Experts for thematic capitalisation on climate change:

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The contents of this work reflect the views of the authors and do not necessarily represent the position of the INTERREG IVC programme. The authors are entirely responsible for the facts and accuracy of the data presented.
Foreword: Capitalising on achievements

Over the last seven years, with the goal of improving regional policies, more than 2 000 public institutions across Europe have been learning from each other through cooperative policy learning in 204 interregional projects supported by the INTERREG IVC territorial cooperation programme.

The programme can now point to hundreds of examples of how a region or city has built on the experiences of their counterparts elsewhere to enhance their own policy and delivery strategies.

A few examples:

- inspired by the approaches taken by the Welsh ECO Centre and an Educational Centre in the Dutch city of Sittard-Geleen, the Hungarian city of Vecsés developed educational activities on renewable energy and sustainability for its school children;
- after consulting the Spanish city of Paterna, the Latvian Daugavpils City Council was able to successfully modernise its soviet-era industrial parks, giving a major boost to business development;
- after consulting the Cypriot authorities, the Greek Region of Crete invested in water recycling and re-use schemes, applying the Cypriot models.

The policy learning enabled by the INTERREG IVC Programme is not just a paper exercise: it has helped, through 204 projects, almost 6 000 staff involved in regional policy to acquire new skills and capabilities, and it has led directly to the improvement of more than 400 policies. The programme was therefore determined to go a step further and share its tremendous wealth of policy experience and know-how even more widely.

The programme therefore asked 12 teams of experts covering 12 different fields of policy to analyse the achievements of its projects and to report back on ‘what works’. This report, which focuses on Climate change, is the fruit of their work. It showcases a selection of tried-and-tested climate change policies and practices that have been shared through the INTERREG IVC programme, and which will be of interest to all EU regions. Policymakers and practitioners interested in this topic – whether working on regional, national or European scales – will also find policy recommendations tailored to them.

Cooperative policy learning makes sense. It makes sense because, in an era of tight budgetary constraints, local and regional authorities are seeking best value for money, and robust evidence can enhance the chances of policy success by eliminating the risks and costs of trial and error.

To take forward the programme’s key strategic task of sharing policy know-how, the new programme for 2014-2020, INTERREG EUROPE, is developing ‘Policy Learning Platforms’ which will stimulate a process of continuous policy learning among all interested regional policy stakeholders around Europe.

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List of abbreviations

AAP – Adaptation Action Plan
CAP – Common Agricultural Policy
CEE – Central and Eastern Europe
CE – Central Europe
$\text{CO}_2$ – Carbon-dioxide equivalent
DG – Directorate-General
DG Clima – Directorate-General for Climate Action
DRR – Disaster risk reduction
EIP – European Innovation Partnership
EU – Emission Trading System (EU ETS)
ETC – European Territorial Cooperation
GHG – Greenhouse gases
EC – European Commission
EIT – European Institute of Innovation and Technology
ENERGee-Watch – European Network of Regional GHG Em issions and Energy Watch
EU – European Union
IPCC – Intergovernmental Panel on Climate Change
KIC – Knowledge and Innovation Centre
LPG – Liquefied petroleum gas
MW – Megawatt
NWE – North-West Europe
NER300 – An EU funding programme that will be financed from the sales of the EUR 300 million worth of allowances under the ‘New Entrants Reserve’ of the European Union Emissions Trading System
NOx – Mono-nitrogen oxide, including nitric oxide and nitrogen dioxide (NO and NO$_2$)
RES – Renewable energy sources
R&D – Research and development
SA – Sustainability Assessment
SEA – Strategic Environmental Assessment
SEE – South-East Europe
SEAP – Sustainable energy action plan
SWOT analysis – ‘Strengths, weaknesses, opportunities and threats’ analysis
S3 Platform – Strategies for Smart Specialisation Platform
UNFCCC – United Nations Framework Convention on Climate Change
WFD – Water Framework Directive
List of terms

**Adaptive capacity** is the ability of a system to adjust to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, or to cope with the consequences.

**Climate change**: According to the United Nations Framework Convention on Climate Change (UNFCCC), the term ‘climate change’ refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere more than natural climate variability observed over comparable time periods.

**Climate change adaptation** refers to responses to the impacts of climate change. The International Panel on Climate Change (IPCC) defines adaptation as “adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.” Adaptation can also be thought of as the ongoing process of managing risks related to the changing climate.

**Climate change impacts**: This term refers to the effects of climate change on natural and human systems across sectors and/or regions. Measures of impacts might include, for example, the total number of people affected or total economic costs.

**Climate change mitigation** is any action taken to permanently eliminate or reduce the long-term risks and hazards of climate change to human life and property. The IPCC defines mitigation as “an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases.”

**Climate proofing** is an action taken by an organisation (i.e. government agency) to verify that certain policy, programme or investment will not affect adversely parallel efforts taken to mitigate or adapt to the changing climate.

**Disaster risk reduction**: The United Nations Office for Disaster Risk Reduction (UNISDR) defines ‘disaster risk reduction (DRR) as a strategy for identifying various types of loss from disasters—e.g. loss of life, health status, livelihoods, assets and services within a given area. Through various prevention tools and methods, disaster risk reduction (DRR) aims to limit or reduce the damage caused by earthquakes, floods, droughts, cyclones and other natural events.

**Green infrastructure** is the network of natural and semi-natural areas, features and green spaces in rural and urban, terrestrial, freshwater, coastal and marine areas, which together enhance ecosystem health and resilience, contribute to biodiversity conservation and benefit human populations through the maintenance and enhancement of ecosystem services.

**Greenhouse gases** are gaseous constituents of the atmosphere, both natural and anthropogenic, which absorb and emit radiation at specific wavelengths within the spectrum of thermal infrared radiation emitted by the Earth’s surface, the atmosphere itself, and by clouds. This property causes the greenhouse effect. Water vapour (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary greenhouse gases in the Earth’s atmosphere.

**Low-carbon economy** is characterised by low energy consumption, low pollution and low emissions. The fundamental aim is to achieve high-energy efficiency, to use clean/renewable energy and to pursue green economic development via technological innovation.

**Resilience** is the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organisation, and the capacity to adapt to stress and change.

**Synergies** are results of cooperation and coordination among various projects, which are greater than the sum of the individual results.

**Vulnerability** refers to the extent to which a system is susceptible to, or unable to cope with, the adverse effects of climate change, including climate variability and extremes. It depends not only on a system’s sensitivity but also on its adaptive capacity.
Executive summary

Capturing results

This study presents the analysis and key findings of the capitalisation exercise focusing on 11 INTERREG IVC projects that address the issue of climate change. The term ‘capitalisation’ refers to the cooperative process of collecting and analysing the valuable, innovative and useful knowledge accumulated in the course of these projects, enabling the uptake of this knowledge by other regions and stakeholders.

During the course of the two-year analysis, the expert team carried out extensive desk research based on the available documents for each project. This included the screening of project websites as well as progress reports, final reports (where available), and project deliverables, such as methodologies and tools, guidance documents, reports on good practices and implemented pilot actions, and final publications summarising key project results and policy messages.

Climate change as a policy issue

International action to mitigate climate change through global commitments to reduce emissions of greenhouse gases (GHGs) has been ongoing since 1992 through the United Nations Framework Convention on Climate Change (UNFCCC). The EU has set itself ambitious objectives for combating climate change. The EU climate and energy package requires a 20% cut in GHG emissions, a 20% increase in the share of renewables in energy consumption, and a 20% improvement in energy efficiency, all by 2020.

The European Commission is also taking action to strengthen climate change adaptation. The EU Strategy on Adaptation to Climate Change, adopted in April 2013, is a comprehensive response to the challenge at the EU level. In addition, climate change objectives (both mitigation and adaptation) have a special role in EU funding for the 2014–2020 period. The EC has proposed that, overall, 20% of the 2014–2020 EU budget should target climate change-related objectives. It has also launched various platforms and initiatives to enable cooperation on tackling climate change at regional and local levels.

The climate change challenge is of particular significance for regional and local authorities in the EU. Most of the natural resources (river basins, catchment areas, flood plains) and socio-economic systems (agriculture, tourism, urban structures) that are likely to be affected by climate change in the coming decades are unique to specific local and/or regional areas. Climate impacts and vulnerabilities as well as capacities for adaptation are therefore determined at local and regional levels, where detailed information and strategic action plans are required. While the climate and energy targets adopted by the EU are binding at national level, local and regional policies and initiatives will guide many of the concrete actions to reach these targets.

The cross-cutting nature of climate change is especially challenging for European regions and complicates climate change planning. Understanding both the causes and impacts of climate change is no simple task for policymakers and the public, who lack specialist knowledge. It is therefore crucial to build a case for action by identifying benefits that outweigh the up-front costs. This means working with technical experts, researchers and academics in order to understand how climate change translates into socio-economic impacts and to identify opportunities for action. There is huge potential for local and regional authorities to learn from one another about how climate change can be treated as a policy issue; how comprehensive and sectoral action planning can be carried out; what kind of information dissemination and awareness-raising techniques work well; and what concrete methods can be applied to assess vulnerabilities or the costs and benefits of GHG mitigation actions.

Identifying good practices

The capitalisation exercise has been carried out in two phases. During the first year of the analysis, seven INTERREG IVC projects were studied, which focused exclusively on the climate change issue, including both mitigation and adaptation aspects. During the second year, the scope of the analysis was extended with four additional INTERREG IVC projects that address climate adaptation issues in water management, disaster risk prevention and management, and forestry.
The present study analyses almost 500 good practices stemming from the 11 projects. These projects have involved 115 partner regions from Europe, led by partners from nine Member States. Ten of the 11 projects have been completed, and the remaining one will continue until December 2014. Some of the projects focus more on climate change adaptation, addressing issues such as water scarcity and drought, flood prevention, the adaptation of agriculture to climate change, and adaptation measures in urban, spatial and territorial planning. Others focus on the opportunities and challenges arising from the shift to a low-carbon economy, and on how effective planning can help regions to reduce GHG emissions and build their economies around less intensive energy use.

Table 1 below summarises the INTERREG IVC projects analysed in this study.

<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
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<tbody>
<tr>
<td>Regions for Climate Protection: toward Governance, from Knowledge to Action (CLIMACTREGIONS)</td>
<td>To strengthen regional capacity to develop and implement policies to reduce GHG emissions.</td>
</tr>
<tr>
<td>Regions for Sustainable Change (RSC)</td>
<td>To develop the potential of regions to stimulate climate change mitigation and adaptation and to promote sustainable socio-economic development.</td>
</tr>
<tr>
<td>POWER</td>
<td>To improve the effectiveness of regional development policies through the exchange, sharing and transfer of policy experience, knowledge and good practices related to five themes.</td>
</tr>
<tr>
<td>Climate Neutral Urban Districts in Europe (CLUE)</td>
<td>To increase regional capacity in policy development to facilitate the implementation and assessment of new solutions and technologies to support low-carbon economic development in urban areas.</td>
</tr>
<tr>
<td>Green and Blue Space Adaptation for Urban Areas and Eco-towns (GRaBS)</td>
<td>To ensure that existing and new mixed-use urban development is adapted to the impacts of climate change, and to improve local and regional planning policy by integrating green and blue infrastructure.</td>
</tr>
<tr>
<td>Forms for: Adapting to Climate Change through Territorial Strategies! (F:ACTS!)</td>
<td>To create effective implementation capacity at regional and local levels for integrated territorial approaches that promote adaptation to climate change and its effects in peri-urban and rural areas.</td>
</tr>
<tr>
<td>Regional Cooperation towards Adaptation to Climate Change (REGIOCLIMA)</td>
<td>To enhance cooperation among EU regions towards avoiding risk and reaping the benefits of a changing climate.</td>
</tr>
<tr>
<td>Regional Strategies for Disaster Prevention (CivPro)</td>
<td>To exchange and share expertise on the development of regional policies for disaster risk prevention and to develop a strategic approach and model to prevent and reduce any potential threat and damage from natural and manmade disasters.</td>
</tr>
<tr>
<td>FUTUREforest – Woodlands for Climate Change (FUTUREforest)</td>
<td>To share ideas on how innovative natural solutions can help Europe’s forests to adapt to climate change, and, to contribute towards carbon sequestration, and to reduce risks caused by climate change, such as flooding, drought, fire, and soil erosion.</td>
</tr>
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Mitigating Spatial Relevant Risks in European Regions and Towns (MiSRaR)

To cooperate in the development of effective mitigation plans concerning disasters that affect regions and cities; the project developed an integrated approach to assist regional and local governments in the EU to develop spatial mitigation plans for relevant risks.

Water Scarcity and Droughts: Coordinated Actions in European Regions (WATER CoRe)

To create tools to improve water management by providing a knowledge exchange platform for water scarcity and drought issues on regional and local level for all European regions.

