, and on synergies between the European Structural and Investment Funds in enhancing adaptation.

Enhancing adaptation in Outermost Regions

The European Structural and Investment Funds programmes of the Outermost Regions cover a wide range of climate change adaptation. However, these actions are often of a rather 'passive' form, and do not fully seize the opportunity for proactive and/or long-term planning in terms of integration of adaptation into key economic activities. From a more structural perspective, social urgency, limited administrative capacity, weak regulatory effectiveness (e.g. strict selection criteria) and lack of engineering expertise (including public procurement processes) are among the key barriers observed that inhibit a more enhanced climate change adaptation effort in the outermost regions.

Achievements and possible ways of further enhancing the mainstreaming of climate change adaptation into each specific Fund are described below.

6.1 European Regional Development Fund and Cohesion Fund

Mainstreaming climate change adaptation

The European Regional Development Fund and the Cohesion Fund allocate about 11 % of the total allocation for climate action specifically for climate change adaptation through Thematic Objective 5, amounting to about EUR 6 billion. Another EUR 4.3 billion is allocated to supportive climate change mitigation and/or adaptation, which corresponds to 8 % of the allocation for climate action. These adaptation-supportive actions are commonly found in Thematic Objective 1 (Research & Innovation), Thematic Objective 6 (Environment) and Thematic Objective 7 (Transport). Throughout both funds, Thematic Objective 5 (climate change adaptation) is used for climate change adaptation in about 40 % of all Operational Programmes. For the individual Member States, the allocation for climate change adaptation out of climate action varies from zero to 26 %, while the mean allocation is 8 %.

Typical climate change adaptation actions

The most prevalent types of adaptation actions supported under Thematic Objective 5 are for droughts, heatwaves, flooding and landslides. The most common interventions on flooding and landslides are 'soft' measures related to early warning systems, preparedness and ecosystem-based approaches through e.g. green infrastructure., but also 'hard' measures, such as flood protection infrastructure. The issue of droughts and water scarcity are also frequently addressed throughout the programmes. Though here as in general, the description of adaptation actions are of low detail, the water scarcity and drought actions, for example, refer to improved water management and water efficiency (e.g. reducing leakage). The issue of heatwaves and urban heat islands is an adaptation challenge addressed in many programmes and mostly consists of actions on, for example, green urban infrastructure measures.

Recommendations

The underlying assessment identified several barriers to the mainstreaming of climate change adaptation under the European Regional Development Fund and the Cohesion Fund. For climate change adaptation that is connected to environmental actions under Thematic Objective 6, it is difficult to assess and estimate support to climate adaptation. Climate change adaptation has generally not been included in the respective specific objectives, expected results or output/result indicators for Thematic Objective 6. Therefore, what could be considered is to require more explicit descriptions of the adaptation co-benefits that should be achieved through the environment actions. This would essentially require close coordination between relevant sector authorities at the Member State level at the planning stage but also at the implementation and monitoring stages.

A further recommendation is the definition of a broader range of common output indicators on climate change adaptation than those related to flooding and forest fires, so as to be able to monitor progress, but also motivate a more explicit recognition of the adaptation element in the programming phase.

Finally, the climate markers have a limited ability to identify the share of climate change adaptation for actions that address mitigation as well as adaptation. In particular, the climate resilience component of environmental and transport infrastructure (e.g. improved climate resilience of railroads) is not accounted for. This would, for infrastructure that contributes to mitigation (e.g. rail transport), require a division between the adaptation and mitigation contribution. For infrastructure that does not contribute to mitigation (e.g. road infrastructure), how a potential climate resilience part of the investment could be included as an adaptation contribution should be considered.

6.2 European Territorial Cooperation

Mainstreaming climate change adaptation

Despite no minimum requirement of climate action in the Cooperation Programmes, the European Territorial Cooperation goal very successfully managed to incorporate climate change adaptation. Conclusively, this demonstrates that the Member States are committed to climate change adaptation and recognise climate change as a pan-European phenomenon.

Typical climate change adaptation actions

The primary focus of climate change adaptation lies in 'soft' measures that enhance prevention, preparedness, and impact-response cooperation, primarily on floods, landslides, and forest fires. A further prominent area of adaptation is through research and the protection of biodiversity. The corresponding actions aim at the recovery of terrestrial habitats, improved resilience of forests or development of green infrastructures (among other items).

