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COMMISSION STAFF WORKING DOCUMENT

Technical guidance on integrating climate change adaptation in programmes and investments of Cohesion Policy¹

Accompanying the document

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

An EU Strategy on adaptation to climate change

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¹ DISCLAIMER: This document must not be regarded as an official guide from the Commission. The document has been finalised before the adoption of legal acts concerning the Cohesion Policy for the period 2014-2020. Therefore, some of the provisions referred to may change in the final regulations adopted by the Council and the European Parliament.

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An EU Strategy on adaptation to climate change

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SUMMARY

What to do at the Programming Stage
<p>Programming covers the development of a Partnership Agreement and of Operational Programmes.</p> <p>The Partnership Agreement lays the ground for all future European Structural and Investment (ESI) Fund spending, including Cohesion Policy.</p> <p>The Operational Programmes are the key planning tool for Cohesion Policy expenditure. As much detailed information as possible should be brought to the programming process, to set in place the necessary conditions for integrating adaptation into projects to be funded.</p> <p>Key points to bear in mind when developing these documents:</p> <ul style="list-style-type: none"> • Partnership Agreements are binding and the right opportunity to ‘lock-in’ consideration climate change adaptation throughout the process • Horizontal principles (Article 8 of General regulation proposal) include climate change adaptation – use this to ensure the programmes cover climate change impacts • Ideally, spending programmes should be driven by development and sectoral strategies already in place, including adaptation plans or strategies • Consider using Cohesion Policy funds directly to fund more research and strategic planning for climate change adaptation where information is lacking • A new focus on result indicators and required common indicators provides an opportunity to include adaptation into indicators for all programmes
What do to at the Launching Programmes Stage
<p>The ‘Launching Programmes’ stage covers setting up the basic implementing arrangements that will govern how the programme is carried out. Key points to bear in mind include:</p> <ul style="list-style-type: none"> • Focus on raising awareness when communicating programmes to stakeholders, explaining that programmes have to consider climate impacts and risk prevention and that these requirements will be translated to the project level, with associated benefits. • Ensure adaptation is represented on the programme monitoring committee and that the committee has access to specialist expertise. • Set up tenders or calls for proposals that stress adaptation requirements
What do to at the Project Preparation Stage
<p>The overall goal is to create the conditions for project beneficiaries to prepare proposals where climate change adaptation is taken into consideration. This can be done by Managing Authorities, with support from environmental partners/adaptation experts. Key points to bear in mind include:</p> <ul style="list-style-type: none"> • Provide training sessions for project applicants to learn more about how climate change impacts their projects • Provide specialized expertise (including taking advantage of external programmes like JASPERS) to project developers for integrating adaptation • Provide web-based guidance and resources for applicants • Require climate change adaptation in key project preparation tools like Cost-benefit Assessment and Environmental Impact Assessment for all projects <p>A combination of requirements (from the Commission but also from Managing Authorities) and targeted assistance with project preparation can ensure that climate resilience is effectively integrated into large infrastructure projects.</p>
What to do at the Project Evaluation and Selection Stage

The main goal is to give appropriate priority to project applications that consider climate change impacts and incorporate adaptation measures. Key points to bear in mind include:

- **Project eligibility criteria** that cover compliance with adaptation strategies, consideration of impacts and how to address them can effectively force project developers to consider adaptation – but may be difficult to put in place as they can be restrictive.
- **Project appraisal criteria** and scoring can effectively prioritise projects that consider climate impacts
- Consider whether environmental requirements in public procurement regulations apply and can be inserted in project selection criteria
- The project appraisal process itself is important; evaluators need to understand how climate change impacts the project situation. Involving external experts directly in evaluation bodies and/or educational support for Managing Authorities is needed to address this issue. The production of appraisal guidelines for different project types can also be of use.

What to do at the Project Implementation Stage

Project implementation is mainly carried out by project beneficiaries. While solid consideration of climate change adaptation at the programme and project preparation stages can set the stage for effective outcome, it will also be necessary for Managing Authorities to monitor project implementation. There are two main ways in which this can be done:

1. **Providing technical support and advice:** specialized expertise can be made available to project beneficiaries as needed during project implementation.
2. **On-going monitoring:** An informal supervision process that enables feedback and communication between Managing Authorities and project beneficiaries during the project implementation process.

The key factors are having access to adaptation expertise (internal or external) and integrating the focus on adaptation into regular monitoring and supervision of project implementation.

What to do at the Monitoring and Evaluation Stage

Monitoring and evaluation need to be **periodically reviewed** so to **integrate new information about projected climate change** impacts and vulnerabilities throughout the lifetime of the Programmes. Due to its central role in the monitoring process, the **Monitoring Committee** must include sufficient adaptation expertise – through direct membership and also access to required external experts. **Data and information** are the main backbone of monitoring mechanisms.

- Successful monitoring requires **sound integration of adaptation** issues into the indicators within the Common Monitoring and Evaluation Framework (CMEF) as well as the milestones developed at the programming stage;
- A solid **indicator framework** that includes adaptation (even where adaptation is not the main focus of expenditure) and that includes national indicators that go beyond those prescribed at an EU level, will ensure an effective monitoring of climate resilience;

Good cooperation between Managing Authorities and those involved in providing the data will help to ensure the right data can be collected. Where there are gaps in data availability, efforts need to be made to fill these at the national level.²

² See for instance EEA report on climate change, impacts and vulnerability in Europe: <http://www.eea.europa.eu/publications/climate-impacts-and-vulnerability-2012>

1. INTRODUCTION

1.1. Context

The impacts of climate change are becoming increasingly evident across Europe. Building capacity to cope with the inevitable impacts of climate change is necessary across key EU policy fields, and has a special importance for expenditure programmes, such as those financed by Cohesion Policy. These programmes, closely linked to overall spatial and socio-economic development plans, will determine the path of development in many parts of the EU for the coming decades. The awareness, skills, know-how and motivation of authorities, experts and other stakeholders to seriously consider the ways in which climate change will impact the ability of these investment programmes to bring the desired long-term sustainable benefits is a critical issue.

The ‘Cohesion Policy’ covered by this document refers to the three following Funds: the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund (CF). The guidance is mainly aimed at the 2014 – 2020 Cohesion Policy programming period. It is tied closely to the proposed regulations, as they will govern what has to be done to plan and implement Cohesion Policy funded programmes and projects³.

Overall, the proposed regulations for European Structural and Investment Funds 2014 – 2020 reflect **the increased importance that climate change risks and the need for adaptation have gained in the European policy agenda**. The regulations explicitly mention climate change adaptation as part of the horizontal principle on sustainable development, and a 20% - overall EU budget spending on climate change has been proposed, which will include spending on adaptation. One of the eleven Thematic Objectives for the Cohesion Policy funds is dedicated to climate change adaptation, in the context of overall risk planning and disaster management. National and/or regional risk assessments for disaster management are a pre-condition for funding. The partnership principle, which requires participation of environmental partners in planning and implementation of programmes, will be reinforced by a dedicated act specifying how the cooperation is to be carried out.

Discussions with stakeholders on capacity needs and barriers led to the conclusion that the cross-sectoral nature of climate change adaptation and the need to integrate it across all types of programmes and projects is a major challenge for authorities. Typically, it is environmental or climate change authorities with responsibility for adaptation who have the obligation and/or the desire to ensure that development is carried out sustainably and safely with regard to the impacts of climate change. They are the ones who will drive mainstreaming of adaptation into Cohesion Policy – whether that is through direct funding in a regional development or environment programme, or integration into at-risk sectoral programmes like energy and transport. It will be their task to convince authorities and stakeholders responsible for overall programmes that adaptation is important and needs to be effectively integrated at the strategic and specific project levels.