The INTERREG IVC climate change projects address a common set of themes that are closely linked to the main steps in the regional planning process. The good practices and main findings are grouped according to five interlinked core themes.

Core theme 1: Making the case for climate action

Developing an information base on climate change and making the case for climate action through targeted research and methodologies is seen by many regions as a prerequisite for bridging the gap between the abstract nature of climate change as an issue and the need to design and implement realistic mitigation and adaptation measures. Good practices have emerged from projects on how pilot projects, demonstration projects, technical studies and climate vulnerability assessments can help to raise levels of knowledge and awareness among decision makers.

Core theme 2: Stakeholder involvement and policy networks

This theme includes good practices focusing on the achievement of common climate-related goals (e.g. climate-neutral areas, climate agreements and partnerships, energy autonomy); tools for stakeholder analysis, multi-stakeholder involvement and encouraging commitment on the part of politicians to achieve climate-related goals; and the establishment of specialised institutions in regional and national administrations.

Core theme 3: Strategic and action planning

The good practices grouped under this core theme include examples of local and regional climate change strategies; approaches to designing and implementing integrated territorial actions; the integration of climate change as a cross-cutting issue, including through the support of assessment tools; and guidance for climate change strategic and action planning.

Core theme 4: Implementation measures

Good practices categorised under this theme focus on changing behaviour and increasing climate consciousness in society. They include public campaigns and educational programmes; measures to enhance climate knowledge in the private sector; and public and private financial support mechanisms.

Core theme 5: Measuring and monitoring progress

The practices that fall under this topic include collecting and creating inventories of data on emissions and energy; developing tools for assessing or improving the baseline situation; using indicators to measure implementation results; and developing tools for assessing the outcomes and cost-effectiveness of low-carbon measures.
Findings of the good-practice analysis

Moving towards a competitive, low-carbon society is central to the EU policy agenda, and how regions can help to achieve this has been explored by several of the INTERREG IVC climate change projects. The POWER and RSC projects, for example, developed guidance documents for use by regions. A common issue addressed by the adaptation projects was the building of resilience to the impacts of climate change. The adopted solutions vary according to the project contexts and specific geographical conditions. While F:ACTS! emphasised the importance of implementing integrated territorial strategies, GRaBS considered nature conservation measures as crucial in climate change adaptation in urban areas.

Several of the good practices provide solutions in the field of cleaner energy, and for emissions reductions in the transport sector. The POWER project summarised strategies for energy efficiency through climate agreements and eco-driving solutions. The CLUE project identified eco-district models across Europe that aim to reduce emissions by transforming the overall operation of city districts. Other good practices illustrate effective adaptation measures in the agricultural sector (e.g. in Portugal’s Douro region, F:ACTS!; and in the Veneto region of Italy, REGIOCLIMA) and in the forestry sector (in FUTUREforest project partner regions).

A key challenge for regions is the availability of robust and accurate data on emissions performance. Good practices in this context range from collecting an inventory of GHG observation and climate protection policies across Europe (CLIMACTREGIONS) to the implementation of pilot projects on GHG emissions balance at city and local levels (by CLIMACTREGIONS and RSC partners). CLIMACTREGIONS also highlighted how assessment tools (e.g. strategic environmental assessments) can be efficient ways of mainstreaming climate change issues into planning. MiSRaR’s “Tipping Point” method also provided solutions for incorporating disaster risk mitigation techniques into investment projects.

Various techniques for involving wider stakeholder groups in decision-making processes were identified, although these are not widespread. The Planning and Climate Change Coalition in the United Kingdom (GRaBS) and the Regional Network for Climate Change Adaptation (KLIMZUG) in the Hessen region of Germany (WATER CoRe) are outstanding examples of climate cooperation. The focused on raising public awareness of climate change by engaging citizens in climate change actions and training them to use energy more efficiently.

Seeking synergies

As the INTERREG IVC climate change projects address a variety of issues in common, there is an opportunity to explore similarities and synergies between them. Such synergies can be found in the tools and methodological approaches used by the partners, as well as in the solutions they have identified.

Bearing in mind the ongoing challenge of translating the EU climate policy objectives into policy actions at regional and local levels, there is huge potential for sharing learning and creating synergies among initiatives and programmes that address similar problems. One of the objectives of the EU Strategy on Adaptation to Climate Change is to ensure better-informed decision making by addressing gaps in adaptation knowledge, and the INTERREG IVC climate change projects have the potential to contribute to this objective through knowledge and good practices that can be beneficial to other regions in Europe. One way to build this knowledge base, especially in the context of climate change adaptation, is through the European Climate Adaptation Platform (Climate-ADAPT).

Several other initiatives that focus on low-carbon development and sustainable energy use also display synergies (e.g. the Covenant of Mayors, Energy Cities, Smart Cities). The Directorate General for Climate Action (DG CLIMA) initiative ‘A World You Like with a Climate You Like’ comprises the collection of success stories related to the implementation of the 2050 low-carbon roadmap. Many of these practices can be of use to INTERREG IVC project partners involved or interested in climate change projects and could contribute to building greater awareness in their regions and local communities. The European Innovation and Technology Institute (EIT) created a Knowledge and Innovation Centre (KIC) for Climate Change, bringing together public, private and research institutions via projects focusing on...
different themes. As the Climate KIC is a rapidly growing network of stakeholders, cooperation opportunities can be sought with INTERREG IVC project partners.

Synergies can also be sought with programmes that are part of the European territorial cooperation objective of the current Cohesion Policy, such as the transnational cooperation programmes INTERACT, URBACT and ESPON.

Towards a common goal

The projects covered in this report have produced a range of good results aimed at tackling the complex challenge of climate change at local and regional levels. Collectively, the results have demonstrated the benefits of taking early action on both mitigation and adaptation. The concrete examples, and also the support tools and methodological approaches generated through the actual experiences of local and regional authorities working on the INTERREG IVC climate change projects, are an invaluable contribution to climate change action in the EU and should be further recognised as such in an effort to spur action in all parts of Europe.

A number of recommendations aimed mainly at local and regional authorities, but also the EU and the future European Territorial Cooperation programmes, have stemmed from the lessons learned in carrying out the INTERREG IVC projects:

Core theme 1: Making the case for climate action

- Disseminating examples that clearly demonstrate the benefits of climate change action is of particular importance for this topic, where convincing decision makers and stakeholders of the need for early action is so critical.
- Assessing present and future vulnerabilities to climate change is a critical prerequisite for effective adaptation planning and action. To achieve this, regions should develop more effective dialogue with scientific and research institutes and, if needed, seek external funding.
- Local and regional authorities should also take advantage of the information available via portals such as Climate-ADAPT, which includes adaptation case studies as well as tools and methodologies supporting adaptation planning.

Core theme 2: Stakeholder involvement and policy networks

- Building consensus for action across sectors and disciplines is critical to building a sound, scientific basis for planning and action on climate change. To do this, authorities must be prepared to reach out to a wide range of stakeholders, including many with whom they may not be accustomed to working.
- The viability and success of action on climate change is very much dependent on the quality of information that goes into planning and implementation. Both the policymaking and the scientific and research communities need to focus on the quality of mechanisms for sharing information in this regard.
- Local authorities should consider joining one of the EU initiatives that fosters political commitment for action at the highest levels, and provides support and monitoring for planning and implementation.
- Closer cooperation between national and regional governments is needed in order to translate national and European targets and objectives into the regional context.
- National, regional and local authorities with competence in adaptation to climate change should set up a core team with high-level political commitment and a cross-sectoral working group bringing together various stakeholders.

Core theme 3: Strategic and action planning

- Strategic Environmental Assessment (SEA), which is a procedure required by EU law (Directive 2001/42/EC) for the assessment of the environmental impacts of certain plans and programmes, has been identified by the projects as a key tool for integrating climate change considerations into other policy areas.
Developing regional and local adaptation strategies and action plans requires thinking beyond the normal plan-led timeframes and taking a more flexible approach, which allows regular revisions. In addition, the planning should be coordinated across key sectors (such as spatial planning, economic development, water, agriculture, forestry and health).

Regions can build on existing guidance, tools and models to develop so-called ‘no-regret’ adaptation measures or ‘win-win’ measures, which have other economic, social or environmental benefits.

Wherever possible, Member States and regions should consider the natural environment, including the role of ecosystem services as a natural buffer against the impacts of climate change, in planning for adaptation to climate change.

**Core theme 4: Implementation measures**

- Cohesion Policy can co-finance a range of climate change-related initiatives, such as investments in pilot technologies, disaster and risk management plans and mechanisms and, where eligible, infrastructure. In rural areas, the rural development programmes of the Common Agricultural Policy can address climate change measures.
- Member States and regions also need to take care that climate change — both low-carbon issues and vulnerabilities to climate impacts — is taken into account in all areas of public funding, particularly in places where EU funds constitute a large share of public development spending.
- Ideally, all spending programmes for EU funds should be grounded in comprehensive and well-founded climate change strategies backed up by credible scientific research. Where climate strategies are not available, SEA can be useful as a catalyst for bringing a climate change perspective to the spending plans.
- To boost financing of adaptation activities, such as weather and storm warnings, land-use planning or data provision, regions can explore new areas of public-private cooperation.

**Core theme 5: Measuring and monitoring progress**

- Regions and cities have to boost activities to collect regional-level climate change data, especially related to climatic trends. Furthermore, they should also ensure that data collection on different climate change aspects does not remain a one-time effort.
- Further work is needed on assessing data and monitoring progress on both climate change mitigation and adaptation. Adaptation will be especially challenging in this regard. Authorities should therefore consider monitoring and evaluation systems at an early stage when developing adaptation strategies.
1. Introduction and methodology

1.1 Introduction to the topic

This study presents the analysis and key findings from the 2013–2014 INTERREG IVC capitalisation exercise for climate change projects.

But what is ‘capitalisation’? Capitalisation is part of the INTERREG IVC programme’s strategy to improve regional policies in Europe. It involves collecting, analysing and highlighting the innovative, interesting and useful aspects of the work undertaken by projects. It is a form of knowledge management, the aim of which is to codify and make available the knowledge generated by projects for the benefit of other regions and stakeholders.

The projects selected for this study address one of the main themes of the programme: namely, climate change. Theoretically, there are two categories of policy response to climate change: (a) mitigation, which refers to reducing greenhouse gas emissions; and (b) adaptation, which means adapting to projected changes in the climate and their impact on society. Although there are also important links between them, each of these categories entail different policy and planning responses, which in turn affect different sectors and stakeholders. As result, all of the INTERREG IVC projects in this study that address the topic of climate change focus primarily on either adaptation or mitigation.

1.2 Methodological approach

The capitalisation exercise was carried out in two phases. During the first year of the analysis, seven projects were studied. These projects focused exclusively on climate change issues, including both mitigation and adaptation aspects. This distinction influenced the methodological approach to the comparative analysis. Although, wherever possible, the projects were considered as a single group that collectively addressed climate change, and during which appropriate specific comparisons were made within the adaptation and mitigation sub-groups. This approach is also consistent with recent developments in EU policies that deal separately with the two dimensions but consider both as equally vital for long-term sustainable growth.

The first-year findings showed that regions have more extensive and solid practical knowledge on a wide range of mitigation activities, but tend to have more limited experience with adaptation to climate change. Moreover, adaptation to climate change has recently emerged as an important policy issue across the EU, and one that is of particular relevance for local and regional governments.

For these reasons, the more in-depth analysis carried out in the second year has focused on those projects which address adaptation to climate change, rather than the mitigation of greenhouse gas emissions. Four additional INTERREG IVC projects have been included in the study. The main focus of these additional projects were specific fields of activity, such as water management, forestry or disaster risk prevention, but they all addressed the issue of climate change as one of the main challenges in the century to come.

To ensure the appropriate capture and analysis of the knowledge and experience accumulated by the INTERREG IVC climate change projects during both phases of the analysis, the project team carried out extensive desk research focusing on the documents available for each project. This included screening project websites, progress reports, final reports (where available), and project deliverables such as the methodologies, techniques and tools developed by the projects, guidance documents, reports on identified good practices and implemented pilot actions, and final publications summarising key project results and policy messages. These documents served to orient the team towards a better understanding of the projects and guided the collection of more detailed information.

The collected 468 good practices were then analysed in detail. Figure 1 provides an overview of the steps taken to carry out this study. However, these steps were not carried out in an entirely sequential manner; there was some iteration between the activities leading up to the final output. The steps were repeated during the second-year analysis for ongoing climate change projects with new results and for the additionally involved projects.
1.3 Structure of the study

The results of the capitalisation work are summarised in the present report, which covers the following issues:

- **Section 1: Introduction and methodology** introduces the topic of climate change and describes the methodology of the study.

- **Section 2: Policy context** presents the key climate change challenges and suggests how European regions can address them. This section draws a parallel with European policy goals and discusses how interregional cooperation can contribute to achieving them. Examples of other EU initiatives and programmes relevant to the topic are also presented.