Recommendations

While the programmes under this goal exhibit strong performance, there are some factors which inhibit a more enhanced mainstreaming of climate change adaptation. One key factor is the thematic concentration requirement in the regulation. It reduces the Member States' preference of using Thematic Objective 5 for climate adaptation. While there is no TO-based requirements for Thematic Concentration, the call for the programmes to concentrate on a limited number of Thematic Objectives can imply a preference for Thematic Objective 6 over Thematic Objective 5 The selection of Actions in Thematic Objective 6 can be assessed to be a more flexible approach than in Thematic Objective 5. A ring-fencing requirement may reduce this preference. Yet, in the geographical scope of territorial cooperation, the scope for climate change adaptation may be limited in some cross-border regions. Instead, marking whether Investment Priorities or support categorised under Thematic Objective 6 will essentially provide significant contributions towards climate change adaptation can make climate change adaptation more explicit. As an alternative, one may consider the 'merging' of Thematic Objective 5 and Thematic Objective 6 in the European Territorial Cooperation regulation in order to avoid the existing dilemma of choice. A 'merging' would come at the expense of the potential to trace expenditure immediately to Thematic Objective 5 or 6. However, the current categories of Intervention Fields would still allow for tracking most of the expenditure that is directly targeted at climate change adaptation (Intervention Field 87). A second key barrier identified is that the consideration of climate change adaptation in the selection criteria and horizontal principles (such as in the form of climate resilience) is limited to a small number of programmes. The shortage of concrete guidance and requirements in the design of the principle of sustainable development may have limited the degree to which the managing authorities horizontally mainstreamed climate adaptation throughout all actions (i.e. actions unrelated to climate action, but likely to be affected by climate change). Although many programmes will develop selection principles that shall ensure sustainable development during the execution phase, no minimum criteria have been defined. In this context, it is recommended that minimum criteria during the programme adoption phase and more concrete legislative provisions to ensure a more reliable degree of climate change adaptation mainstreaming throughout all types of actions be required.

Enhancing climate change adaptation further in the ETC

For the territorial cooperation goal, climate adaptation could be further enhanced through an ear-marking of Thematic Objective 5 that requires a minimum focus on adaptation action. As a result, Managing Authorities may be provided with a stronger incentive for 'hard' investments (e.g. flood protection barriers). At the same time, enhancing climate adaptation in the ETC for 'hard' investments faces the barrier that climate actions are not attributed to the individual Member States. Therefore, the incentive for 'hard' investments is considerably stronger under the European Regional Development Fund.

6.3 European Social Fund

Mainstreaming climate change adaptation

The mainstreaming of climate action in European Social Fund programmes was a novelty in this programming period that went against the tradition of achieving objectives through a purely horizontal perspective, which should be recognised.

Typical climate change adaptation actions

The majority of the Operational Programmes make references to general themes such as green jobs, green growth and green sectors. At the level of priority axes or investment priorities, programmes indicate training, education, entrepreneurship, and job generation in these areas. Overall, 31 programmes specifically mention climate change adaptation.

Recommendations

At the core of the mission of the European Social Fund lie such themes as employment, social cohesion, education and skills. Secondary theme 01 is a 'marker method' that pays due attention to the need for sectorial flexibility if the fund is to deliver efficiently and effectively on its mission. However, adding climate change adaptation to the title of this secondary theme may be considered. This will ensure that mitigation and adaptation are treated on par with each other. Furthermore, following the support that is delivered for climate change adaptation during the operational phases of Operational Programmes is recommended. This could be in the form of introducing compulsory reporting in progress reports on the support for climate action, possibly specifying the support provided for climate change adaptation separately. While still recognising the need for flexibility at the programming stage, it would thus be possible to monitor the contribution from the European Social Fund to climate action and to climate change adaptation in particular. To support future programme design, good and operational examples of how climate change adaptation has been supported by the European Social Fund in the current implementation period may help increase awareness. Today, most of the available relevant experience that can be identified relates to mitigation support. Such examples could feed into the preparation of timely and adaptation-relevant guidance material to support the next programming period. Finally, climate action is often addressed in the Operational Programmes in a way that does not involve 'hard commitments'. Introducing requirements for climate-relevant results, outputs or considerations for selection could be considered. Such requirements could apply in cases where the programme support for climate action exceeds a certain percentage, e.g. 5 %.

6.4 European Agricultural Fund for Rural Development

Mainstreaming climate change adaptation

Across the range of measures, dedicated adaptation is allocated 13 % of total climate change allocation under the European Agricultural Fund for Rural Development, while adaptation through environmental management, i.e. climate change mitigation and/or adaptation, is allocated 77 %. As such, dedicated adaptation contributes 15 % of the total adaptation allocation of EUR 50.9 billion, while adaptation through environmental management contributes 85 %. A larger percentage of total EU support is allocated to dedicated adaptation within Member States in the Mediterranean and Southern region than in

Northern and Western Member States. This difference in allocation to dedicated adaptation measures makes sense from a climate and environment perspective, as the Southern and Mediterranean Member States face more severe adaptation challenges related to climate hazards, such as drought and heat waves.