For more information – Methodologies for climate proofing investments and measures under Cohesion

³ It should be noted that this document has been drafted on the basis of draft regulatory texts. Formal agreement on Cohesion Policy legislation is not expected until 2013. Some of the provisions referred to may change in the final regulations adopted by the Council and the European Parliament

This guidance draws on the results of the project Methodologies for climate proofing investments and measures under Cohesion and Regional policy and the Common Agricultural Policy (CAP), funded by the European Commission (Directorate General for Climate Action). It is based upon considerable research and stakeholder consultation carried out by a dedicated team of multi-disciplinary experts during 2011 and 2012. It is backed by a full study which investigates climate impacts and associated vulnerabilities and attempts (based on the research available) to assess potential damage costs and identify a menu of priority adaptation options that should be implemented by Cohesion Policy. The main project study also includes a thorough analysis of the proposed regulations for Cohesion Policy 2014-2020 from the perspective of climate change adaptation, a review of key policy instruments and policy recommendations.

This guidance builds directly on the elements of this main study, and aims to translate them into readily useable information and advice for authorities and stakeholders involved in Cohesion Policy programmes. Comparable guidance has also been prepared for the CAP.

The final report, as well as some sectoral fiches describing main impacts and adaptation options per economic sector concerned by EU-funded investment decisions, will be made available on Directorate General Climate action's website.

1.2. Objectives

The purpose of this guidance is to help adaptation experts, Managing Authorities and other stakeholders to ensure that Cohesion Policy programmes and projects address and consider the expected impacts of climate change and take active steps to reduce climate risks.

It helps to:

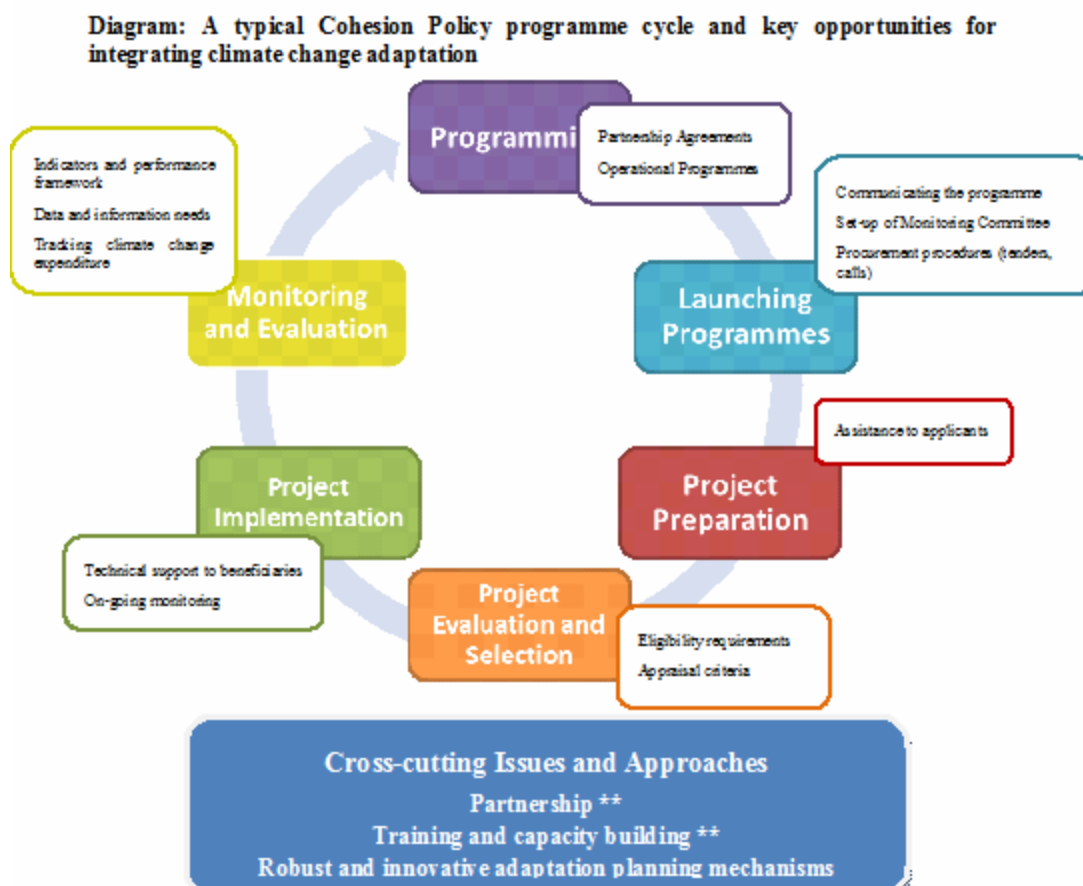
- Explain, in simple terms, where the proposed regulations provide opportunities for adaptation and point out how they can be applied at each stage of the programme cycle
- Suggest which types of authorities to approach in each case and what type of information to bring to the process
- Explain what type of information on climate change impacts and adaptation options may be available and when to use it
- Identify, based on practice and experience around the EU, good examples of programmes, projects and approaches from 2007-2013 that integrate adaptation.

This guidance has been conceived as a manual, containing advice, methods, tips and examples on what to do at each stage to spread the adaptation message and take advantage of legal and policy instruments available to them. In addition, sectoral fiches⁴ provide the information base and concrete technical options that can put a practical face on the sometimes unclear topic of adaptation. The fiches may be useful directly to sectoral authorities, project developers and other interested parties as well. Ideally, Member State authorities will use the Sectoral Fiches as a basis for developing more detailed and country-specific versions of these documents as information tools.

⁴ The sectoral fiches as well as the final report of the project mentioned above will be made available on <http://ec.europa.eu/clima/policies/adaptation/>

1.3. Approach

The guidance is organized around six stages of a typical cycle for Cohesion Policy programmes that covers planning, implementation and monitoring of funding programmes and is shown on the next page. Cross-cutting issues and approaches that apply to all stages of the cycle are given up front. To put climate change adaptation and Cohesion Policy sectors into context and serve as a useful quick reference guide, an overview of the main types of impacts that can be anticipated for each sector is also provided in Annex 1.



2. CROSS-CUTTING ISSUES AND APPROACHES

Climate change adaptation is important for nearly all Cohesion Policy sectors and types of programmes, and climate proofing sectors and investments at risk will require concerted efforts on many fronts. These cross-cutting issues and approaches are relevant across all stages of the programme cycle.

Partnership

A key issue of Cohesion Policy is the partnership principle. Enshrined in legislation since the 2000-2006 programming period, this requires that programmes and projects are carried out with the participation of relevant stakeholders across the social and economic spectrum. This includes regional and local authorities and also ‘environmental partners’. The proposed general regulation for 2014-2020 requires that ‘partners’ shall be involved at each stage of the programme cycle and shall be members of the monitoring committee. In practice, partnership can range from a very formal consultation exercise to genuine participatory planning. For

cross-sectoral issues like climate change adaptation, the right for environmental/climate authorities and experts to have a say in the design of programmes and projects is critical. The advice presented in this guidance document relies heavily on this right, and strongly encourages adaptation experts to take advantage of it to the greatest extent possible.

Robust and innovative adaptation planning mechanisms

Climate change adaptation is complex and requires careful strategic planning to be successful. This guidance urges Managing Authorities and stakeholders to link Cohesion Policy programming and investment decisions to existing adaptation planning processes, which should ideally form part of an overall approach to sustainable spatial and economic planning for a region or other territory. The approach also reduces the risk of maladaptation⁵ in Cohesion Policy spending, whereby poorly planned adaptation actions actually increase vulnerability to climate change.

Research and information on climate change vulnerabilities, risks and responses

Climate change adaptation is a field that is constantly evolving. The period between now and the end of the 2014-2020 programming period will bring much new understanding of specific and more localized climate threats, their impacts and associated damages. There will also be new technical options for adapting to these climate change impacts. Authorities and experts responsible for Cohesion Policy should be able to constantly integrate new information, and monitoring and evaluation programmes should enable this.

An excellent starting point is the European Climate Adaptation Platform ([Climate-ADAPT](#)). An initiative of the European Commission, this website is a platform for stakeholders across the EU to share information on expected climate change in Europe; current and future vulnerability of regions and sectors; national and transnational adaptation strategies; adaptation case studies and potential adaptation options; and tools that support adaptation planning.