- **Section 3: analysis** focuses on the individual projects and the extent to which they address similar challenges. Solutions to common problems, as well as descriptions of good practices featuring innovative or transferable aspects, are also highlighted. The analysis illustrates how the achievements of the INTERREG IVC climate change projects will be of interest to other regions and how they contribute to improving policies in the climate change field.

- **Section 4: Key policy messages** highlights findings relevant to other EU regions, as well as policy recommendations for regional, national and European policy makers and practitioners.

The annexes at the end of this report supply further details about the analysed projects, including general descriptions, good practices, contact details, and some quantified information about project results.
2. Policy context

2.1 The challenge of climate change

‘Warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia.’ (WG1 report of the IPCC Fifth Assessment Report, 2013)

Climate change — a change in climate caused by human activity — is a global issue that has far-reaching environmental and socio-economic impacts. A complex and cross-sectoral issue from a regulatory and policy perspective, climate change requires strategic action on a variety of fronts. The complexity of climate change and its relative newness as a policy challenge, particularly for regional and local authorities, makes it an important area for policy learning and the exchange of experience across countries and regions.

The consequences of a changing climate can already be observed worldwide, and these impacts are predicted to increase steadily in the future. The most obvious effects are the increase of surface temperature and the change of precipitation patterns. The increasing temperature causes changing precipitation patterns and a shift in rainfall, and as a result, many regions will experience more frequent droughts and floods. Coastal and mountain areas, as well as flood plains, will be particularly vulnerable. Extreme weather events such as heat waves, droughts, heavy rain and snow, storms and floods are becoming more common or more intense.

In Europe, different regions will experience different climate impacts. While a few regions will even experience small positive impacts, most regions will experience adverse consequences. The map below (Figure 2) shows the aggregate potential impacts of climate change at the EU NUTS2 level, ranging from low positive to severe negative: the darker the colour, the higher the negative impacts on the region. The map shows that the coastal and southern regions of Europe are generally more prone to climate risks than the northern and eastern regions.
To avoid the most serious risks of climate change, the Parties to the UNFCCC agreed to limit the rise of global mean temperature to below 2°C above pre-industrial levels. The EU supports this goal.

*The impacts of climate change are not evenly distributed — the poorest countries and people will suffer earliest and most. And if and when the damages appear, it will be too late to reverse the process. Thus we are forced to look a long way ahead.* (Stern Review: The Economics of Climate Change)

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For societies, tackling climate change essentially requires action on two fronts. The mitigation of future changes to the climate by reducing greenhouse gas (GHG) emissions requires efforts to improve efficiency in sectors that are responsible for high emissions, such as energy, transport and agriculture. Adaptation involves understanding future climate change and its specific environmental, social and economic impacts, and taking action to prepare for and to adjust to these impacts. These may include the development of flood defences, disaster warning systems or green infrastructure to promote cooling in urban areas. Ideally, climate change mitigation and adaptation should not be seen as alternatives but rather as a combined set of actions in an overall strategy to reduce GHG emissions and cope with the inevitable impacts of climate change. Even though addressing mitigation and adaptation often requires the input of different authorities, experts and stakeholders, and covers different economic and planning sectors, an overall coordinated policy response is the most effective.

International action towards climate change mitigation through global commitments to reduce GHG emissions has been ongoing since 1992 through the United Nations Framework Convention on Climate Change (UNFCCC). By 1995, it was apparent that emission reductions provisions in the Convention were inadequate. Following negotiations aiming to strengthen the global response to climate change, the Kyoto Protocol was adopted in 1997. The Kyoto Protocol legally binds developed countries to emission reduction targets. The Protocol’s first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020. The launching of a new platform of negotiations under the Convention was agreed at the 2011 UN Climate Change Conference in Durban. The aim of the platform will be to deliver a new, universal and ambitious greenhouse gas reduction protocol by 2015. The intention is to sign the 2015 Agreement during the 21st session of the Conference of the Parties in December 2015, in Paris, France.

During the last two decades, the EU has taken a leading role in negotiating commitments to reduce GHG emissions and promoting international solidarity for supporting adaptation to climate change on a global scale. This is also reflected in the priority given to climate change — both mitigation and adaptation — on the EU strategic policy agenda.

2.2 The EU strategic and regulatory framework

The EU has set itself ambitious objectives for combating climate change. In addition to efforts to mitigate climate change, the European Commission (EC) is also taking action to strengthen climate adaptation in the EU and has a critical role in coordinating and supporting adaptation planning and action across the EU.

2.2.1 Climate change mitigation policies

In 2008, the EU adopted a series of legal instruments and policies aimed at cutting GHG emissions, mainly through increases in renewable energy use and energy efficiency. The table and text below provide an outline of major climate mitigation initiatives in the EU.

Table 2: Summary table of EU policies concerning or relevant to climate change mitigation

<table>
<thead>
<tr>
<th>EU climate-energy package</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe 2020 Strategy</td>
</tr>
<tr>
<td>Flagship initiative ‘Resource-Efficient Europe’</td>
</tr>
<tr>
<td>Roadmap to a Competitive Low-Carbon Economy by 2050</td>
</tr>
<tr>
<td>2030 Framework for Climate and Energy Policies</td>
</tr>
</tbody>
</table>

**EU climate-energy package**

This legislative package, also known as the ‘20-20-20’ regulations, sets three key objectives for the EU in 2020:

- a 20% reduction in EU greenhouse gas emissions from 1990 levels;
- raising the share of EU energy consumption produced from renewable resources to 20%; and
- a 20% improvement in the EU’s energy efficiency.
Binding targets are set individually for the Member States, which the EC monitors on a regular basis. According to the latest emissions projections submitted by the Member States, the EU27 will overachieve its 2020 GHG emissions reduction target by 1%. Some countries require significant additional effort to meet their national target. Figure 3 below shows the projected gaps between 2020 GHG emissions and national targets in the sectors not covered by the EU Emission Trading System (EU ETS).^3^

Figure 3: Projected gaps between 2020 GHG emissions and national targets in the sectors not covered by the EU ETS

Source: Data from the European Environment Agency (EEA), based on Member States’ draft submissions of national GHG inventories to UNFCCC

^3^ These include buildings, agriculture, waste and transportation (with the exceptions of aviation and international maritime shipping).
Regarding the increased share of renewables of the 2020 climate energy package, national targets vary among the Member States. Figure 4 shows the progress that Member States made through 2010 towards achieving their 2020 renewable energy targets. It also marks the interim targets for the years 2011/2012, which were set for each Member State under the Renewable Energy Directive in line with the 2020 energy targets. Some countries made good progress by 2010 and achieved the interim targets, but the Directive expects accelerated progress for the final period. This implies that a great deal more work is needed for most Member States to reach the 2020 targets.

Figure 4: Share of renewables in gross final energy consumption in 2010 compared to 2020 targets and 2011/2012 interim targets with normalised hydro and wind

Source: Eurostat, Directive 2009/28/EC for targets

As part of the climate energy package under the new Energy Efficiency Directive, Member States will have to define national energy efficiency targets as part of their national efficiency programmes in 2013. The Commission will assess progress achieved to date in 2014.

Europe 2020 Strategy

The Europe 2020 Strategy is the EU’s agenda for smart, sustainable and inclusive growth. Adopted in June 2010 the strategy integrates the EU’s climate and energy package. The targets for GHG emissions, renewables and energy efficiency have been adopted as key ‘headline targets’ for sustainable growth in the EU for 2020. The inclusion of climate change and energy targets into a growth strategy reflects the opportunities that a shift to low-carbon economic activity presents for the EU. The sustainable growth priority of the Europe 2020 Strategy underlines the imperative to take action on combating climate change and to strengthen economic resilience to climate risks and capacity for disaster prevention.

Flagship initiative ‘Resource-Efficient Europe’

The Europe 2020 Strategy is underpinned by a series of ‘flagship initiatives’, one of which calls for decoupling economic growth from resource use by increasing the use of renewable resources, promoting energy efficiency and creating a cleaner transport sector. Diversification of energy supply is a key priority, and the strategy highlights the need for greater investments in renewable energy sources such as biomass, wind and solar power. It also emphasises the importance of national strategies and stresses the crucial need to mobilise regional funding for such investments and to streamline it with other available funds.

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Adopted by the EC in March 2011, the roadmap shows the way towards a low-carbon European economy and highlights the benefits of such development. The roadmap envisions a low-carbon economy that is 80% less carbon intensive than at present as well as based on low energy consumption, low pollution and low emissions. The roadmap describes a cost-effective pathway to reach the EU’s long-term objective of cutting GHG emissions by 80–95% of 1990 levels by 2050. The EC roadmap provides a general direction for future sectoral policies, national and regional low-carbon strategies and long-term investments. More information can be found under this link: http://ec.europa.eu/clima/news/articles/news_2011030801_en.htm.

The 2030 framework will build on the lessons learned from the 2020 framework and will identify areas for future improvements. Accordingly, it was suggested that the 2030 framework will introduce binding greenhouse gas reduction (up to 40% by 2030) and renewable energy targets (at least 27% by 2030), as well as propose measures for improving energy efficiency and reforming the EU ETS.

2.2.2 Climate change adaptation policies

Adaptation is a relatively new but rapidly evolving policy field. Worldwide, societies are recognising that many impacts from a changing climate are now inevitable, based on historical greenhouse gas emissions, and that they will have complex and wide-ranging environmental, economic and social impacts. Finland adopted Europe’s first national climate change adaptation strategy in 2005; by the end of 2013, over half the EU Member States had strategies in place. The EC recognises the need to act at EU level, to fill knowledge and action gaps, and to complement the efforts that Member States take.

Table 3: EU policies addressing adaptation to climate change

<table>
<thead>
<tr>
<th>EU Strategy on Adaptation to Climate Change</th>
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<tbody>
<tr>
<td>Water Framework Directive</td>
</tr>
<tr>
<td>Mapping Guidelines for Disaster Management and Risk Assessment</td>
</tr>
<tr>
<td>EU Forest Strategy</td>
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<tr>
<td>EU Biodiversity Strategy to 2020</td>
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<tr>
<td>The EU Green Infrastructure Strategy</td>
</tr>
<tr>
<td>EU Environment Action Programmes (EAPs)</td>
</tr>
</tbody>
</table>

The EC adopted this strategy in April 2013. The strategy aims to contribute to a more climate-resilient Europe. Based on a 2009 green paper and extensive stakeholder consultation and analysis of the EU’s role in the coordination and promotion of climate change adaptation, it has three main objectives:

- **Promoting action by Member States:** The Commission encourages all Member States to adopt comprehensive adaptation strategies (at present, 15 have strategies) and provides funding to help them build up their adaptation capacities and take action. It will also support adaptation in cities by launching a voluntary commitment based on the Covenant of Mayors initiative.

- **‘Climate-proofing’ action at EU level** by further promoting adaptation in key vulnerable sectors such as agriculture and fisheries. Besides sectoral policies, climate proofing of the cohesion policy can both ensure that Europe’s infrastructure is made more resilient and further promote the use of insurance against natural and man-made disasters.
Better informed decision making by addressing gaps in knowledge about adaptation and further developing the European climate adaptation platform (Climate-ADAPT) as the ‘one-stop shop’ for adaptation information in Europe.

The adaptation strategy proposes seven action items to work towards these objectives. These include the development of comprehensive adaptation strategies at the national, regional and local levels, and the development of a number of support platforms and guidance documents to assist the Member States in doing this. Subsequent sections of this report describe these initiatives where relevant.

Climate change impacts are broad and complex and affect multiple policy sectors simultaneously. To be successful, climate change adaptation needs to consider impacts and responses in sectors such as agriculture, forestry, water, ecosystems, disaster risk prevention and risk management. For example, biodiversity and ecosystem services can play a crucial role in climate change adaptation, as natural solutions are often cost-effective and provide a wide range of benefits. Climate change is projected to affect water availability across Europe directly, leading to increasing water scarcity and drought conditions in some areas, while also increasing the risk of floods throughout most of Europe. Water management is therefore expected to play a significant role in climate change adaptation. Climate change is also expected to increase the frequency of natural disasters (storms, fires, etc.). This requires adequate policy responses with regard to risk assessment, prevention and management. Natural disasters will affect not only the well-being of the population but will disturb forest growth. The economic viability of forestry will be affected, as well as the capacity of forests to provide environmental services, including the carbon sink function. To address this problem, forest management practices should evolve and take adaptation measures into account.

**Water Framework Directive**

The Water Framework Directive (WFD) is the main EU policy instrument in which climate adaptation has been mainstreamed to expand the scope of water protection and achieve long-term sustainable water management. The river basin management plans that are to be established for each river basin district will be required to take the impacts of climate change into account. In addition, the Floods Directive, which should be implemented in close coordination with the WFD, requires Member States to identify river basins and associated coastal areas at risk of flooding; they then need to draw up flood risk maps and establish flood risk management plans for these zones. The EC sets out a number of policy options for addressing water scarcity, including the important roles played by water pricing and land-use planning.