With the exception of eight Rural Development Programmes, climate change adaptation needs have been identified in the programmes. However, it is often difficult to link the needs identified back to the Risk Assessment undertaken. Clearer linking of ex-ante conditionality 3.1 with Focus Area 3b (risk-prevention) programming of relevant measures is needed. The ex-ante conditionality is useful, but its effect is unclear.

Typical climate change adaptation actions

In terms of adaptation themes, typically the most identified are flooding, drought, water efficiency and knowledge building. The measures allocated most support to address these themes are those that include elements of environmental management (mainly Measure 10, 11 and 13). However, measures aimed at risk management, hazards, and local development have been found to deliver the most targeted and clear climate change adaptation benefits (Measure 05, 07 and 19). As such, the programming of measures does not reflect all identified adaptation needs, but rather a select subset, and the tracking methodology includes measures with little clear adaptation benefit, while excluding measures with distinct adaptation value.

Recommendations

Following the structure of the Rural Development Programme template, the first recommendation concerns the weak link between the risk assessment and the identification of needs. In practice, a clearer linkage would entail specifying in the guidelines that Focus Area 3b-relevant actions can only be consistent with findings from the risk assessment, such as introducing in the regulation that the action linked to the allocation needs to be described and assessed in the context of the National or Regional Risk assessment as a criterion for an allocation to qualify. In the Rural Development Programme, it should only be possible to allocate funds to specific measures or Focus Area 3b if a dedicated text box is used to explain what parts/themes/risks of the risk assessment the allocation is intended to address.

Secondly, in order to enhance the transparency and ease of the process of programming a specific measure toward a given Focus Area to meet a given objective (and thus a set of challenges), developing a prescriptive guideline to assist in programming measures under a relevant Focus Area when meeting a given objective is recommended. Thus, it should be clear that if the objective is to adapt to climate change by increasing water efficiency, the objective could be met by allocating a portion of EU support to a given measure under a specific Focus Area, e.g. Measure 05 and Focus Area 3b, and another portion to another Measure/Focus Area combination, e.g. Measure 04/Focus Area 5a. It also follows from this that certain Measure/Focus Area combinations would be excluded for certain objectives, but included for others. This could entail additional administrative costs for authorities and the split be quite subjective, but it would improve tracking accuracy and transparency. As the table below illustrates, each Measure should be limited to thematically relevant Focus Areas, while all other

Focus Areas should be deemed not relevant (NR). The same is applicable vice-versa.

Table 6-1: Example of guidance on how to allocate EU Support to a given ME/FA combination, given the objectives and challenges identified in the RDP and assuming the same UP/FAs as in the current framework.

ME/FA	3b	4a	4b	4c	5a	5b	5c	5d	5e	6b
ME X	X	NR	X	X	NR	NR	NR	NR	NR	NR
ME Y	NR	NR	NR	NR	X	NR	NR	NR	NR	NR

Thirdly, since none of the Focus Areas with climate markers [105] target adaptation, it is difficult for managing authorities to identify the proper Focus Area to which EU Support should be targeted for a given measure. Therefore, it is recommended that one or more dedicated adaptation-targeted Focus Areas are developed, focusing on specific issues related to climate change adaptation, e.g. elaborating 3b into separate risk management, resilience-building and resource-efficiency Focus Areas. Fourthly, the climate markers do not depend on the measure that is programmed under the respective Focus Areas, although certain combinations of Measures and Focus Areas could be expected to deliver very little climate change action. To achieve a better link between climate markers and climate action, climate markers could depend on a Measure/Focus Area split, with certain measures contributing 100 % towards climate under a given Focus Area and other measures contributing 40 % or 0 %.

Lastly, because livestockdo not fit well with the current Union Priority/Focus Area framework, the issue often disappear in the programming and are hard to detect. This could be dealt with via one or more of the below three changes:

- Devise specific measures for livestock adaptation measures, even if this would increase the complexity of administrating systems.
- Ensure that livestock matters are explicitly allocated to one of the existing Focus Areas, so that consistent allocation can be promoted.
- Devise dedicated Focus Areas to livestock, so that activities programmed within existing measures can be allocated to these Focus Areas, and thereby increase transparency.