Cross-Sectoral work approaches

Recent experience with integration of broader environmental issues into Cohesion Policy – also a cross-cutting topic – has shown that dedicated networks or other institutional linkages dedicated to the topic can be very effective at all stages of the programme cycle. Some countries (Italy, Poland, and Spain) have set up networks of environmental authorities. Generally, significant knowledge and experience is concentrated in these networks and their input and mediation can be instrumental for better integration of environment in general and climate change adaptation in particular.

Other options include the set-up of inter-institutional working groups or bodies dedicated to the integration of climate change across sectors. The main rationale for the existence of such a group is the on-going involvement of experts from different sectors and synchronization of their climate change adaptation efforts. Networks and working groups can be assisted by external specialized task forces, as in the Italian example below.

The Italian Network of Environmental and Managing Authorities – example of a specialized task force

⁵ Defined as ‘action taken ostensibly to avoid or reduce vulnerability to climate change that impacts adversely on, or increases the vulnerability of other systems, sectors or social groups’ in an editorial on ‘Maladaptation’ in *Global Environmental Change* 20 (2010) pp 211-213.

The Italian Network of Environmental and Management Authorities is supported by a task force of experts from a range of environmental subjects (water, waste, air, etc.) and economic sectors (agriculture, industry, energy, transport, etc.). They give technical help to the Italian Environmental Authority for Structural Funds 2000-2006. The network's role is to improve integration of environmental issues, design and implement sectoral programmes and policies and guarantee the coherence of all actions with Community environmental policy and legislation, in the least-developed regions of Italy.

Source: GRDP 2006, Greening projects for growth and jobs

3. PROGRAMMING – PARTNERSHIP AGREEMENTS AND OPERATIONAL PROGRAMMES

Deciding what to fund and how to fund it – based on a strategic evaluation of development needs and funding rules and requirements - is the first major step in the Cohesion Policy process. For the upcoming 2014-2020 funding period, programming will consist of Partnership Agreements and Operational Programmes. The Partnership Agreement has to be submitted to the Commission within four months after entry into force of the Common Provisions Regulation of the ESI Funds. These documents lay the ground for funding over the next seven years and it is therefore critical that they consider climate impacts, direct funding opportunities for adaptation and adaptation-related investments across sectors.

Communication across different sectoral authorities and with the main economic development authorities is critical for programming. Adaptation experts (i.e. experts in environmental or climate change authorities in charge of adaptation, relevant experts in the sectoral ministries and other knowledgeable partners) and/or Managing Authorities will need to mobilize available information about the impacts of climate change on Cohesion Policy investment sectors, as well as the potential measures and technical options for funding, and present it to the sectoral and other planning authorities at the right time for consideration into programmes and Partnership Agreements. The availability of concrete information on threats, damage costs, adaptation options and funding possibilities is a major factor for integrating climate change adaptation.

3.1. Partnership Agreements

3.1.1. Description

The Partnership Agreement essentially summarises a Member State's plans for using all the ESI Funds⁶ in a way that is consistent with the Europe 2020 Strategy. The document will therefore contain a strategic overview of the entire approach to using the Community Funds in the Member State.

Unlike the National Strategic Reference Frameworks used during the 2007-2013 period, the Partnership Agreement will be adopted by the Commission by means of an implementing act within four months of its submission by the Member State. This is important, because it means that **the Partnership Agreement will be a binding document**, with obligations on the part of the Member State. It is therefore a good opportunity to ensure that consideration of climate change impacts across all programmes and projects is clearly stated up front in this binding document.

⁶ The Common Strategic Framework (CSF) Funds = include the European Agriculture Fund for Rural Development (EAFRD) and the future European Maritime and Fisheries Fund (EMFF) in addition to the three Cohesion Policy Funds (ERDF, ESF, CF) referenced in introduction.

Partnership Agreements are to be submitted to the Commission with the Operational Programmes, once the regulations are adopted.⁷ The horizontal principles, including the Article 8 reference to climate change adaptation, disaster resilience and risk prevention and management apply to the Partnership Agreement as well as programmes. Furthermore, Partnership Agreements have to be prepared in cooperation with the partners (including environmental partners).

3.1.2. Key opportunities for integrating adaptation

The task of integrating adaptation into the Partnership Agreement will be closely linked to the work on the Operational Programmes. It also contains a summary of spending programmes, including the ex-ante assessment (and SEA). If adaptation has been taken seriously across the programmes, this should be reflected in the content of the Partnership Agreement. There are, in addition, a number of unique opportunities to stress the importance of climate change threats to the programmes, as well as the need for spending on adaptation. These are described below.

Financial allocations: The 20% target for climate change mitigation and adaptation for the EU budget 2014-2020 will impact the Partnership Agreement as well, which must include the total indicative amount of support foreseen for climate change objectives. This is important, as direct financial allocations for adaptation will be reinforced in this binding document.

Ex-ante conditionalities: Also new for 2014-2020 are the ‘ex-ante conditionalities’ contained in the proposed regulations. These are legal, policy, institutional and administrative factors which must be in place in each Member State or region in order to ensure effective and efficient implementation of the Funds’ assistance. Insufficient compliance may lead the Commission to suspend payments. It is in the Partnership Agreement that Member States must provide the first assessment of the extent to which the conditionalities are fulfilled. For conditionalities that are not fulfilled at the date of the submission, the relevant Operational Programmes must detail actions and a timetable to meet the requirements.

For adaptation, the most important of these conditionalities is the one related to the thematic objective on adaptation and risk management (5). The box below provides the details of this conditionality, which refers to a set of Council conclusions from 2011 on further developing risk assessment for disaster management within the EU.⁸

Member States will be required to address the extent to which they have assessed disaster risk, and the need for climate change adaptation. If this has not been done adequately, they will have roughly two years after the adoption of the Partnership Agreement to do so. This, combined with the funding opportunity under the adaptation thematic objective (see above), provides an excellent reason for those Member States and regions who have not yet managed to assess and plan for adaptation to do so now. This will improve overall climate resilience, and also strongly support effective Cohesion Policy spending.

Ex-ante conditionality related to Thematic Objective on Adaptation

⁷ The Partnership Agreement should be in place by 1 January 2014 but this may be delayed if the regulation adoption process extends into the latter part of 2013.

⁸ [Conclusions of the Justice and Home Affairs Council; 11-12 April 2011 on further developing risk assessments for disaster management in the European Union](http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/jha/121462.pdf)
http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/jha/121462.pdf

5. Promoting climate change adaptation and risk prevention (Climate change target) (referred to in Article 9(5))	5.1. <i>Risk prevention and risk management</i> : The existence of national or regional risk assessments for disaster management, taking into account climate change adaptation.	A national or regional risk assessment shall be in place that includes: <ul style="list-style-type: none"> – A description of the process, methodology, methods and non-sensitive data used for national risk assessment; – A description of single-risk and multi-risk scenarios; – Taking into account, where appropriate, national climate change adaptation strategies.
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Source: Proposal for common provisions regulation on ESI funds, EC Com(2011) 615 final, Annex IV p 141

Priority areas for cooperation: The Partnership Agreement should contain ‘the main priority areas for cooperation, taking account, where appropriate, of macro-regional and sea basin strategies’. As very often climate change adaptation is region-specific (especially in the big countries) this will provide an opportunity to emphasize the relative importance of climate change adaptation in the different regions.

Assessment of administrative capacity: The Partnership Agreement must address the administrative capacity of authorities and beneficiaries to ensure efficient implementation of the funds. This is an opportunity to realistically evaluate the national capacity to integrate climate change adaptation in Cohesion Policy investments and consider whether additional capacity building activities are needed and how they will be addressed. Here a wide range of institutional, administrative and technical capacities to consider climate impacts across all the programmes can be considered. The **capacity building training programme** provided in addition to this technical guidance is an excellent basis for the development of such activities targeting adaptation across all sectors and even for beneficiaries.

This requirement (there is also general ex-ante conditionality on administrative capacity) is addressed in a **capacity building needs assessment and strategy** for integrating adaptation into Cohesion Policy, which suggests a programme of capacity building activities that Member States and regions can carry out to improve the understanding of, and readiness to consider climate impacts in programmes and projects.