**Mapping Guidelines for Disaster Management and Risk Assessment**

The EC offers Mapping Guidelines for Disaster Management and Risk Assessment that aim to improve coherence and consistency among risk assessments that Member States undertake. We believe that such coherence will promote a common understanding of the risks faced by the EU and its Member States, and will also facilitate cooperation in efforts to prevent and mitigate shared risks, such as cross-border risks. The Guidelines follow up on an EC communication focused on the prevention of natural and manmade disasters, and sets out an overall disaster prevention framework while proposing measures to minimise disaster-related impacts. A Green Paper on the insurance of natural and manmade disasters accompanies the EU Strategy on Adaptation to Climate Change.

**EU Forest Strategy**

The EC adopted the EU Forest Strategy in September 2013 in order to respond to new challenges that the forest sector faces and to achieve sustainable forest management. The strategy mentions the importance of actions to maintain and enhance forest resilience and adaptive capacity. It also emphasises the crucial role of forests for rural development, ecosystems, bioenergy and reducing greenhouse gas emissions. The strategy encourages actions for using forest resources in ways that minimise impact on the environment and climate. It also underlines the need for a stronger collaboration between Member States and the EU for promoting innovative research and the translation of results into concrete actions for a sustainable forest management.
EU Biodiversity Strategy to 2020

The EU Biodiversity Strategy to 2020 was adopted in 2012. The Strategy sets out a long-term EU vision (through 2050) on biodiversity policy and establishes a range of mid-term targets and actions (through 2020), also addressing climate change. Achieving better connectivity between habitats in ecological networks is an adaptation strategy to increase ecosystem resilience to climate change.

The EU Green Infrastructure Strategy

Furthermore, in May 2013, the EC adopted the EU Green Infrastructure Strategy to encourage the use of green infrastructure and ensure that the enhancement of natural processes becomes an integral part of spatial planning. One of the objectives of the strategy is to promote green infrastructure in main policy areas such as agriculture, forestry, nature, water, marine and fisheries, transport, energy, disaster prevention and land-use. Green infrastructure can also be integrated in climate change mitigation and adaptation policies. The Strategy also calls for improving research and data, strengthening the knowledge base, promoting innovative technologies that support green infrastructure, and improving access to finance for green infrastructure projects.

EU Environment Action Programmes (EAPs)

Finally, EU Environment Action Programmes (EAPs) are important guides for the development of EU environment policy. The 7th EAP will cover the 2012–2020 period and support further integration of environmental objectives into the implementation of the Europe 2020 Strategy. Key features of the programme are: protecting natural capital, encouraging more resource efficiency, accelerating the transition to a low-carbon economy, and incorporating other initiatives relevant to climate change.

2.2.3 EU funding opportunities for combating climate change

The EU Cohesion Policy provides funding for EU Member States and regions to help them achieve EU strategic goals, and in particular to support the development of regions that lag behind in economic terms. During the 2007–2013 period, approximately EUR 700 billion funding was allocated for regional and cohesion policy (including Member States contributions). Environmental and energy objectives made up approximately 16% of the total Cohesion Policy budget. Climate change actions were integrated under the Energy and Environment thematic areas.

In 2011, a communication from the EC stressed the potential for regions to use the funds to support the sustainable growth priority of the Europe 2020 Strategy, in particular to contribute to a resource-efficient, low-carbon, climate-resilient economy. The adopted regulations for the EU Cohesion Policy for the 2014–2020 period place greater emphasis on the challenge of climate change than in the past, in recognition of the importance of this issue for wider EU strategic development objectives. Member States and regions will be able to target funds specifically for the transition to a low-carbon economy (Thematic Objective 4) and for adaptation to climate change (Thematic Objective 5). The regulations recognise sustainable development as a horizontal principle, and also state that funding programmes must promote climate change adaptation, disaster resilience, and risk prevention and management in the programmes.

In addition, climate change objectives (both mitigation and adaptation) have a special role in EU spending for the 2014–2020 period. The EC agreed to mainstream climate change into the overall EU budget, and 20% of spending for the 2014–2020 period (approximately EUR 960 billion) should target climate change objectives. Cohesion Policy programmes will therefore need to set out the indicative amount of support for climate change objectives, and related spending will need to be monitored annually.

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The LIFE programme, which is the EU’s funding instrument for the environment, will add a sub-programme on climate change for 2014–2020. For the upcoming period, the LIFE Programme will have a EUR 3.46 billion total budget, including a EUR 864 million budget earmarked for climate change. It will cover climate-related objectives in three areas:

- ‘Climate Change Mitigation’ will focus on reducing greenhouse gas emissions;
- ‘Climate Change Adaptation’ will focus on increasing resilience to climate change; and
- ‘Climate Governance and Information’ will focus on increasing awareness, communication, cooperation and dissemination on climate mitigation and adaptation actions’.

Another relevant EU funding instrument is the NER300 programme. The programme aims to support innovative low-carbon energy demonstration projects that focus on carbon capture and storage, as well as on renewable energy technologies. The programme also seeks to leverage private and/or national co-funding across the EU. It is funded from the sale of emissions allowances from the third phase of the EU ETS and managed by the European Investment Bank. However, all funding proposals must be endorsed by the relevant Member State authorities.

2.2.4 Climate change cooperation in the EU

In addition to the EU policies and programmes mentioned above, EU has also launched various platforms and initiatives for cooperation on tackling climate change at regional and local level.

The Covenant of Mayors, for example, assists European cities and regions to work together towards developing and implementing sustainable energy policies through the implementation of local sustainable energy action plans. Further examples are the Energy Cities initiative, which is an association of local authorities; and the Smart Cities initiative, which builds on existing national and EU programmes and supports the shift to a low-carbon economy.

The EC Directorate-General for Climate Action (DG CLIMA) initiative ‘A world you like with a climate you like’ comprises a collection of success stories related to the implementation of the 2050 low-carbon roadmap. Another outstanding example is the agreement between Italian regions to prevent and reduce air pollution in the Po Valley. This initiative for combating air pollution includes the regions of Piedmont, Lombardy, Emilia Romagna, Veneto, Valle D’Aosta, Friuli Venezia Giulia, the autonomous provinces of Trento and Bolzano, and the Republic and Canton of Ticino. The focus of the activities is on: harmonisation of measures targeting air pollution; a joint inventory for estimating emissions at municipal level; promotion of low-impact vehicles (methane, LPG, hybrids, electric, hydrogen, etc.); support for cleaner public transport through technological upgrading; definition of common mid-long term measures to reduce emissions; and, lobbying at national and EU levels for the creation of specific funding mechanisms.

The European Innovation and Technology Institute, created in 2008, has a dedicated Knowledge and Innovation Centre (KIC) for Climate Change. It brings together public, private and research institutions via projects focusing on different themes and involving a wide variety of stakeholders. The Climate KIC is a rapidly growing network; it was launched with 15 institutions in 2010 and currently has 200 partners.

With regard to climate change adaptation, the Directorate-General for Climate Action (DG CLIMA) supports the EU-Cities Adapt project. The project will provide capacity building and assistance for cities in developing and implementing an adaptation strategy through awareness raising and the development of a knowledge bank, along with targeted support for selected cities. DG CLIMA also supports the development of an adaptation-oriented political covenant initiative for local authorities (modelled on the Covenant of Mayors framework, described above) as one of the action items under the Adaptation Strategy. The Covenant of Mayors Initiative on Adaptation to Climate Change was launched on 19 March 2014 in Brussels.

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7 http://ec.europa.eu/environment/life/about/beyond2013.htm
8 The acronym refers to a EUR 300 million EU allowance under the New Entrants Reserve of the EU ETS http://ec.europa.eu/clima/funding/ner300/index_en.htm
The European Climate Adaptation Platform (Climate-ADAPT) is a partnership between the EC (DG CLIMA, Joint Research Centre and other DGs) and the European Environment Agency. It is a web portal developed to support Europe in adapting to climate change; its further development as a ‘one-stop shop’ for adaptation information in Europe is one of the key action items of the EU Adaptation Strategy. It contains a database of up-to-date information, including spatial information on climate impacts, case studies, news and events, and a support tool for developing an approach to adaptation.

2.3 Climate change as a threat and opportunity for regions in Europe

The climate change challenge has special significance for regional and local authorities in the EU. Most of the natural resources (river basins, catchment areas, flood plains) and socio-economic systems (agriculture, tourism, urban structures) that are likely to be affected by climate change in the coming decades are unique to specific local and/or regional areas. Climate impacts and vulnerabilities, as well as capacity to adapt, are therefore determined at local and regional levels, where detailed information and strategic action plans are required. While the climate and energy targets adopted by the EU are binding at national level, many of the actions to be taken with regard to behavioural change will be guided by local and regional-level policies and initiatives. Figure 5 below illustrates the chain of climate change impacts on regional plans.

Figure 5: Climate change trends and effects; threats and opportunities and related regional plans

Understanding climate change is not a simple task for most policy makers and for the public who are not specialists on the subject. Many of the threats and risks related to climate change are long-term in nature, and often well beyond the thinking or planning horizons of key institutions. Mitigating climate change by reducing GHG emissions is a similarly vague concept: goals and targets exist at global and national levels but are rarely made concrete enough to serve as a motivating factor for regions or local communities. A real challenge in terms of climate change is therefore to build the case for action by identifying benefits that outweigh the upfront costs. This requires work with technical experts, researchers and academics in order to understand the socio-economic impacts of climate change and the opportunities for integrating climate change mitigation and adaptation solutions into the wide range of relevant policies and strategies.
The cross-cutting nature of climate change, along with its complex character — that is, how its various aspects interact and complement one another — are especially challenging for European regions, and this complicates climate change planning and the implementation of related actions. In many cases, climate change impacts are poorly understood, and the need to invest political and financial capital in addressing them is clear neither to decision makers nor to the public. Another challenge is the cross-sectoral nature of climate change, meaning that there is not always one institution or group within an authority that takes full ownership and responsibility for climate change policymaking and action. While solutions and technologies for climate change mitigation and adaptation may be readily available, the techniques for their application are lacking in many European regions.

Another challenge for regions when dealing with climate change is determining their level of competence. Across the EU Member States, there are diverse approaches to multi-level governance and the extent to which local and regional authorities have the responsibility and authority to plan and implement climate change actions. Clear understanding of the relative competencies across national, regional and local levels of governance is very important as a basis for investing resources in climate change.

There is therefore great potential for local and regional authorities to learn from each other in order to better understand:

- how climate change is being treated as a policy issue,
- how comprehensive and sector-specific action planning is being carried out;
- what kinds of information and awareness techniques work well;
- what concrete methods can be applied to assess vulnerabilities or the costs and benefits of various GHG mitigation actions.

Joint actions and cooperation between regions can help to address these challenges and to increase the effectiveness of climate change policy efforts at regional and local levels. Cooperation also provides an opportunity for those regions that are lagging behind in addressing climate change to learn from the frontrunners on how to take advantage of the opportunities offered by low-carbon development or how to assess risks and plan for climate change adaptation.

The EC also introduced the policy concept of ‘smart specialisation to boost regional competitiveness and innovation based on sound analysis of available regional competences and existing technologies’. To promote this policy approach, the S3 (Strategies for Smart Specialisation) Platform was created in 2010 and dubbed as the regional policy contributing to smart growth in Europe 2020’. It aims to support national and regional authorities in developing the smart specialisation strategies by providing guidance material, good practices examples, peer reviews, and research results to policy makers. Since it is expected that the regions’ renewable energy potentials, as well as their vulnerabilities to climate change, will have a considerable impact on their competitiveness and economic development in the future, the smart specialisation strategies must take these aspects into consideration.

10 http://ec.europa.eu/research/regions/index_en.cfm?pg=smart_specialisation
3. Analysis

3.1 Overview of the analysed projects

As explained in Chapter 1, we first analysed the seven climate change projects that the INTERREG IVC programme co-funded. The projects address various aspects of climate change challenges at regional and local levels and seek to identify solutions. The seven projects have involved 78 partner regions from Europe, led by partners from six Member States. Six of the seven projects have been completed, and the other will continue until December 2014.

Some of the projects (F:ACTS, GRaBS, REGIOCLIMA) analysed during the first year of the capitalisation exercise focus more on adaptation to climate change, addressing issues such as water scarcity and drought, flood prevention, the adaptation of agriculture to climate change, and adaptation measures in urban, spatial and territorial planning. Others (RSC, CLIMACTREGIONS, POWER, CLUE) deal with the opportunities and challenges related to the shift to a low-carbon economy and explore how, through effective planning, regions can reduce GHG emissions and build their economies around less-intensive energy use.