6.5 European Maritime and Fisheries Fund

Mainstreaming of climate change adaptation

The European Maritime and Fisheries Fund dedicates EUR 1.0 billion to climate action. The structure of the Operational Programmes, however, does not allow the tracking of climate change adaptation based on financial allocations, given

that allocations for climate action are only provided at an Operational Programme level. Overall, the climate action share increased from 17.21 % during the Inter-Service Consultation 1 stage to 17.69 % in the adopted stage – a modest increase, but a significant fraction of all European Maritime and Fisheries Fund expenditure nonetheless. While the slight increase of climate action might be connected to the mainstreaming efforts, the low level of detail in the measure descriptions inhibits a more explicit attribution. There are 13 Member States that allocate less than this share, and another 14 that allocate more. It should also be noted that nine Member States actually have allocated more than 20 % of their expenditures for climate action. Moreover, climate adaptation is commonly not a concrete part of the programmes' strategies and the programmes do not link to national adaptation strategies. This may be explained by the fund's small size and the less detailed description of measures. Finally, at the strategy level, the programmes tend also to focus more on Common Fisheries Policy issues as such and more (albeit limited) on environment and climate change mitigation than on climate change adaptation explicitly, which is in some cases explained by the relatively limited impact of actions on the overall adaptation of Member States.

Typical climate change adaptation actions

Although climate change adaptation is not an explicit objective of the European Maritime and Fisheries Fund, climate adaptation has been promoted in all OPs, mostly through environmental protection measures, insurance funds, local development strategies and data gathering. The number of measures that address concrete climate change adaptation is limited to two measures that foresee compensatory schemes for adverse climatic events. These measures have been selected by eleven Member States.

Recommendations

Based on the above analysis, the key recommendations are as follows. Due to the low traceability of climate action in the European Maritime and Fisheries Fund, it is not possible to identify the share of climate change adaptation action. Therefore, providing EU support for each measure to facilitate a more detailed identification of climate action is recommended.

Further, the current absence of Thematic Objective 5 in the programme design is likely to have reduced the focus of managing authorities on climate change adaptation, as direct adaptation actions are concealed behind Thematic Objectives 3 and 6. Adding Thematic Objective 5 can thus improve the strategic focus of climate change adaptation. Therein, it would be beneficial to sufficiently change the Thematic Objective designation for measures (e.g. Articles 35 and 57) or introduce further measures (e.g. an Article 43.4 that specifically focusses on the climate resilience of fishing ports).

However, there is a concurrent need to recognise the European Maritime and Fisheries Fund's mission of developing fisheries and their related environments. In this context, the scope of explicit climate change adaptation is limited. Therefore, an alternative approach is, similar to the European Social Fund, the introduction of a 'secondary theme', which allows an individual marking of climate change adaptation actions to individual measures, while fully respecting this fund's actual mission.

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8 Annexes

8.1 Annex A – Case studies

Annex A is added as a separate volume.

8.2 Annex B – Overview of ESIF support for adaptation in each of the Member States

Annex B is added as a separate volume

8.3 Annex C – Overview of ETC programmes

Table 8-1 below gives an overview of all CPs, accompanied by their respective support for climate action. There are 57 cross-border CPs, 15 transnational, and 3 interregional programmes. Notably, 50 CPs (75 %) include climate adaptation. Note that interregional CPs do not address climate adaptation.

Table 8-1: Overview of cooperation programmes, with respective support for climate action