Integrated approach to territorial development: The general regulations require that Partnership Agreements set out the Member State’s approach to integrated territorial development, which will ensure the coordination of priority interventions supported by all ESI funds including support for urban, rural, coastal and fisheries areas and areas with particular territorial features, including outermost regions. This territorial perspective is an opportunity to address climate change impacts, as they naturally have important territorial effects. Ideally, the approach presented in the Partnership Agreement should follow existing national and regional climate change adaptation strategies, where available.

3.2. Operational Programmes

3.2.1. Description

The Operational Programmes are the key planning tool for Cohesion Policy expenditure. They contain, at a minimum, a development strategy for the funding covered by the programme; funding priorities and specific objectives and indicative actions; financial appropriations; indicators; a review of horizontal principles. Operational Programmes are subjected to an ex-ante assessment for overall consistency and accuracy and also, where applicable, a Strategic Environmental Assessment. They are submitted to the Commission for review and approval, based on consistency with the Europe 2020 objectives and Cohesion Policy regulations. Typically, Member States prepare regional-level programmes covering general regional development and sectoral programmes at the national level for major intervention sectors (e.g. transport, environment, energy etc.)

Member States are encouraged to ensure a better integration of the funds (ERDF, ESF, CF) through different tools provided by the Common Provisions Regulation (multi-funds programmes, joint monitoring committee, integrated territorial investment, community-led local development).

3.2.2. Key opportunities for integrating adaptation

Horizontal Principles: The proposed General regulation requires that programmes describe how they address the two horizontal principles in Articles 7 (gender equality and non-discrimination) and 8 (Sustainable development). Article 8 requires *inter alia* the promotion of climate change adaptation, disaster resilience and risk prevention and management in the programmes and Partnership Agreements. Specific actions to take these requirements into account must be included in the Operational Programmes⁹. While these principles are not new to Cohesion Policy, the mention of climate change and adaptation is something new for 2014-2020. The specific sections required in Operational Programmes to address the horizontal principles must now explain exactly how climate change impacts have been taken into account and how the necessary adaptation measures will be implemented.

Cohesion Policy programmes will need to set out the indicative amount of support for climate change objectives. This is another opportunity to stress the advantages of integrating adaptation concerns across all the programmes. If properly tracked, these expenditures will contribute to the overall target.

Another important reference to climate change adaptation is in the Commission Staff Working Document ‘Elements for a Common Strategic Framework 2014 to 2020’. This document states specifically that all the ‘investments to be supported by ESI Funds should be resilient to the impact of climate change and natural disasters (increased risks of flooding, heat waves, extreme weather events, etc).’¹⁰

Programming follows a logical process – first a development strategy is set forth, which identifies and justifies priority axes for spending. Funding priorities describe the objectives and parameters for spending – e.g. the future development of projects. Each stage of the

⁹ See Article 87 (3)(i)

¹⁰ Commission Staff Working Document *Elements for a Common Strategic Framework 2014 to 2020*, SWD(2012) 61 Section 5 p 12.

process and section of the programme document offers an important opportunity for focus on climate impacts and adaptation actions.

Development strategy: At the strategic level, information on climate change threats relevant to the Member State, region and sector will be required, to understand how the changing climate interacts with the programme in two main ways:

- (1) **The risk that climate change will impede programme objectives.** For example, temperature increase changes tourism patterns upon which economic growth depends. Or extreme heat increases threaten the functioning of new roads or railways. This can be included in the baseline strategic analysis of the Member State, region or sector, in order to pave the way for designing investment priority axes that take these risks into account.
- (2) **The opportunities for direct funding of climate change adaptation activities.** These may include infrastructure directly aimed at preventing or mitigating climate risks, such as flood defenses. It can also include soft measures such as the development of adaptation strategies and action plans, or disaster management systems.

Ideally, climate change impacts and adaptation strategies are part of robust spatial and development planning in a region or Member State, and Cohesion Policy programming can build on those, particularly for infrastructural interventions. In addition, programmes should take account of the opportunities offered to develop new economic sectors linked to the adaptation policy.

Priority axes: Spending priorities specify what gets funded. Experience from 2007-2013 programmes has shown that even if an issue (e.g. climate change impacts) is presented as important in the development strategy, it may still not have a direct influence on funding priorities. Therefore the language here is important – this will translate directly into tenders or calls for projects and therefore govern how projects are designed. If climate impacts are particularly important for a region or sector, they should be mentioned directly in the funding priorities.

Again, two main aspects need to be considered: direct funding opportunities and also the need to build resilience across all programmes, which may require adjustments to planned priorities and measures.

In the programmes, the language referencing adaptation options should be as concrete as possible. For example, in a Transport Operational Programme, ‘all roads to be constructed will consider the effects of temperature increase and temperature extremes’. This language is general enough to be included in an Operational Programme, but concrete enough to guide the ensuing project development.

The table below provides examples of some of the adaptation options from the Sectoral Fiches, and the type(s) of Operational Programme(s) they may address.

Sample adaptation options and corresponding programme types	
Adaptation Option	Type(s) of Operational Programme(s)
Buildings: energy efficient adaptation of homes	Regional OPs in regions with increasing average

Sample adaptation options and corresponding programme types	
Adaptation Option	Type(s) of Operational Programme(s)
against heat (e.g. passive cooling systems, based on renewable energies).	temperatures and number of heat days; OPs for the environment and energy sectors where synergies with climate change mitigation are possible.
Energy: Targeted retrofitting to increase the robustness of thermal power plants in coastal areas to prevent damage in case of coastal flooding and storms	Regional OPs for regions with increased incidence of coastal flooding and storms; OPs for the energy sector and infrastructure.
Health: heat warning systems to prevent adverse effects for human health in extreme heat	Regional OPs including priority axes for urban centres; Regional OPs for affected regions. Social infrastructure OPs that may include health
Industry: awareness raising to companies regarding adaptation to climate change (to trigger autonomous adaptation and identify new business opportunities).	Regional OPs to raise economic competitiveness of local businesses; national level OPs addressing business support (sub-themes: economic development, competitiveness, innovation, research and development, and technical assistance)
Tourism: diversification of tourist offers in different regions (e.g. to address unreliable snow cover in winter and extreme heat in the summer).	Regional OPs for affected regions. National level OPs on tourism.
Transport: Heat-resistant asphalt and adjustment of maintenance (to prevent damage to and/or premature wearing of road pavements).	OPs addressing the transport sector and infrastructure in general; Regional OPs with anticipated increase of extreme weather events and variability in temperatures.
Water: additional rain overflow basins to adapt sewage systems against flooding, enhancing water storage.	Regional OPs for regions with anticipated increase in incidence of storms and flooding; Environmental infrastructure OPs
Crosscutting: remote sensing and satellite imagery for early warning systems: for extreme weather events to prevent adverse effect on human health and damages to virtually all economic sectors.	Environmental infrastructure OPs

Source: Sectoral Fiches as part of the final report of the support project (Contract No 07.1303/2011/603488/SER/CLIMA.C3).

Below are some examples of 2007-2013 Operational Programmes that incorporate climate change adaptation.

Examples from Operational Programmes (2007-2013)
In Malta , the Operational Programme 'Investing in Competitiveness for a Better Quality of Life' addresses climate change adaptation directly. Priority area 5, Safeguarding <i>the environment</i> , includes adaptation to climate change with emphasis on addressing extreme weather events.
In France , the Operational Programme for the Loire Basin identifies <i>Boosting the competitiveness of the Loire</i>

region by reducing the vulnerability of business activities in the basin to flooding as Priority Axis 1, allocating 48.7% of the total budget of €74 million to this goal. The costs avoided in terms of damage and loss of business, are estimated at €26 million.

In **Romania**, the Operational Programme ‘Environment’ addresses climate change adaptation in priority axis 5 *Implementation of adequate infrastructure of natural risk prevention in most vulnerable areas*, including investments for preventing flood and stopping coastal erosion.

In **Slovenia**, the Operational Programme ‘Environment and Transport’, the link is made between the vulnerability of the economy and floods and climate change (p.50). In the priority axis *Environment protection—water sector*, the OP also acknowledges that climate change is expected to make flooding more prevalent and severe in the future, therefore preventive arrangements for protection against floods is crucial. Climate change is listed both as a threat and an opportunity for the programme overall.