During the second year of the capitalisation exercise, we analysed practices and approaches stemming from the first-year projects in more detail, as well as the knowledge assembled by the sole ongoing project, CLUE. In addition, we extended the scope of the analysis to include those projects that address climate adaptation issues in water management, disaster risk prevention and management, and forestry. Wherever possible, we also highlighted the linkages between biodiversity and the protection of ecosystems and climate change.

As climate change affects multiple sectors and adaptation needs to be mainstreamed in the respective sectoral policies, the value of this approach is twofold. First, it helped us to enrich the analysis by capturing all the adaptation-relevant experience and knowledge assembled in the INTERREG IVC projects. Second, it enabled us to present the multi-faceted nature of adaptation to climate change, which affects multiple sectors, different levels of governance and stakeholder groups simultaneously. These four adaptation-relevant projects (CivPro, FUTUREforest, MISRaR and WATER CoRe) are all completed, and include 39 partner regions from across Europe.

A summary of the climate change projects addressing mitigation and adaptation aspects is presented in Tables 4 and 5, respectively. More detailed information can be found in the annex.

Table 4: INTERREG IVC projects addressing climate change mitigation

<table>
<thead>
<tr>
<th>Project</th>
<th>Objective</th>
<th>Partnership</th>
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<tbody>
<tr>
<td>Regions for Climate Protection: toward Governance, from Knowledge to Action (CLIMACTREGIONS)</td>
<td>To strengthen regional capacity to develop and implement policies to reduce GHG emissions.</td>
<td>11 partners from nine regions led by Rhône-Alps Region, France</td>
</tr>
<tr>
<td>Regions for Sustainable Change (RSC)</td>
<td>To develop the potential of regions to stimulate climate change mitigation and adaptation and to promote sustainable socio-economic development.</td>
<td>12 partners from eight EU Member States, led by the Regional Environmental Centre for Central and Eastern Europe (REC), Hungary</td>
</tr>
<tr>
<td>POWER Programme</td>
<td>To improve the effectiveness of regional development policies through the exchange, sharing and transfer of policy experience, knowledge and good practices related to five themes.</td>
<td>Seven partners from seven regions, led by South East England Development Agency (SEEDA), United Kingdom</td>
</tr>
<tr>
<td>Climate Neutral Urban Districts in Europe (CLUE)</td>
<td>To increase regional capacity in policy development to facilitate the implementation and assessment of new solutions and technologies to support low-carbon economic development in urban areas.</td>
<td>11 partners from nine European countries, led by Stockholm City Planning Administration, Sweden</td>
</tr>
<tr>
<td>Project</td>
<td>Project</td>
<td>Objective</td>
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<tr>
<td>GRaBS</td>
<td>Green and Blue Space Adaptation for Urban Areas and Eco-towns (GRaBS)</td>
<td>To ensure that existing and new mixed-use urban development is adapted to the impacts of climate change and to improve local and regional planning policy by integrating green and blue infrastructure.</td>
</tr>
<tr>
<td>FACTS</td>
<td>Forms for: Adapting to Climate Change through Territorial Strategies! (F:ACTS!)</td>
<td>To create effective implementation capacity at regional and local levels for integrated territorial approaches that promote adaptation to climate change and its effects in peri-urban and rural areas.</td>
</tr>
<tr>
<td>REGIOCLIMA</td>
<td>Regional Cooperation towards Adaptation to Climate Change (REGIOCLIMA)</td>
<td>To enhance cooperation among EU regions towards avoiding risk and reaping the benefits of a changing climate.</td>
</tr>
<tr>
<td>CivPro</td>
<td>Regional Strategies for Disaster Prevention (CivPro)</td>
<td>To exchange and share expertise on the development of regional policies for disaster risk prevention and to develop a strategic approach and model to prevent and reduce any potential threat and damage from natural and manmade disasters.</td>
</tr>
<tr>
<td>FUTUREforest</td>
<td>FUTUREforest</td>
<td>To share ideas on how to develop innovative solutions so that the forests of Europe can adapt to climate change; to contribute towards carbon sequestration and reduce risks caused by climate change, such as flooding, drought, fire, and soil erosion.</td>
</tr>
<tr>
<td>MiSRaR</td>
<td>Mitigating Spatial Relevant Risks in European Regions and Towns (MiSRaR)</td>
<td>To cooperate in the development of effective mitigation plans concerning disasters that affect regions and cities; the project developed an integrated approach to assist regional and local governments in the EU to develop spatial mitigation plans for relevant risks.</td>
</tr>
<tr>
<td>WATER CoRe</td>
<td>Water Scarcity and Drought; Coordinated Actions in European Regions (WATER CoRe)</td>
<td>To create tools to improve water management by providing a knowledge exchange platform for water scarcity and drought issues on regional and local level for all European regions.</td>
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</tbody>
</table>

A more detailed presentation of the all projects covered in the study including objectives, achievements, as well as good practices identified and transferred can be found in Annex 1 of this study.
3.2 Overview of good practices

A set of five core themes (see below) was developed to analyse good practices identified by projects. These themes reflect the stages in a typical cross-sectoral planning process that authorities would ideally carry out to address climate change.

This section presents —with mitigation and adaptation projects treated separately — the main findings and innovative good practices for each of these core themes:

- **Core theme 1:** Making the case for climate action
- **Core theme 2:** Stakeholder involvement and policy networks
- **Core theme 3:** Strategic and action planning
- **Core theme 4:** Implementation measures
- **Core theme 5:** Measuring and monitoring progress

### 3.2.1 Good practices from climate change mitigation projects

Figure 6 illustrates the share within each theme of 267 good practices from the climate change mitigation projects (CLIMACTREGIONS, CLUE, POWER, and RSC) that have been reviewed and analysed. ‘Making the case for climate action’ is the theme with the highest number of good practices. Close behind are the ‘Strategic planning’ and ‘Implementation measures’ practices, while ‘Measuring and monitoring progress’ and ‘Stakeholder involvement and policy networks’ are themes with a smaller share.

**Figure 6:** Core themes addressed in the climate change mitigation projects’ good practices

<table>
<thead>
<tr>
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</tr>
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<tr>
<td>Core theme 2: Stakeholder involvement and policy networks</td>
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<tr>
<td>Core theme 3: Strategic and action planning</td>
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</tr>
<tr>
<td>Core theme 4: Implementation measures</td>
<td>23%</td>
</tr>
<tr>
<td>Core theme 5: Measuring and monitoring progress</td>
<td>12%</td>
</tr>
</tbody>
</table>

**Core theme 1: Making the case for climate action**

Effective climate change policymaking, planning and implementation are highly dependent on accurate information. Lack of awareness of opportunities that may exist to mitigate GHG emissions and shift to low-carbon development is a common challenge at local and regional level. Developing an information base on climate change and making the case for climate action through targeted research and methodologies is therefore seen by many regions as a prerequisite for bridging the gap between climate change in the abstract and the need to design and implement realistic mitigation measures. In some cases, projects developed and piloted technical tools that support decision making or that help to design
preventive measures; these have been considered as part of gaining a better understanding of climate change and making the case for action.

Good practices have emerged from the climate change mitigation projects on how pilot and demonstration projects can help to expand knowledge and raise awareness of climate challenges among decision makers and the wider public, and to inspire other regions to take action. Good practices focusing on and making the case for climate action include:

- studies for technical solutions to increase energy efficiency, the development of renewables and the greening of public transport; and
- examples of technologies used (e.g. RES, energy efficiency and transport).

Two of the climate change mitigation projects (POWER and RSC) identified or developed studies that provide information about and recommendations for future activities. Good practice examples include a research project in Tallinn (Estonia) for analysing CO₂ emissions produced from the transport sector; another project in Andalusia (Spain) studies energy consumption and related environmental impacts of subsidised housing (POWER). The RSC project carried out an assessment of carbon-emission aspects of regional economies in Burgenland (Austria), Marche (Italy) and Cornwall (United Kingdom).

The projects consider the efficient use of energy and the introduction of clean energy sources as key issues for mitigating climate change, and they identified numerous good practices. Austria’s Burgenland region (an RSC partner) implements various actions towards achieving energy autonomy by 2020. These include measures to increase wind farm capacity (300 MW) and develop cogeneration plants using biomass. The Greek city of Paggaio (a CLUE project partner) prepared a business plan to manage a certified low-temperature geothermal field in Akropotamos, and via this to contribute to the achievement of all three EU 2020 climate and energy objectives.

Some projects (POWER and CLUE) identified complex climate mitigation solutions, which aim to transform the overall operation of city districts via the implementation of integrated urban eco-cycle models. Examples include the Hammarby model (POWER) and the Royal Seaport project (CLUE) in Stockholm (Sweden), and the International Building Exhibition within Hamburg’s METROZONE project (CLUE).

Since the transport sector contributes significantly to GHG emissions, several examples related to ‘greening’ the transport sector emerged in the INTERREG IVC climate change projects. The Green Berlin Zone project (CLIMACTREGIONS) aims to reduce GHG emissions and air pollution by prohibiting the use of high-emission vehicles in inner-city Berlin. The project achieved a 50% reduction in fine particles and a 20% reduction in mono-nitrogen oxide (NOx) emissions in 2011 (compared to 2007). The POWER and CLUE projects also identified various sustainable transport initiatives, such as numerous car and bicycle-sharing projects.

**Core theme 2: Stakeholder involvement and policy networks**

Collaborative work across sectors and the fostering of partnerships between regional and local actors are crucial in achieving climate change objectives. This theme includes practices focusing on:

- achieving a common climate-related goal (e.g. climate-neutral area, climate and energy agreements and partnerships, energy autonomy);
- tools for the analysis and organisation of stakeholders and multi-stakeholder involvement;
- encouraging politicians to commit to the achievement of climate change goals; and
- ensuring that specialised institutions are in place in regional/national administrations.

For the INTERREG IVC climate change mitigation projects, stakeholder involvement gives rise to benefits not only at the level of awareness raising, but also in the process of understanding a territory’s vulnerabilities and opportunities for low-carbon development. Moreover, it facilitates the design and implementation of policies, since local actors are empowered from the beginning and networks develop, enabling a critical consensus on policies and initiatives. The concepts of carbon neutrality and energy self-sufficiency through the exploitation of RES potential have attracted a great deal of attention in several partner regions and have proved effective in mobilising the community.
Tools for the analysis and organisation of stakeholders and techniques for mobilising community groups can be highlighted as positive examples of climate change projects. The EKKO (Energy Concepts for Municipalities) process is an example of how municipalities in Austria’s Burgenland region (an RSC partner) are involved in achieving strategic energy goals, thereby ensuring the active collaboration of local authorities. The innovative Charrette process for citizen engagement (identified by POWER) was successfully applied in the Viimsi (Estonia) municipality. The stakeholder involvement practices of Kent County Council (United Kingdom) for the design and evaluation of local sustainable energy action plans (LEAPs) proved to be an effective way to take into consideration and integrate the interests of various stakeholder groups (CLIMACTREGIONS). The Mitte Altona urban development project of Hamburg (Germany), which the CLUE project identified, also utilises various forms of stakeholder involvement in order to ensure long-term sustainability of the investment.

Some of the projects make a distinction between organisations and interest groups and the general public, and also highlight that both are important for raising awareness and building consensus for action. The CLIMACTREGIONS project identified the Norrbotten and Vasterbotten (Sweden) Energy and Climate Offensive as good practices, which aim to establish direct and personal contacts and engagement with politicians and heads of municipalities by offering to map the energy demand and renewable energy potentials in the participating municipalities. The Uppsala (Sweden) County’s Climate Agreement (POWER) targets industry, government and non-government organisations and encourages them to sign voluntary agreements to reduce their carbon footprint.

Among the partner regions, different approaches have been taken towards establishing institutions with responsibility for low-carbon development. The RSC project found that: an Environmental Sustainability Advisory Group was established in Cornwall (United Kingdom); a post of climate change delegate was created within the Government Commission in La Rioja (Spain); and, a regional environmental lawyer position was created in Burgenland (Austria).

In addition, determined, well-positioned policymakers who are motivated to take action on climate change issues can make the difference between positive action and inaction. As a good practice example, the Liguria region (Italy) recognised that a number of city leaders joined the Covenant of Mayors (RSC project) and that such a commitment from the mayors can accelerate climate actions in the cities.

**Core theme 3: Strategic and action planning**

All of the INTERREG IVC climate change projects consider climate change to be a long-term problem requiring appropriate policy action. At the same time, they recognise that there are gaps in knowledge in terms of what constitutes robust climate change strategy at regional and local levels. In response, one of their main goals is to enhance policy planning processes for climate change action. The good practices included within this core theme address various aspects of planning, reflecting the different geographical characteristics of the project partners (e.g. peri-urban, rural and urban) and the diversity of climate change problems that the participating regions are facing. The practices grouped under this core theme include examples of:

- local and regional climate change strategies;
- guidance for climate change strategic planning;
- approaches to designing and implementing integrated territorial actions; and
- mainstreaming climate change into all relevant policy areas.