Cross-border programmes					
CCI	**Title**	**Climate adaptation (MEUR)**	**CCI**	**Title**	**Climate adaptation (MEUR)**
2014TC16RFCB001	Belgium-Germany-The Netherlands (Euregio Maas-Rhine)	-	2014TC16RFCB030	Slovakia-Czech Republic	-
2014TC16RFCB002	Austria-Czech Republic	3.634	2014TC16RFCB031	Lithuania-Poland	-
2014TC16RFCB003	Slovakia-Austria	-	2014TC16RFCB032	Sweden-Finland-Norway (Nord)	1.701
2014TC16RFCB004	Austria–Germany (Bayern–Österreich)	4.044	2014TC16RFCB033	Italy-France (Maritime)	28.714
2014TC16RFCB005	Spain-Portugal (POCTEP)	16.171	2014TC16RFCB034	France-Italy (ALCOTRA)	14.955
2014TC16RFCB006	Spain-France-Andorra (POCTEFA)	11.679	2014TC16RFCB035	Italy-Switzerland	2.073
2014TC16RFCB007	Spain-Portugal (Madeira-Azores-Canarias (MAC))	11.703	2014TC16RFCB036	Italy-Slovenia	0.779
2014TC16RFCB008	Hungary-Croatia	1.715	2014TC16RFCB037	Italy-Malta	5.100
2014TC16RFCB009	Germany/Bavaria-Czech Republic	3.575	2014TC16RFCB038	France-Belgium-The Netherlands-United Kingdom (Two seas)	38.497
2014TC16RFCB010	Austria-Hungary	1.423	2014TC16RFCB039	France-Germany-Switzerland (Rhin supérieur-Oberrhein)	1.300
2014TC16RFCB011	Germany/Brandenburg-Poland	2.500	2014TC16RFCB040	France-United Kingdom (Manche-Channel)	18.870
2014TC16RFCB012	Poland-Slovakia	1.500	2014TC16RFCB041	France-Switzerland	-
2014TC16RFCB013	Poland-Denmark-Germany-Lithuania-Sweden (SOUTH BALTIC)	-	2014TC16RFCB042	Italy-Croatia	25.673
2014TC16RFCB014	Finland-Estonia-Latvia-Sweden (Central Baltic)	-	2014TC16RFCB043	France (Saint Martin-Sint Maarten)	3.000
2014TC16RFCB015	Slovakia-Hungary	-	2014TC16RFCB044	Belgium-France (France-Wallonie-Vlaanderen)	5.099
2014TC16RFCB016	Sweden-Norway	-	2014TC16RFCB045	France-Belgium-Germany-Luxembourg (Grande Région /Großregion)	-
2014TC16RFCB017	Germany/Saxony-Czech Republic	15.797	2014TC16RFCB046	Belgium-The Netherlands (Vlaanderen-Nederland)	-
2014TC16RFCB018	Poland-Germany/Saxony	5.000	2014TC16RFCB047	United Kingdom-Ireland (Ireland-Northern Ireland-Scotland)	-
2014TC16RFCB019	Germany/Mecklenburg-Western Pomerania/Brandenburg-Poland	7.000	2014TC16RFCB048	United Kingdom-Ireland (Ireland-Wales)	27.719
2014TC16RFCB020	Greece-Italy	-	2014TC16RFCB049	Hungary-Romania	5.275
2014TC16RFCB021	Romania-Bulgaria	17.260	2014TC16RFCB050	Estonia-Latvia	-
2014TC16RFCB022	Greece-Bulgaria	12.000	2014TC16RFCB051	France (Mayotte/Comores/Madagascar)	3.250
2014TC16RFCB023	Germany- The Netherlands	5.210	2014TC16RFCB052	Italy-Austria	3.000
2014TC16RFCB024	Germany-Austria-Switzerland-Liechtenstein (Alpenrhein-Bodensee-Hochrhein)	0.986	2014TC16RFCB053	Slovenia-Hungary	-
2014TC16RFCB025	Czech Republic-Poland	11.605	2014TC16RFCB054	Slovenia-Austria	2.604
2014TC16RFCB026	Sweden-Denmark-Norway (Öresund-Kattegat-	-	2014TC16RFCB055	Greece-Cyprus	1.988

	Skagerrak)				
2014TC16RFCB027	Latvia-Lithuania	1.256	2014TC16RFCB056	Germany-Denmark	-
2014TC16RFCB028	Sweden-Finland-Norway (Botnia-Atlantica)	-	2014TC16RFPC001	Ireland-United Kingdom (PEACE)	-
2014TC16RFCB029	Slovenia-Croatia	10.027			
Transnational programmes					
CCI	**Title**	**Climate adaptation (MEUR)**	**CCI**	**Title**	**Climate adaptation (MEUR)**
2014TC16RFTN001	Alpine Space	-	2014TC16RFTN009	Indian Ocean Area	4.130
2014TC16RFTN002	Atlantic Area	4.362	2014TC16RFTN010	Amazonia	-
2014TC16RFTN003	Central Europe	4.438	2014TC16M4TN001	Mediterranean	-
2014TC16RFTN004	Northern Periphery and Arctic	2.360	2014TC16M4TN002	Adriatic-Ionian	9.094
2014TC16RFTN005	North Sea	18.398	2014TC16M4TN003	Balkan-Mediterranean	2.800
2014TC16RFTN006	North West Europe	16.506	2014TC16M5TN001	Baltic Sea	2.638
2014TC16RFTN007	South West Europe	9.613	2014TC16M6TN001	Danube	6.277
2014TC16RFTN008	Caribbean Area	14.083			
Interregional programmes					
CCI	**Title**	**Climate adaptation (MEUR)**	**CCI**	**Title**	**Climate adaptation (MEUR)**
2014TC16RFIR001	INTERREG EUROPE	-	2014TC16RFIR004	ESPON	-
2014TC16RFIR003	URBACT	-			