In **Hungary**, the Operational Programme ‘Environment and Energy’, the *Wise Management of Natural Assets* priority axis shows consideration for adaptation to climate change. It suggests that the maintenance and restoration of natural ecosystems can help the society to adapt to climate change. In addition, indicators have been developed to monitor progress in flood prevention.

In the **Czech Republic**, the Operational Programme ‘Environment’ links climate change to increased occurrence of extreme weather phenomena, such as storm rainfalls and local floods, long-lasting droughts, windstorms etc. As a consequence, actions under priority axis 1—*Improvement of water management infrastructure and reduction of flood risk*—include reduction of flood risk.

Source: Compilation from relevant programming documents (Contract No 07.1303/2011/603488/SER/CLIMA.C3)

Programme Assessment (ex-ante evaluation and SEA): The General regulation (Article 48) calls for an *ex ante* evaluation of programmes, which should incorporate a Strategic Environmental Assessment (SEA), as this Directive (2001/42/EC) will apply to most programmes.

Overall, the ex-ante evaluation examines consistency of the programme strategy with funding priorities and the regional situation. It is therefore a chance for re-appraisal of the treatment of climate impacts in funding priorities, particularly if opportunities were missed during the early programming stages. Recent Commission guidance on carrying out ex-ante assessment for Cohesion Policy¹¹ emphasises the importance of ex-ante assessment for the 2014-2020 programming period, as a tool to reinforce linkages to the Europe 2020 Strategy.

SEA, with its focus on environmental issues, is another important opportunity to consider how responsive the programme is to climate change impacts that threaten its objectives, as well as the general adaptation needs of the region or Member State. SEA is of particular value for programmes that do not directly address environmental objectives, (e.g. transport, energy, regional development) because it can open the door for the input of environmental authorities, experts and stakeholders. Nevertheless, experience from many Member States from the 2007 – 2013 period has shown that SEAs were carried out late in the programming process, and had relatively little effect on assessing or improving the overall impact of programmes on environment. Careful attention is needed to following good practice is carrying out SEAs for Operational Programmes. Guidance for the 2007 – 2013 Cohesion Policy programmes¹² and other good practice can be very useful here.

¹¹ *Guidance document on ex-ante evaluation*, European Commission DG Regional Policy and DG Employment Social Affairs and Inclusion, June 2012

¹² *Handbook on SEA for Cohesion Policy 2007-2013*, GRDP 2006

For good advice on how climate change adaptation can be integrated into SEA, see DG Environment's guidance on integrating climate change and biodiversity into SEA.¹³ Particular reference to biodiversity and climate change legislation is also made with regard to SEA in the Commission's guidance on ex-ante assessment.

Indicators

Each priority axis will need indicators. Output indicators relate to project outputs; and result indicators should show how overall project results contribute to the objective set out in the spending priority. Where there is direct spending on climate change adaptation, it will be important to have indicators that effectively illustrate adaptation successes. It is a greater challenge to develop indicators that assess indirect objectives, such as climate proofing of sectoral investments. However, where important adaptation concerns have been successfully inserted into funding priorities, they should be backed up with relevant indicators. These will be essential for project preparation, implementation and the programme monitoring and evaluation stages.

The proposed regulations for 2014-2020 place greater emphasis on the use of common indicators across the Member States, and on monitoring for results. A number of general indicators for each policy field or sector are given in the fund-specific regulations; the ERDF regulation specifies two indicators for risk prevention and management, under the Environment category. These are listed in the table below.

Proposed common indicators for measuring progress on risk prevention and management in the proposed ERDF regulation for 2014-2020		
	Unit	Name
Risk prevention and management	Persons	Population benefiting from flood protection measures
	Persons	Population benefiting from forest fire protection and other protection measures

Source: Proposal for specific provisions regulation on the ERDF, EC Com(2011) 614 final, Annex p20

These proposed indicators are a good start, and the fact that the regulations propose specific indicators in this area is a considerable improvement from the 2007-2013 funding period, where no required common indicators are identified. However, the two indicators proposed above do not directly address adaptation, but rather risk prevention and management. They do not track whether and how programmes and/or projects have considered climate change risks and considered ways to mitigate them; further indicators would need to be developed to effectively consider adaptation.

The table below gives examples of specific output and result indicators that programmes could use. Crafting indicators that really measure the extent to which programmes build in climate resilience, across all priority sectors is necessary to demonstrate the benefits of climate proofing.

¹³ *Practical guidance for integrating climate change and biodiversity into SEA procedures*, DG Environment, forthcoming 2013

Examples of indicators for specific adaptation options		
Adaptation option	Output indicator	Result indicator
Heat-resistant asphalt and adjustment of maintenance	Km of new road with heat-resistant asphalt	Volume of passenger and freight traffic to benefit from better and resilient roads
Retrofitting existing road infrastructure concerning increased precipitation (e.g. increasing drainage system)	Km of road retrofitted for increased precipitation	Number of years for which road infrastructure will last, based on current projected climate impacts.
Adaptation of rail infrastructure to heat and temperature change	Km of rail infrastructure adapted to increased temperatures	Volume of passenger and freight traffic to benefit from better and resilient rails

Source: Source: Compilation made in support project (Contract No 07.1303/2011/603488/SER/CLIMA.C3)

Further examples of indicators covering disaster and risk management, including climate change adaptation, from selected 2007-2013 Operational Programmes are contained in the table in Annex 2.

Community-led local development (CLLD): Another promising component in the proposed regulations for 2014 – 2020 is the new initiative for **community-led local development (CLLD)**. These are meant to promote integrated and multi-sectoral area-based developments and actions. They are bottom-up initiatives, meaning that regions and local communities should define priorities and actions. Such initiatives could provide good opportunities to ensure that climate change adaptation is better integrated into local development; they may include targeted capacity building efforts at local levels.

Officially, programme monitoring is established through a ‘performance framework’ designated in the Cohesion Policy regulations (Article 19 and Annex I of the proposed General regulation). Working within this required framework, there are many opportunities to ensure that adaptation is integrated into programme implementation and to enable on-going adaptive capacity within the programmes over their seven years of implementation.

Standard format for the performance framework for 2014-2020				
Priority	Indicator and measurement unit, where appropriate	Milestone for 2016	Milestone for 2018	Target for 2022

4. LAUNCHING PROGRAMMES – PROMOTION AND CALLS FOR PROJECTS

4.1. Description

For this guidance, the ‘Launching Programmes’ stage covers setting up the basic implementing arrangements that will govern how the programme is carried out – e.g. the programme monitoring committees, information and communication procedures and calls/tenders or commissioning procedures for projects. When and how these arrangements

take place will vary according to the size/type of programme and customs within the Member State institutions. Some aspects of these arrangements may be included in the Operational Programme documents themselves.

Regardless of how or when the programme set-up is prepared there are important things to do for climate change adaptation. Information and communication are the external face of programmes, and they can raise the awareness of beneficiaries – particularly important for non-environmental programmes where potential beneficiaries may not consider climate change impacts at all. Calls for projects emphasize what is important for funding and guide beneficiaries in project design. Other aspects of the programme set-up – the monitoring committee members, selection committees, etc will also have an important impact.

4.2. Key opportunities for integrating adaptation

4.2.1. Programme information and communication

Programme arrangements will be defined by the Managing Authority or Implementing Body responsible for each programme, and these institutions should be the key focus here. Communication and information materials may be the first real contact that local stakeholders – including project developers and also beneficiaries and the general public – have about a funding programme. This communication should include the overall aim of a programme to support climate-resilient development. If there is very limited knowledge about or awareness of climate impacts in the Member State or region, then the programme may also announce the intention to carry out further studies such as risk and vulnerability assessments, using programme funds.

For regional Operational Programmes this targeted communication can focus on climate change impacts in the region as a whole, the region's response to it through regional policies and strategic documents as well as linkages to these in the programme. For sectoral programmes, the emphasis should be on the opportunities to integrate climate change adaptation measures in the concrete sector. The overall goal in communication is to translate sometimes confusing programming language into concrete goals and expected actions.