A number of decision-making support tools and guidance for strategic climate change planning are emerging from the capitalisation work. Some of these were already in use at regional level; others were developed as a result of joint work during the projects. The Guide on Climate Protection Policies (CLIMACTREGIONS) contains 52 good practices, including general climate change strategies and action plans, such as the Kent Climate Change Delivery Plan (United Kingdom).The Wico sub-programme (POWER) focuses on developing guidelines for the installation of small wind systems along coastlines to promote and accelerate the uptake of wind power in the EU. The guidelines discuss implementation problems related to regulatory frameworks, as well as administration, market incentives and technologies.
Many of the planning-focused good practices, identified by the climate change mitigation projects, are overarching regional or local-level climate change policies or strategies. In some cases, they also include energy, illustrating how the multifaceted nature of climate change is challenging for regions to understand and address through policy. Tools and methods to help effective planning for climate change are therefore considered valuable and necessary at regional level. Presented in the project’s final output, the RSC four-step methodology for integrating low-carbon aspects in the regional planning process is an example of such a methodology. To support partner regions in taking steps towards a low-carbon economy, the POWER programme took a more tailored approach and developed regional roadmaps. At a lower-level scale of governance, the CLUE project aims to identify and analyse good practices and develop recommendations for the establishment of climate neutral cities. Such ambitious plans require holistic approaches that need to integrate a variety of energy, transport and natural resource-related measures and solutions.

Climate change is a cross-cutting issue, and it is challenging to make it a mainstream component of sectoral and land-use plans and policies. Strategic Environmental Assessment (SEA) and Sustainability Assessment (SA) are useful tools for ensuring the integration of climate aspects into policies, plans and programmes. The Malta Environment and Planning Authority (RSC project partner) reviewed the Maltese land-use planning structures and processes, and developed recommendations for improving the system by taking greater account of climate change (e.g. better control of GHG emissions; modifications to current decision-making processes, etc.).

**Core theme 4: Implementation measures**

Measures for the implementation of strategic plans form the basis for achieving results. As climate change is relatively new for many of the regional and local authorities participating in these INTERREG IVC projects, project work has tended to focus on the planning and preparation stages. In some cases, the technical solutions and other concrete projects discussed under the first core theme (making the case for climate action) are in fact examples of concrete implementation of an existing strategy or action plan.

Key implementation measures that projects identified and included under core theme 4 were aimed at stimulating behavioural changes within different societal groups in a systematic way. They aimed, for example, to educate and raise awareness of the population about climate change and the risks and opportunities it poses for local communities. Specific measures targeting the private sector were also considered. Lastly, financing measures for climate change action — through EU funds, national, regional or local subsidy incentive schemes and other mechanisms — were also included, as this is a critical starting point in most areas.

All mitigation projects identified examples of awareness raising and improving recognition of climate change issues by educating the population and decision makers. Such initiatives help to explain complex scientific information and develop a common language between different groups, such as technical experts and policy makers.

The ‘Community Champions’ initiatives in Thornhill and Winchester (United Kingdom) are good examples of how to identify and train key individuals who can support, advise and motivate local communities to engage with climate change issues (POWER). To encourage inhabitants to improve energy efficiency and to reduce CO2 emissions, the municipality of Niepolomice (Poland) developed an Eco-calendar, while Tallinn (Estonia) organised eco-driving seminars (POWER). The Stockholm Royal Seaport (Sweden) project provided a Capacity Development Programme for developers to improve their knowledge on sustainable urban planning.

The CLIMACTREGIONS project outlined that community engagement with respect to climate change should result in implemented actions. Relevant good practices include community-owned RES plants in the United Kingdom (which are jointly owned by community members) and the ImpulsE programme in Berlin (Germany), which aims to translate research and development (R&D) knowledge into practice and to motivate different stakeholders (e.g. the housing industry, architects, planners, engineers and politicians) to invest in energy efficiency solutions (CLIMACTREGIONS).

The RSC and POWER projects noted the importance of financing instruments and support mechanisms for achieving climate-related objectives. In this regard, these projects considered both public and private financing measures, although the application of the former seems more widespread than the latter. On the mitigation side, such instruments support energy efficiency measures targeting vulnerable groups,
or incentivise people towards efficient energy use. Examples of state and regional subsidies in RSC regions included refunds on the purchase of products using solar and wind energy; subsidies for electric vehicles; aid for the replacement of equipment with more energy efficient and less-carbon-intensive systems; support for increasing energy efficiency and promoting micro-generating technologies in the housing sector; and subsidies to increase energy efficiency and sustainable mobility.

The projects identified several innovative financing mechanisms for energy efficiency and renewables installations. In Berlin (Germany), the Energy Supply Contracting project created an investment scheme for the installation of efficient energy supply plants in buildings, where all costs are borne by the energy suppliers (CLIMACTREGIONS). AGIR (meaning “to act” in French) is a large-scale public financing initiative in the Region Alpes Cote d’Azur (France) to promote energy efficiency and renewable energy actions (CLIMACTREGIONS). The Urban Energy Efficiency Programme of Vienna (Austria; CLUE) comprises a set of measures enhancing the city’s energy efficiency by 2015. The United Kingdom’s feed-in tariff system (POWER) is a complex financial incentive scheme for renewable energy generation in which small, renewable electricity installations receive price guarantees for the power they generate.

Core theme 5: Measuring and monitoring progress

Adequate and regularly updated information is crucial for assessing the existing situation and developing future climate change strategies. Practices that fall under this topic include:

- emissions and energy data inventories;
- tools for assessing or improving the baseline situation with regard to climate change;
- the use of indicators for measuring implementation results; and
- tools for assessing the outcomes and cost-effectiveness of low-carbon measures.

Many of the analysed climate change mitigation projects find it difficult to monitor GHG emissions at local and/or regional level due to a lack of robust data, and this is a major challenge for the project partners attempting to develop more effective strategies and actions. To address this challenge, some of the projects identified progressive methods for emissions and energy data collection and inventories, such as the regional GHG emissions observatory of the Rhone-Alpes region (CLIMACTREGIONS), while others were inspired by exchanges of experience to develop their own inventories, such as the RSC partners in Cornwall County (United Kingdom) and the Liguria region (Italy). The POWER project identified various online energy consumption calculators, targeting citizens, business and public institutions and aiming to support them in identifying their energy-saving potential. The CLUE project found a good practice for assessing cities energy and consumption needs: the Regenerative Energy for Metropolitan Areas and Cities, tool (identified by CLUE) is an urban planning tool to assess the future energy needs of cities and identify options for renewable energy use.

Developing a better knowledge of GHG emissions observations and identifying synergies among them was a key focus of the CLIMACTREGIONS project. The project recognised that many initiatives and methods exist at regional and local levels in Europe to measure GHG emissions, and established ENERGee-Watch, the European Network of Regional GHG Emissions and Energy Watch.

Some of the projects have developed tools for assessing or improving the baseline situation with regard to tackling climate change, as well as using indicators to measure the progress of policy implementation. Recognising the need to measure European regions’ status and progress towards low-carbon development and to provide reliable data for informed decision making, the RSC project developed the Low-Carbon Indicators Toolkit and a methodology to prioritise actions for a low-carbon economy (PACE-tool). The Low-Carbon Indicators Toolkit provides an insight into the use of indicators for the monitoring of low-carbon development and offers a short questionnaire for self-evaluation. The PACE-tool examines the cost-efficiency of possible low-carbon measures, comparing the investment costs, the number of jobs created and carbon savings at regional level over a certain timeframe.

3.2.2 Good practices from climate change adaptation projects and other projects related to adaptation

This section reviews good practices collected from three climate change adaptation projects (F:ACTS!, GRABS and REGIOCLIMA) and four additional projects with relevance to climate change adaptation (CivPro, FUTUREforest, MiSRaR and WATER CoRe), which we studied during the second phase of the
capitalisation exercise. Our objective was to analyse good practices from these projects and consolidate the findings with results from the first phase, while at the same time retaining the same five core categories described above for the climate change mitigation projects.

The results of the analysis of the 201 good practices, grouped into the five core themes, are presented below in Figure 7. The theme with the highest number of identified good practices ‘Making the case for climate action’, followed by the topic ‘Strategic Planning’ and ‘Stakeholder involvement and policy networks’. Fewer practices apply to ‘Implementation measures’, while the theme with the fewest identified practices was ‘Measuring and monitoring progress’.

**Figure 7:** Core themes addressed in the climate change adaptation projects and other adaptation-relevant projects good practices

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<td>Core theme 3: Strategic and action planning</td>
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<tr>
<td>Core theme 4: Implementation measures</td>
<td>15%</td>
</tr>
<tr>
<td>Core theme 5: Measuring and monitoring progress</td>
<td>5%</td>
</tr>
</tbody>
</table>

**Core theme 1: Making the case for climate action**

A common challenge at local and regional levels is the lack of knowledge about what impacts climate change will bring and what they will mean for the territories and communities. Good practices focusing on making the case for climate action with regard to adaptation include pilot and demonstration projects for improving approaches (e.g. in water management and flood prevention, forestry and risk prevention), decision support tools, and technical solutions for adaptation-related measures.

Southern Europe is particularly vulnerable to the impacts of the changing climate, such as flooding or water scarcity. Due to increasing drought problems, especially in Mediterranean countries, there is a growing need to improve water management practices. The construction of seawater desalination plants to reduce dependency on rainfall is one step that Cyprus has undertaken to address increasing water demand (REGIOCLIMA). Other measures include the use of alternative/non-conventional water resources, and water recycling and reuse (REGIOCLIMA).

Besides tackling the problem of drought, many European regions are seeking to improve their flood protection mechanisms. To this end, the CivPro project identified successful flood protection infrastructures in East Macedonia and in Greece, as well as in Miskolc (Hungary) and Kosice (Slovakia).

Furthermore, the projects have identified decision support systems for water management as a good practice:
• The Valencia region (Spain) uses AQUATOOL for the integrated management of complex water resource systems in a context of water scarcity (REGIOCLIMA).
• The Coastal Flooding Decision Support System (DSS) applied in the Severozitochen region (Bulgaria) is a tool that suggests appropriate measures and interventions for coastal flood management (REGIOCLIMA).
• A helpful tool for flood prevention is the early warning system applied in the city of Parnu (Estonia) (REGIOCLIMA).
• The WATER CoRe project identified various assessment tools that can measure and assess the impacts of climate change on water resources and on water demands in different sectors.

Some of the good practices focus on biodiversity-related measures that have a dual function — that is, flood protection and the conservation of ecosystems. The ‘Natural climate buffers’ concept is an example of water retention and biodiversity protection applied in the Netherlands, while the Secchia River Park demonstrated a similar solution in Italy (F:ACTS!). In the Veneto region of Italy, researchers explored links between vineyard management and cultivation practices and climate change (REGIOCLIMA). In Wales (United Kingdom), in the Great Triley Wood of Abergavenny, dams made from large woody debris were constructed along the main river to reduce downstream, built-up area outflows; while, with new tree planting, the Pontbren Group ensured streamside protection to improve water quality on the farms and downstream (FUTUREforest).

The changing climate can considerably affect the forestry sector, and therefore many regions in Europe are seeking innovative solutions tailored to the specific needs of their local environment. Hands-on solutions, identified by the FUTUREforest project, include artificial and natural forest regeneration (such as in Brandenburg, Germany and Latvia), sustainable timber production (practiced in Auvergne, France), and adapting forest management to the changing climate. Good examples of the latter are the ‘Plastic’ or resilient forest development in Brandenburg (Germany) and increased drought risk in Catalonia (Spain) and Latvia.

Good practices were also identified to tackle extreme weather events. In Bulgaria, which is frequently affected by hail storms, a hail suppression system operates in order to reduce damage to agricultural lands (MiSRaR). In Mirandela (Portugal), where the occurrence of forest fires has increased due to the greater number of hot days without precipitation and prescribed burning is used as an instrument to limit possible damage.

**Core theme 2: Stakeholder involvement and policy networks**

Adapting to climate change in local and regional territories requires integrated action from a wide variety of governmental and non-governmental bodies. Increasing awareness about climate change impacts and how it affects territories and communities — in addition to the involvement and commitment of different stakeholder groups to address these challenges — are crucial for building a climate-resilient society.

By collecting a variety of stakeholder involvement practices, the F:ACTS! project developed a rich toolbox of methods for stakeholder involvement at the planning phase of integrated territorial strategies. These methods include mind mapping, stakeholder analysis, and facilitation (Flanders and the Netherlands).

Most of the adaptation and adaptation-relevant projects also recognise that it is not only essential to involve stakeholders, but also to work together on a shared vision and with joint responsibility in order to achieve climate-related objectives. Climate change is seen as ‘a trigger for creating new coalitions’ (F:ACTS!).