4.2.2. Programme Monitoring Committee

One good way to stay involved in a programme is through the programme monitoring committee. Regulations stipulate that the monitoring committee needs to include representatives of the partners – this opens the door for adaptation experts. This will help to ensure better communication with the Managing Authority and/or Implementing Body and to remain aware of each step of the process.

Monitoring Committees are to adopt the selection criteria, which can be fed into by the aspects addressed in section 6 of this guidance.

4.2.3. Project Commissioning System

Managing Authorities commission projects in different ways – through tenders for very specific projects, open calls for applications that meet certain objectives or other means. Whatever the style for project calls, there is a chance to stress the importance of climate resilience to those who will be developing and implementing projects. The information for these can come from many sources and range from a general consideration of climate impacts to a call for specific adaptation options where required:

- **Programme horizontal principles**, if they reflect climate change impacts, adaptation, or risk management/prevention can be quoted here for potential project developers
- **Adaptation strategies or risk assessments** for the relevant geographic area, stating how proposed projects should take certain factors into account
- Where **relevant indicators** have been developed for the programme, these can be directly quoted in the calls
- If **specific adaptation options** need to be integrated into infrastructure, this can also be stated directly in the call
- Links to known **technical standards or design guidance** for the sector or relevant project types
- Outline **project selection criteria** related to climate change adaptation as well as their weight;
- Provide references and links to different guidance documents or contacts of departments/units which could be of help;
- Consider using **different co-financing rates** for different types of projects, and raising the rate (where allowed) for projects that consider necessary adaptations that may not be cost effective.

These calls should aim to stimulate thinking on climate change adaptation options among potential project beneficiaries. Application materials should also aim to question the applicants' understanding of climate threats and potential impacts on the proposed projects and provide the opportunity for them to propose a plan for handling this risk, including the integration of adaptation options into the project.

Examples of approaches to programme communication from 2007-2013 Cohesion Policy

In 2008 the region of Northern Ostrobothnia in **Finland** applied the theme of 'Climate Change Adaptation and Mitigation' to a round of calls for proposals. Approximately half of the annual budget of 3-3.5 million EURO from the SF was available for CC projects. Dissemination of information of the thematic call is essential. It is needed to inform the relevant public about the call before it is launched as the time from start until the deadline often is short. In Northern Ostrobothnia advertisements of the call for proposal were included in the six largest newspapers and a leaflet in a regional daily newspaper as a channel for awareness raising.

In **France** following the 'common governance' concept there is a common application form for ERDF and state funding (Nord-Pas de Calais). Section II of the application form is called 'Analysis of taking into consideration of the environment'. Part 1 analyses the legal environmental procedures that the project proponent has to comply with during the implementation of the project. Part 2 is called 'Potential negative environmental impacts, correction measures and project monitoring indicators'. This obliges the proponent to consider such correction measures and the first vector of action is 'combating climate change'.

5. PROJECT PREPARATION

5.1. Description

The preparation of projects in response to calls or tenders is another important stage for climate change, as it is here that the specific project objectives, measures and outputs are defined in detail.

The types of projects funded by Cohesion Policy and the resulting project preparation processes are varied. Large scale infrastructure projects may require dedicated climate proofing, as well as complex feasibility studies, cost-benefit analyses and Environmental Impact Assessment (EIA) according to pre-defined laws and guidelines. Softer, more cross-sectoral projects in sectors such as research, business support, training and employment can benefit from more innovative approaches to integration of climate change adaptation, such as awareness-raising and educational measures. The different types of projects will have different preparation processes and therefore present different opportunities for consideration of climate change impacts and integration of adaptation measures.

Annex 3 includes a list of projects where climate change impacts have been considered in the 2007-2013 programming period. Climate change adaptation has either been a major goal or a sub-priority of the projects, and the examples show a variety of project level types (regional, national and cross-border).

5.2. Key opportunities for integrating adaptation

5.2.1. *Assistance and guidance to project applicants*

Below are suggestions of ways in which Managing Authorities and other actors in Regional and Urban Policy can support the project preparation process through assistance and guidance to project applicants:

- **Resources.** Provide beneficiaries with as many relevant technical resources as possible. These can aim at general awareness-raising on specific sectors or specific considerations at the design stage. National studies, adaptation strategies and other resources on impacts and adaptation options will also be valuable. These can be provided through a dedicated space on the website of the Managing Authority and links on project application forms.
- **Training sessions.** Training sessions, which bring together groups of similar beneficiaries or can be arranged around a certain theme or sector, can have an important effect on awareness raising and also building technical capacity. They may be organised prior to the launching of the tender or immediately after that.
- **Specialised support.** Designate special personnel responsible for supporting beneficiaries with integrating climate change adaptation considerations. These may be people within an environment/climate change authority, a special unit in the Managing Authority, or externally hired experts. If climate adaptation is not enough of a concern on its own to merit this, it may be combined with climate change overall or even environmental sustainability. The specialised unit/experts should be aware of the threats, the potential impacts and damages for different regions, the concrete technical adaptation options for different sectors and their fundability within the framework of Cohesion policy.

- **Good practices.** Provide examples of good practices in integrating climate change adaptation into particular project types. This can be especially useful in sectors or areas where national good practices are missing.

Providing assistance to project applicants on climate change issues: 2007-2013 examples

The **Welsh European Funding Office**, which manages Convergence and Competitiveness programmes in Wales, has a range of guidance available on its website for project developers, including how to implement the environmental sustainability 'cross-cutting theme' – which covers climate change impacts through checklists. The authority also provides project development officers to direct assist applicants, step-by-step in developing quality projects for funding.

The **Swedish Network of Municipalities on Climate Change** was initiated in 2003 and consists of municipalities and county councils that share the commitment to reduce greenhouse gases at local level. One of the services of the network is the **climate coach**. This is a phone service where municipalities can get targeted assistance in initiating climate work at the municipality level and developing climate strategies. The service is free of charge for municipalities and is financed by the Swedish Environmental Protection Agency.

In **Austria** a similar mechanism to the Swedish climate coach is available. It is possible to get state subsidized advice from regional and national agencies. Consultancy for identification of climate measures can also be financed by Cohesion Policy programmes. Austria also included a link between investments and consultancy/coaching for awarding national funding to projects. Applicants are eligible for higher co-financing rates if an energy consultant is engaged. Such an approach may be extended to Cohesion Policy programmes and to climate change adaptation.

In the **UK, South West of England** a cross programme advisory group on Environmental Sustainability is in place for both Competitiveness and Convergence Programmes. An **Environmental Sustainability Manager** investments and partners in delivering the strategic environmental sustainability objectives of the Operational Programmes.

Sources: ENEA-REC (2009) Improving the climate resilience of Cohesion policy funding programmes; WEFO website <http://wefo.wales.gov.uk/>

5.2.2. *Infrastructure projects financed by CEF and Regional and Urban Policy*

Infrastructure projects will require specific attention because of their long lifetime of in some cases up to 70 years. Climate change considerations, such as resilience, need to enter through the whole project cycle in order to be successful. It enters therefore already with the identification of project, in project design, technical, economic and environmental feasibility, project implementation and its operation¹⁴.

6. PROJECT EVALUATION AND SELECTION

6.1. Description

The evaluation and selection stage is particularly important for ensuring that projects to be funded are both 'climate proofed' (e.g. resilient to projected climate change impacts) and that they support the overall goals of the programme and its contribution to relevant adaptation strategies and other policies.

¹⁴ See for instance the "Guidelines for Project Managers: Making vulnerable investments climate resilient" to be made available on DG Climate action's website immediately after the adoption of the EU Strategy on adaptation to climate change.

There are different methods of evaluating projects, which will depend on the type of programme or call. In some cases projects are ranked against each other and the best ones selected; in others a pre-designated project concept and beneficiary (e.g. for construction or a waste water treatment plant) is evaluated in detail. In all cases there are important opportunities at this stage to ensure that projects integrate adaptation, through project eligibility, selection and scoring criteria and careful attention to the appraisal process.

6.2. Key opportunities for integrating adaptation

Eligibility criteria: One efficient way to actively promote projects that seriously consider climate change adaptation is through announcing strict eligibility criteria for projects, particularly for sectors where climate change risks are a priority. Eligibility criteria should be balanced and reasonable, so that they have an impact without being too restrictive.

Possible eligibility criteria related to climate change adaptation can be:

- The project must demonstrate understanding of climate change impacts and propose a strategy for dealing with them;
- The project should include concrete technical and other soft measures related to climate change adaptation;
- The project application must be **in line with the national/regional climate change adaptation strategy** or climate change risk analysis (where a strategy is not available)

Below is an example where eligibility criteria have been used in France for the 2007-2013 programming period to cover environmental sustainability overall. It may be the case that criteria will conform to the horizontal priority from the regulations – adaptation could easily be integrated into these criteria.

Eligibility conditions for ERDF-funded projects in the field of ‘Environment, Risk Prevention’, France (2007-2013)
<ul style="list-style-type: none"> • The project must submit an action program on ‘environment – climate’ over 3 years. • Natural heritage preservation projects must comply with local environmental conditions and ecosystem integrity. • The contracting authority must conduct an impact assessment that shows the project will not lead to degradation of natural habitats, prepare a note on landscape integration • The project has to provide an initial inventory of the environmental situation in the area of project implementation, a presentation of the expected positive environmental impacts, and compensatory measures for possible negative impacts and a description of his experience in the field.

Source: ADEME

Appraisal criteria: The criteria used to appraise or evaluate projects have the double added value of encouraging project developers to consider adaptation from the start (because they know it will be evaluated) and ensuring that the project appraisal process focuses on this issue. Appraisal criteria should be specific and well-designed to the type of project being evaluated. For adaptation, they should focus on the specific impacts/threat (e.g. flooding, temperature extremes) and responses (e.g. cooling capacities; use of resilient construction materials) that affect the type of project. In non-infrastructure sectors, appraisal criteria may

ask whether the project has taken advantage of opportunities to improve overall adaptive capacity, such as inclusion of training/awareness programmes or research and risk assessment.

Scoring: When proposed projects are ranked against each other, scores can be attached to specific criteria. There is already extensive experience with attaching a proportion of the score to environmental criteria, in line with horizontal priorities addressing sustainable development. Adaptation can be prioritized within an overall allocation of project score to environment or even allocated its own score, if it is a major concern for the region or sector.

Appraisal mechanism: Appraisal and scoring of projects may be carried out by the Managing Authority, individual external experts, an evaluation committee, appraisal panels, etc. In all cases, the level of skills and knowledge of the evaluators to understand and appreciate climate change adaptation is of utmost importance. Therefore, Managing Authorities and adaptation experts may consider special thematic trainings for evaluators in order to increase their awareness on climate change impact and climate change adaptation options across sectors. Project appraisal guidelines for project types can also help.

Additionally, the application of the partnership principle at this stage would ensure the involvement of knowledgeable bodies and organizations at a key stage, which may also include non-governmental experts. Overall, the presence of climate change experts in the evaluation committees increases the chances for stronger consideration of climate change adaptation. In some cases, this can involve external support bodies for the Managing Authority, as shown in the example below from France.

Support for project appraisal in France
<p>The Nord-Pas de Calais region in France has an Environmental Support Mission (MAE), composed of one representative of the state and one representative of the region and its goal is to help integrate the environment as much as possible into the Structural Funds and other regional development funds. MAE carries out a number of support functions for the authority:</p> <ul style="list-style-type: none"> • Assist with the development of project application materials • Inform and educate project evaluation services on environmental issues (through meetings and guidance documents) • Prepare and help strategic decisions: help the evaluators with problematic applications in order to suggest environmental improvements.- The evaluation services are not obliged to take into consideration MAE’s opinion but it actually happens in practice and there is a good cooperation between them. • Prepare the monitoring documents: monitor the taking into consideration of the environment through formal evaluation.

Source: adapted from ENEA-REC (2009) Improving the climate resilience of Cohesion policy funding programmes

7. PROJECT IMPLEMENTATION

7.1. Description

Project implementation is a very important stage of the programme cycle as it is the culmination of all previous efforts at the programming stage and the subsequent stages. Consideration of climate change adaptation at all other stages would be useless if it does not lead to concrete physical or other outputs. The key task for Managing Authorities (and adaptation experts who support them) is to be available for on-going support during the

project implementation stage, which is primarily carried out by the project beneficiaries. There are examples of this from the 2007-2013 programming period.

7.2. Key opportunities for integrating adaptation

There are two main ways in which Managing Authorities and associated stakeholders can ensure that climate change adaptation commitments are implemented in practice:

- Providing technical support and advice;
- On-going monitoring and ensuing feedback to beneficiary and Managing Authority.

Providing technical support and advice: If the programme has dedicated climate change adaptation support either through internal staff or external experts, this can be targeted towards project implementation as well. In extreme cases, staff within the programme managing authority can serve as an interface between the project beneficiary and very specific climate change adaptation experts.

Ongoing monitoring: Another approach at this stage is regular monitoring of project implementation with focus on climate change adaptation. Practically, there are a number of ways in which this can take place. It can be integrated into on-going monitoring of project implementation. For projects with critical adaptation options, specialized monitoring can be set up, integrated with technical support as-needed. Additionally, and especially valid for long-lasting infrastructure projects there should be a system in place which ensures that new technical achievements in a field (e.g. technical options for climate change adaptation in transport) are fed to project beneficiaries in a timely manner.

On-going monitoring of project implementation: an example from the UK

In the UK, programmes carry out on-going management of the delivery of cross-cutting themes of environmental sustainability and equal opportunities. The monitoring arrangements for projects include Project Engagement and Risk Assessment Visits (PEVs) and on-going Project Progress and Verification Visits (PAVs). Through engagement at these project stages it is possible to monitor delivery of cross cutting theme requirements whilst also capturing foreseen and unforeseen project impacts.

8. MONITORING AND EVALUATION

8.1. Description

Monitoring and reporting on programme implementation and their outcomes are a challenging but nonetheless critical programme stage. In some Member States, the lack of strategic policy frameworks at the national and/or regional level, coupled with insufficient knowledge base on climate impacts can make integration into the monitoring system a challenging task.

In addition, knowledge is developing at a rapid pace, and will continue to do so through 2020 and beyond. As a result, important information may become available within the lifetime of current Programmes, particularly in areas where research currently lags behind. This means that monitoring efforts in relation to climate adaptation need to be under periodic review so that new evidence can be incorporated into the monitoring and evaluation process during the lifetime of the programme.

Adaptation experts should be aware of these challenges and be ready to assist Managing Authorities and the programme monitoring committee in tackling these challenges.

8.2. Key opportunities for integrating adaptation

Overall, monitoring, reporting and evaluation follows the overarching **performance framework, with its indicators, milestones and targets** as set out in the Partnership Agreement as well as in the **Common Monitoring and Evaluation Framework (CMEF)** established by the Commission. The indicators developed at the Programming stage will be used by the Monitoring Committee during the annual review meetings and will also feed into the annual implementation reports as well as into progress reports on the implementation of the Partnership Agreement, *ex ante* and *ex post* evaluations.

The **Monitoring Committee** is an obligatory body (as explained at the programming section) which has the potential to guide the effective and efficient programme implementation. The participation of a climate change adaptation expert will increase chances for providing a climate change relevant input to the committee, the Managing Authority and finally – to the beneficiaries.

Data and information are the main backbone of monitoring mechanisms. A solid indicator framework that includes adaptation (even where adaptation is not the main investment focus) will determine the data requirements for monitoring climate resilience as programmes are implemented. Good cooperation between Managing Authorities and information sources will help to ensure the right data can be collected.

The measurement of **direct expenditure on climate change adaptation** is of utmost importance as this is the only way for the Managing Authorities to know if sufficient resource has been channelled to climate change adaptation measures. While important in its own right as a mechanism for tracking expenditure, this is also useful because it draws attention to climate change in the monitoring mechanism overall and is therefore a reason to convince relevant national authorities and Managing Authorities to consider climate change adaptation more carefully.