• The Planning and Climate Change Coalition (United Kingdom), led by the Town and Country Planning Association, is an example of a transparent forum for innovative and reflective policymaking that puts climate change at the heart of the planning system and involves a wide range of stakeholder groups.
• In the Hessen region (Germany) a Regional Network for Climate Change Adaptation (KLIMZUG) was created to identify regional need for adaptation and to develop measures for adapting to climate change (WATER CoRe).
Other practices highlighted the importance of improved cooperation between existing institutions. In Bulgaria and in Catalonia (Spain) better institutional coordination improved the management of forest fires (FUTUREforest), while in Oost-Vlaanderen (Belgium) an Emergency Planner position was created to oversee disaster risk prevention operations (CivPro). The role of voluntary networks is also seen as crucial in effective natural disaster risk management (MiSRaR).

In addition, the role of advocacy for introducing the appropriate measures for adapting to climate change and for reducing natural disaster risks has also been recognised. The MiSRaR project found that practices to involve various stakeholders through advocacy practices were used to promote appropriate risk reduction methodologies, both in the Province of Forlì-Cesena (Italy) for a flood management project and for better handling extreme snowfall-related events in Gabrovo (Bulgaria) (MiSRaR). These practices outlined a common approach towards advocacy, consisting of a three-step process of network identification, network analysis and evaluation, and development of lobby/advocacy strategies (MiSRaR).

Several good practices also highlighted the importance of private sector involvement in climate change adaptation activities:

- The ‘land bank’ concept to reduce land abandonment is used by the Ministry of Rural Affairs of Galicia (Spain). According to this concept, a public entity coordinates the transfer of land from absentee owners to active farmers (F:ACTS!).
- In the Province of Forlì-Cesena (Italy), private companies were granted rights to exploit areas along the provincial rivers, but at the same time they were also obliged to create detention bases for better flood protection (MiSRaR).

Since climate change is a cross-border issue, stakeholders across borders should learn to work together in order to tackle the challenges effectively. Greece and Bulgaria found such cooperation essential in water management and flood protection on the Maritsa/Evros river, while Miskolc (Hungary) and Kosice (Slovakia) cooperated on the Sajo River (identified by the CivPro project).

**Core theme 3: Strategic and action planning**

The projects addressing adaptation aspects of climate change recognise that successful policy responses require appropriate strategic planning efforts at regional and local levels. At the same time, many European regions lack knowledge of specific tools for designing and implementing strategic policy documents with regard to adaptation. Improving strategic planning is therefore a key topic for the analysed projects.

The main legacy of the GRaBS project is a set of 11 Adaptation Action Plans (AAPs), which the participating partners developed based on a robust methodology for embedding green and blue infrastructure into planning. AAP process led to integration of adaptation into the city-district spatial planning policies or had an impact on the land use and development plan for the city and other plans.

Some of the identified good practices focus on climate-related problems confronting urban areas and offer solutions specific to the urban environment, such as the Green Space Factor and Green Points System (GRaBS). The latter solution aims to secure a minimum amount of green space and to incorporate adequate and functional green infrastructure in new building lots (GRaBS).

The F:ACTS! project looked for integrated territorial approaches to address change in peri-urban and rural areas. Specifically:

- Five partners carried out pilot actions that employed a territorial and spatial perspective as a means of making the territory more resilient to climate change. In doing so, F:ACTS! partners considered the territory’s multi-sectoral aspects and multi-functionality.
- In addition, partners dealt with a wide variety of territorial plans: some at strategic level (i.e. the Masterplan in De Wijers; the Dutch Water Line); others at management level, such as in Strofylia (Greece) where the aim is to increase forest resilience to natural hazards). Taking a comprehensive approach, Varna (Bulgaria) integrates water aspects both into strategic and operational territorial plans.
- Lastly, the Integrated Territorial Intervention applied in Portugal aims to promote sustainably managed agro-forestry by combining agro-environmental and forest measures while providing a framework for local actions focusing simultaneously on nature conservation and economic activities.
Many of the planning-focused good practices involve overarching local and regional-level climate change policies or strategies (REGIOCLIMA, WATER CoRe); in some cases, they also include the area of energy, which illustrates how difficult it is to understand the multifaceted nature of climate change and to develop effective policies to address it. Tools and methods to help effective planning for climate change are therefore considered valuable and necessary at regional level. The climate change strategy of the Valencia region (Spain) (REGIOCLIMA), with 125 measures for climate change mitigation and adaptation, is an example of how the issue can be addressed in a holistic way.

Preventing and minimising risks is crucial in case of extreme weather events, such as forest fires or drought. Positive examples emerged from planning efforts to reduce the impacts of snowfall and frost in Epirus (Greece), of forest fires in the Portuguese municipality of Mirandela (MiSRaR), and the adaptation Strategies for Climate Change and Extreme Weather Conditions and Measures for a Sustainable Groundwater Management (AnKliG) in Hessen (Germany) (WATER CoRe).

Good practices also address the importance of mainstreaming climate change impact and adaptation measures. The ‘Tipping Point’ method applied for an urban storm water system in Dordrecht (Netherlands) (MiSRaR) provided solutions for incorporating disaster risk mitigation techniques into investment projects. The practice of multifunctional land-use planning the province of North Brabant (Netherlands) (WATER CoRe) served to develop climate-proof strategies and policies for the water, agriculture and housing sectors and to enhance nature protection.

**Core theme 4: Implementation measures**

The adaptation projects identified good practices that tend to focus less on implementation measures of an existing strategy or action plan than on education and awareness raising, or systems and measures to reduce risks of natural disasters caused by climate change.

In Limburg (Netherlands), climate communities were formed as an intermediary body between municipalities and provinces to facilitate communication and raise mutual awareness about climate change. Public campaigns for climate change awareness were also introduced, such as the ‘Geogfort climate information point’, which links to the Nieuwe Hollandse Waterlinie (F:ACTS!).

Targeting a specific group of stakeholders in Catalonia (Spain), forestry advisors raise awareness among forest owners about successful management practices for tackling increased drought risks (FUTUREforest). In Aragon (Spain) the community watering office developed a platform for farmers where they receive daily recommendations for watering according to the agricultural and climate conditions, in addition to support regarding water-saving activities (WATER CoRe).

Education programmes were also identified as good practices. Brandenburg (Germany) established an education programme on forestry and nature protection for small-forest owners (FUTUREforest). In the Netherlands, the Sketch Match method, a structured programme to train staff about public participation strategies and methods, was identified as good practice (F:ACTS!). Another example of the added value of education is its role in fostering cooperation with universities and students and building consensus among different stakeholder groups for climate change action (F:ACTS!).

To reduce the risks of natural disasters, some of the projects identified various adaptation measures as good practices. In Monte do Carrio (Spain) a fund was created to support wildfire prevention activities carried out by forest associations. The funds were raised from payments by electricity companies for the opportunity to install wind power mills (F:ACTS!) In Aveiro (Portugal) a set of measures was introduced to prevent urban flooding, including improved communication between flood protection organisation and awareness raising for technicians (MiSRaR). In Catalonia (Spain) similar measures aim to reduce the risks of forest fires (FUTUREforest). In Parnu (Estonia) an autonomic early warning system was established to allow adequate and timely transmission of information to the population and a more effective crisis response in case of natural disasters (REGIOCLIMA).
Core theme 5: Measuring and monitoring progress

As compared to the first four core themes, the climate change adaptation projects and adaptation-relevant projects involved during the second-year analysis paid less attention to this issue.

F:ACTS! identified some good practices under this theme — for example, an integrated energy cadastre that includes energy aspects in urban planning and sustainable development indicators applied by the National Union of Mountain Communities in Italy.

The practices identified by the adaptation-relevant projects focused on monitoring disaster risks and the vulnerability of specific sectors to climate change, as well as on assessing the cost and benefits of various mitigation responses and solutions. The ARCUS Application ('Database of forces and resources') of Lower Silesia (Poland) is a multi-layered, universal tool for collecting, storing and using up-to-date information about resources and the potential of personnel and equipment to carry out disaster risk prevention (CivPro) demand and potential shortages. For instance, Emilia-Romagna (Italy) applied a downscaling methodology for developing high-resolution climate change scenarios at regional level. In Auvergne (France) a tool called Marteloscope was created to assess the impacts of forest management actions and to support foresters in understanding the impacts of different choices.

3.3 Interesting and potentially transferable good practices

The climate change projects built up a knowledge base that comprises good practices and approaches that regions can use, in addition to tools, methodologies and practices that were jointly developed in the course of carrying out the projects. Many of the latter provide interesting ways to optimise existing practices and approaches, while others introduce new concepts that are based on a combination of practices that are ongoing in partner regions. Several outputs are sufficiently generic that, with some adaptation, other projects and regions can easily use them.

This subsection presents a selection of interesting practices, tools and methodologies that are considered valuable. The selection is based mainly on those practices that have been considered successfully transferred through the projects and/or recommended by the project partners. The good practices are structured according to the five core themes and detailed description of each of the practices can be found in Annex 1.

3.3.1 Climate change mitigation projects

While the list below encompasses a wide variety of innovative practices, many of them are characterised by their complex and integrated approach towards the climate change mitigation challenge. They attempt to link different socio-economic developments and sectoral issues, as well as to identify win-win solutions for all involved parties. Many of the practices encompass a variety of solutions tailored to different needs and circumstances. While they are categorised according to a single sub-theme, they also have direct links to other sub-themes. For example, a successful strategy most probably also signifies intense stakeholder involvement, as well as a wide variety of implementation measures. Lastly, these practices also have a high transferability potential, and many of them have already been transferred to other regions.

Making the case for climate action

- Green Berlin Zone Initiative (Germany) (CLIMACTREGIONS)
- International Building Exhibition (IBA) Hamburg's METROZONE project (Germany) (CLUE)
- Hammarby ecodistrict model in Stockholm (Sweden) (POWER)
- Integrated Gussing-model linking for energy saving, cost saving and local job-creation opportunities in the Burgenland region (Austria) (RSC)

Stakeholder involvement and policy networks

- Implementing good governance principles for designing, implementing and evaluating regional Sustainable Energy Action Plans in Kent County (United Kingdom) (CLIMACTREGIONS)
- Stakeholder involvement in the Mitte Altona urban development project of the City of Hamburg (Germany) (CLUE)
- Uppsala County's Voluntary Climate Agreements from Businesses (Sweden) (POWER)
Strategic and action planning

- Kent County’s Climate Change Delivery Plan (United Kingdom) (CLIMACTREGIONS)
- Policy guidelines for small-wind turbine industry development WICO sub-project developed by the Province of Ravenna, Emilia Romagna region (Italy) (POWER)
- Burgenland region’s Energy Strategy (Austria) (RSC)

Implementation measures

- Effective financial support mechanisms: for energy efficiency improvements in Berlin (Germany) (CLIMACTREGIONS)
- Capacity Development Programme for enhanced public-private collaboration for the Stockholm Royal Seaport (Sweden) (CLUE)
- Energy and Low-carbon Community Champions Training in Winchester and Thornhill, Wessex County (United Kingdom) (POWER)

Measuring and monitoring progress

- ENERGee-Watch, the European Network of Regional GHG Emissions and Energy Watch established by the Rhone-Alps region (France) (CLIMACTREGIONS)
- The Regenerative Energy for Metropolitan Areas and Cities, tool identified in Hamburg (Germany) (CLUE)
- Prioritisation of Actions for a Low-Carbon Economy — PACE, developed by the RSC project and tested in Cornwall County (United Kingdom), Burgenland region (Austria) and Marche region (Italy) (RSC)

3.3.2 Interesting and potentially transferable good practices from the climate change adaption and adaptation relevant projects

The majority of the highlighted practices focus on one specific sector (water management, disaster risk prevention, forestry or biodiversity) where adaptation actions are sought and only a few practices offer more integrated solutions. This is due to the high complexity of the adaptation challenge, but also shows that regions are less advanced in these topics compared to the mitigation themes, while there is a growing demand for tangible, sector-specific solutions. Those practices, which offer a more complex approach for climate change adaptation, may also be characterised by the application of different tools, methods and approaches, the involvement of different stakeholders and the considerations to different sectors (similar to the climate change mitigation projects).