ANNEXES

Annex 1: Summary of main climate change impacts on Cohesion Policy sectors

This summary gives a broad indication of what types of impacts can be expected from climate change within the main Cohesion Policy sectors. Expenditure figures give an idea of the Cohesion Policy funding that has been allocated for the sectors for 2007-2013.

Summary of climate change impacts on Cohesion Policy sectors			
Receptor	Type of CP expenditure*	Level of planned CP expenditure (€m)**	Types of impact associated with the threats from climate change
Population – Health	Health infrastructure	9,179	There are mortality risks from all types of threats. The largest threat is from heat waves, especially in urban areas. Impacts from some threats such as lower air quality and disease are less well understood.
Population – Buildings	Housing expenditure	891	Damage from floods and storms is the most significant. In addition households in the Mediterranean and Central/Eastern regions are likely to incur increased energy costs for cooling.
Tourism	Support for the tourism sector	5,704	Higher temperatures and water shortages may cause reductions in summer tourism numbers in the Mediterranean and Central/Eastern regions, offset in part by increased tourism offers in shoulder months.
Energy supply	Conventional and renewable energy plant and transmission systems	10,730	Energy demand is likely to increase for cooling, especially in the shorter-term until building standards and designs adjust. Energy supply costs are also likely to increase due to reduced availability of water for cooling, and for hydro and biomass energy production. Damage from floods, storms and soil erosion is also likely to be significant. Costs will be passed onto users. In the longer-term new energy plant designs should be adapted.
Water infrastructure	Water supply and wastewater treatment (WWT)	21,949	Water scarcity and sea water intrusion requiring treatment will increase water supply costs (e.g. from increased distribution and pumping costs). Treatment costs may rise for WWT plants that discharge to rivers with reducing flows.
Transport	Investment by mode	82,492	Transport infrastructure is at risk from floods, storms and temperature extremes. Indirect costs to users and the economy are significant. Increased risks include floods, soil erosion and fires, with particular impact on the railway system

Sources: Cohesion Policy expenditure (DG Regional Policy); Impacts: (Own assessment)

* Excludes cross-cutting expenditure on risk assessment; ** 2012 indicative Cohesion Policy funds allocated for 2007-2013 to selected categories.

Annex 2: Examples of indicators for climate change adaptation in operational programmes 2007-2013

Examples of indicators for climate change adaptation in Operational Programmes (2007-2013)

Operational programme	Indicator	Target/Baseline
Poland: OP Lubelskie	Indicator for environment and risk prevention: number of households covered by flood protection systems	15 thousand persons by 2013/NA
Poland: OP Environment and Infrastructure	Number of posts and specialist equipment used for analysis, forecasting and effective emergency response (numbers)	494 in 2013/ 2 baseline in 2004
	Time of identification and response to risks on the national level (hours)	3 in 2013/ 6 baseline in 2004
	Number of people covered by anti-flood protection (number of people)	50,000 in 2013 (2,750,000 in 2015)/ 0 baseline in 2004
	Number of people covered by protection against other risks than flood (number of people)	1,350,000 in 2013/ 750,000 baseline in 2004
	Number of elaborated plans concerning basin management, including: water management plans, water and environment programme and flood occurrence risk management plans	21 in 2013/ 0 baseline in 2004
Hungary: OP Environment and Energy	Proportion and number of population with adequate flood damage protection (in line with legislation) Measurement: million (person),%	1.63 million, 71% by 2015/ 0.94, 41% baseline in 2006
	Number of flood prevention projects; Measurement: piece	40 in 2015/ 0 baseline in 2007
Slovenia: OP Environment and transport	Number of projects in the field of risk prevention	7 in 2013/ NA
	Number of people benefiting from flood protection measures (additional population served by water projects)	30,000 in 2013/NA
	Flood endangered area (ha)	220,000 in 2013/ 300,000 baseline in OP
Romania: OP Environment sector	Number of projects on flood protection	10 in 2015/ 0 baseline in 2006
	Number of inhabitants—population benefiting from floods protection projects in the SOP intervention areas	1.5 million in 2015/ 0 baseline in 2006
	Reduction of incidence to floods risk in the SOP intervention areas (in %)	30% in 2015/ 100% baseline in 2015
Czech Republic: OP Environment	Number of flood control bodies (commissions) connected to flood prediction, reporting and warning system	120 (NA)/ 0 baseline in 2007
	Number of projects focused on flood or forest fire protection, and eventually on other preventive	250 in 2013/ 0 baseline in

Examples of indicators for climate change adaptation in Operational Programmes (2007-2013)		
Operational programme	Indicator	Target/Baseline
	measures	2070

Source: Compilation from relevant programming documents (Contract No 07.1303/2011/603488/SER/CLIMA.C3)

Annex 3: Examples of projects addressing climate change adaptation from 2007-2013 Cohesion Policy

Examples of projects addressing climate change adaptation from 2007-2013 Cohesion Policy	
Project	Type
<p>Northern Ostrobothnia regional climate strategy. Finland</p> <p>The main goals of the project are to draft a regional scenario for climate change, a basic strategy for adaptation and mitigation, climate programmes for different sections (energy, industry, traffic, land use, building, health, tourism and travel, private consumption etc.) and climate programmes for regions (several municipalities).</p> <p>The total cost is €117,000</p> <p>(North Ostrobothnia Regional Environment Centre)</p>	<p>Funding of regional climate change strategy</p>
<p>Channelling water for a safer region, Spain</p> <p>The project aims to prevent the risks of heavy rainfall and flooding, through controlling water flows and undertaking strategic construction works. The flood protection works planned under this project include the construction of a dam, extensions to the present course of the Gallinera river basin and a collection of measures for better drainage, canalisation and water flow diversions.</p> <p>The total cost of the project is €31,900,000, with an EU contribution of €22,300,000</p>	<p>Skills for climate change adaptation in a vulnerable location</p>
<p>Limiting floods, nurturing nature, Hungary</p> <p>The main goal of the project is to cut the risk of damaging floods in the area around River Szamos. The goal would be attained with building a reservoir in north-east Hungary, covering the area of some 51sq. In addition to protection from flood risk, the reservoir would enable better landscape management (e.g. landscape irrigation).</p> <p>Expected benefits of the project include a major reduction in flooding for the 205,000 people who live in the surrounding area.</p> <p>The total cost of the project is €62,014,200, with a €52,712,100 contribution from the Cohesion Fund.</p>	<p>Funding climate change adaptation in a vulnerable area</p>
<p>Natural risk prevention in the county of la Garrotxa, Spain</p> <p>The project aims primarily to prevent natural risks, in particular floods (including cleaning of river banks) and forest fires (covering the development of a county-wide plan for the prevention of fires, upgrading of rural roads, construction of water pools and management of combustible vegetable mass).</p>	<p>Funding climate change adaptation in a vulnerable area</p>

Examples of projects addressing climate change adaptation from 2007-2013 Cohesion Policy	
Project	Type
The ERDF contribution amounts to €450,000.	
<p>An integrated approach to flood relief, Malta</p> <p>The National Flood Relief Project (NFRP) therefore aims to develop an integrated approach to storm water and valley management along with mitigating the increasingly adverse effects of climate change on urban areas that are particularly susceptible to flash floods. The project involves constructing a network of underground tunnels, canals and bridges which will be capable of draining flood water into the sea. These excavations will involve lined tunnels equipped with access ramps.</p> <p>Cost: €60,100,000 with an EU contribution of €43,100,000</p>	Funding climate change adaptation in a vulnerable area
<p>Raising flood protection levels in the Prut Barlad catchments (Romania)</p> <p>Flood protection and prevention are the central aims of this project. The works undertaken include constructing polders, dredging and stabilising river beds, and providing flood hazard and flood risk mapping.</p> <p>Some 16,000 local residents will directly benefit from better protection from floods, notably through new alert systems giving 3 to 4 hours warning to those in the risk areas of the Bahlui River basin.</p> <p>The total cost of the project is €58,521,100, with an EU contribution of €48,008,200.</p>	Funding climate change adaptation in a vulnerable area

Source: Compilation from relevant programming documents (Contract No 07.1303/2011/603488/SER/CLIMA.C3)