Making the case for climate action

- AQUATOOL of the Valencia region (Spain) for the integrated management of complex water resource systems (REGIOCLIMA)
- Coastal Flooding Decision Support Systems in Severozitochen region (Bulgaria) (REGIOCLIMA)
- An early warning system applied in the city of Parnu (Estonia) (REGIOCLIMA)
- The concept of natural climate buffers applied in Weerterbos in province of Limburg (the Netherlands) (F:ACTS!)
- The ‘Plastic’ or resilient forest concept in Brandenburg region (Germany) (FUTUREforest)

Stakeholder involvement and policy networks

- The Planning and Climate Change Coalition for collaborative work across sectors in the United Kingdom (GRaBS)
- Regional Network for Climate Change Adaptation (KLIMZUG) in Hessen region (Germany) – (WATER CoRe)
- Toolbox of methods for stakeholder involvement in integrated territorial development planning applied in the province of Limburg (Netherlands) (F:ACTS!)
- Flood Risk and Safety Lobby and Advocacy Policy in the Province of Forli-Cesena (Italy) (MiSRaR)
Strategic and action planning

- The practical guidance to support the development of Adaptation Action Plans developed by GRaBS partnership
- The Green Space Factor and Green Points System pioneered in the city of Malmo (Sweden) (GRaBS)
- Adaptation Strategies for Climate Change and Extreme Weather Conditions and Measures for a Sustainable Groundwater Management (AnKliG) in Hessen region (Germany) (WATER CoRe)
- Tipping Point – Adaptation Mainstreaming Opportunity method developed in the city of Dordrecht, South Holland (Netherlands) (MiSRaR)
Implementation measures

- Tips for successfully designing and applying Payment for Ecosystem Services (PES), Galicia region (Spain) (F:ACTS!)
- Innovative public campaigns for awareness raising in Limburg province (the Netherlands) (F:ACTS!)
- A structured programme for training staff in public participation strategies and methods, delivered by Government Service for Land and Water Management (DLG) (Netherlands) (F:ACTS!)
- A school for small forest owners “Waldbauernschule” in Brandenburg region (Germany) (FUTUREforest)

Measuring and monitoring progress

- The Marteloscope of Algeres for assessing the impacts of forest management actions, created in Auvergne region (France) (FUTUREforest)
- Risk assessment tools in the municipalities of Mirandela and Aveiro (Portugal) (MiSRaR)
- Downscaling methodology in Emilia-Romagna region (Italy) for developing local climate change scenarios and impacts (WATER CoRe)

3.4 Common features and solutions

The INTERREG IVC climate change projects have all worked towards making improvements in capacities to mitigate and/or adapt to climate change through a variety of techniques, as described in the previous sections. In this subsection we provide an overview of the projects’ common features, approaches and solutions.

3.4.1 Core themes addressed by the projects

Figure 8 and Figure 9 provide an overview of the core themes addressed by each project and give an indication of the number of good practices that were identified (represented by the size of the bubble).

Climate change mitigation projects

All of the climate change mitigation projects covered the five core themes presented in subsection 3.2, as shown in Figure 8.

Figure 8: Overview of the five core themes as addressed by the climate change mitigation projects through good practices
Table 6 illustrates the themes addressed to the greatest and least extent by each project. The mitigation projects covered all topics, but put greater emphasis on concrete working solutions (pilot and demonstration projects), policy measures targeting behavioural changes and monitoring practices, while focusing less on planning and stakeholder involvement.

Table 6: Themes addressed to the greatest and least extent by climate change mitigation project

<table>
<thead>
<tr>
<th>Project</th>
<th>Main sub-themes addressed</th>
<th>Least or not addressed sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLUE</td>
<td>Making the case for climate action</td>
<td>Measuring and monitoring progress</td>
</tr>
<tr>
<td>CLIMACTREGIONS</td>
<td>Making the case for climate action</td>
<td>Strategic and action planning</td>
</tr>
<tr>
<td></td>
<td>Measuring and monitoring progress</td>
<td>Stakeholder involvement and policy networks</td>
</tr>
<tr>
<td>POWER</td>
<td>Making the case for climate action</td>
<td>Measuring and monitoring progress</td>
</tr>
<tr>
<td>RSC</td>
<td>Strategic and action planning</td>
<td>Stakeholder involvement and policy networks</td>
</tr>
<tr>
<td></td>
<td>Implementation measures</td>
<td></td>
</tr>
</tbody>
</table>

Climate change adaptation and adaptation-relevant projects

The adaptation GRaBS and REGIOCLIMA projects predominantly focus on two or three themes. Strategic planning is the only core theme described in subsection 3.2 on which all the analysed projects focus, although to varying degrees. Likewise, good practices related to making the case for climate action, stakeholder involvement and policy networks and policy measures were identified by all but one project. Just five projects, however, identified monitoring and measuring practices.

The four additional adaptation-relevant projects also covered the five core themes, although the MiSRaR and WATER CoRe projects did not identify good practices related to strategic planning and implementation measures, respectively. The lion’s share of good practices related to monitoring and measurement and stakeholder involvement. These projects all recognise the importance of informing citizens and policymakers about the long-term risks of climate change and consider the collection and assessment of scientific data and information crucial in convincing and involving stakeholders.

Figure 9: Overview of the five core themes as addressed by the climate change adaptation and adaptation-relevant projects
Adaptation projects mostly identified practices related to making the case for climate action, strategic planning and stakeholder involvement and focused less on the other core themes.

Table 7: Themes addressed to the greatest and least extent by climate change adaptation and adaptation relevant projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Main sub-themes addressed</th>
<th>Least or not addressed sub-themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>F:ACTS!</td>
<td>Strategic and action planning</td>
<td>Measuring and monitoring progress</td>
</tr>
<tr>
<td></td>
<td>Stakeholder involvement and policy networks</td>
<td></td>
</tr>
<tr>
<td>GRaBS</td>
<td>Strategic and action planning</td>
<td>Making the case for climate action</td>
</tr>
<tr>
<td></td>
<td>Stakeholder involvement and policy networks</td>
<td>Implementation measures</td>
</tr>
<tr>
<td>REGIOCLIMA</td>
<td>Making the case for climate action</td>
<td>Measuring and monitoring progress</td>
</tr>
<tr>
<td></td>
<td>Implementation measures</td>
<td></td>
</tr>
<tr>
<td>CivPro</td>
<td>Stakeholder involvement and policy networks</td>
<td>Strategic and action planning</td>
</tr>
<tr>
<td></td>
<td>Making the case for climate action</td>
<td></td>
</tr>
<tr>
<td>FUTUREforest</td>
<td>Making the case for climate action</td>
<td>Strategic and action planning</td>
</tr>
<tr>
<td>MiSRaR</td>
<td>Making the case for climate action</td>
<td>Measuring and monitoring progress</td>
</tr>
<tr>
<td>WATER CoRe</td>
<td>Making the case for climate action</td>
<td>Stakeholder involvement and policy networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measuring and monitoring progress</td>
</tr>
</tbody>
</table>

Climate change adaptation has emerged more recently than mitigation as a recognised policy field in most of the EU. As a result, it seems reasonable that the projects focusing on adaptation (e.g. F:ACTS!, GRaBS and REGIOCLIMA) have tackled more during the early stages of the policy cycle. As policy practice and experience will evolve in the coming years, it seems likely that future projects will focus on implementation measures, including both regulatory and incentivising policy options, as well as approaches to preparing and implementing technical solutions. As one of the project partners noted at the first workshop organised for this study: most regional and local authorities understand the technical approaches they need to put in place to take action on climate change. The problem is figuring out how to accomplish them, whether by navigating the processes of policy development, stakeholder cooperation, behavioural change or access to funding. Rather than focusing on one-off demonstrations that may have limited innovative aspects or learning potential for other regions, projects should target their efforts to the truly most challenging parts of the process.

Many of the good practices identified by the four additional adaptation-relevant projects focus on assessing the risks of climate change to different sectors, and on possible solutions for building more climate-resilient and natural hazard-resilient regions. Emphasising the cross-cutting nature of such problems, many of the practices showcased different forms of cooperation between regional stakeholders. To this end, the usefulness of cross-border cooperation was also highlighted, especially in the case of flood prevention actions. One of the lead partners (CivPro) explained that study visits showcasing disaster risk prevention methods have had a very high added value in sharing experiences and developing common solutions for problems experienced in different regions.
3.4.2 Common approaches taken by the projects

The projects produced a number of outputs that stand out in terms of capitalisation work, showing that partners approach the issues from different angles, while at the same time there are similarities in the identified solutions.

Table 8: Common approaches taken by the projects

<table>
<thead>
<tr>
<th>Theme</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitigation</td>
<td>CLUE: climate-neutral cities</td>
</tr>
<tr>
<td></td>
<td>POWER and RSC: guidance for regions</td>
</tr>
<tr>
<td>Adaptation</td>
<td>F:ACTS!: integrated territorial strategies</td>
</tr>
<tr>
<td></td>
<td>GRaBS: green and blue infrastructure development</td>
</tr>
<tr>
<td></td>
<td>FUTUREforest and WATER CoRe: sectoral recommendations</td>
</tr>
<tr>
<td>Disaster risk prevention</td>
<td>CivPro: Common Risk Theory</td>
</tr>
<tr>
<td></td>
<td>MiSRaR: Methodology for disaster risk reduction</td>
</tr>
</tbody>
</table>

Moving to a low-carbon society

Moving to a competitive low-carbon society is central to the EU policy agenda, as outlined in Chapter 2. Several of the INTERREG IVC climate change projects explored the process of shifting towards a low-carbon economy. This is also the focus of the ongoing CLUE project, which looks into policies aiming to create climate-neutral districts. POWER and RSC developed guidance documents for regions (POWER: Regional roadmap for partner regions; and RSC: the handbook Building a Low-Carbon Economy). While the POWER project developed a tailored solution for each of its partner regions, the RSC project created more general guidelines that can be applied in any European region.

Building resilience to climate impacts

Another common issue addressed by adaptation projects is that of building resilience to climate impacts. The solutions adopted vary depending on the project contexts and specific problems in the geographical areas. For example, F:ACTS! emphasised the importance of implementing integrated territorial strategies that tackle complex, area-specific problems combined with the efficient use of natural resources. On the other hand, GRaBS considered nature conservation measures as crucial for adaptation to climate change in urban areas. By preparing Adaptation Action Plans, GRaBS partners demonstrated how to approach urban adaptation though green and blue infrastructure development. Pilot actions implemented by F:ACTS! detail the approaches to designing cross-sectoral territorial actions.

The chapter on policy context notes the cross-cutting nature of climate change and why this is a challenge for authorities to address, particularly when planning effective responses to climate change in regions. Several of the guidance documents and policy recommendation collections that were developed by the projects concentrate on cross-thematic and sectoral issues. The WATER CoRe and FUTUREforest good practice collections are notable examples of such sectoral approaches. Climate change is regarded as one of the major threats to the water and the forestry sector, and these collections offer ideas for mainstreaming climate change adaptation solutions into sectoral measures.

Disaster risk prevention

Drawing on the experience and good practices of project partners, the CivPro project created the ‘Common Risk Theory’, which suggests that some hazards are common to several regions in Europe, and this provides the opportunity for exchanging best practices on disaster prevention. Building on similar observations, the handbook of the MiSRaR project on Mitigating Spatial Relevant Risks in European Regions and Towns suggests a common, step-by-step methodology for reducing disaster risk. This methodology is based on hands-on experience of subnational governments and institutions and has been developed to be applicable in multiple regions and cities.
3.4.3 Common solutions identified

The solutions identified by the projects also offer common solutions to challenges. Many of the solutions can be relevant both for the mitigation and the adaptation themes. The table below presents an overview of the common solutions identified according to core themes.

Table 9: Common solutions identified by the projects

<table>
<thead>
<tr>
<th>Core theme 1: Making the case for climate action</th>
<th>Climate change mitigation projects</th>
<th>Climate change adaptation and adaptation-relevant projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Making the case for climate action</td>
<td>Technologies for cleaner energy development</td>
<td>Adaptation measures for urban planning and agriculture</td>
</tr>
<tr>
<td></td>
<td>Sustainable mobility practices</td>
<td>Natural hazards risks assessment methods</td>
</tr>
<tr>
<td></td>
<td>Seeking co-benefits of climate change and win-win solutions</td>
<td></td>
</tr>
<tr>
<td>Stakeholder involvement and policy networks</td>
<td>Shared vision and ownership of projects and policy plans</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Tailored solutions for targeting different target groups</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Public-private partnerships</td>
<td>Institutional coordination, regional platforms</td>
</tr>
<tr>
<td>Strategic and action planning</td>
<td>Guidance document for developing regional climate change strategies</td>
<td>Mainstreaming climate change issues into planning</td>
</tr>
<tr>
<td></td>
<td>Climate proofing of policies</td>
<td></td>
</tr>
<tr>
<td>Implementation measures</td>
<td>Engaging citizens via awareness raising and education programmes for behavioural changes</td>
<td>Financing mechanisms for supporting energy efficiency and development of renewables</td>
</tr>
<tr>
<td>Measuring and monitoring progress</td>
<td>Emissions inventory development at the regional/local level</td>
<td></td>
</tr>
</tbody>
</table>

Core theme 1: Making the case for climate action

Several good practices provide technical solutions for clean energy development, as well as for emissions reductions in the transport sector. The WICO sub-project of the POWER project developed guidelines for promoting small wind energy development solutions and building energy audit solutions (GENERATION). The POWER project summarised strategies for energy efficiency through climate agreements and eco-driving solutions. Other topics covered by POWER outputs, which can also be of interest for the ongoing CLUE project, include green energy auditing and strategies for innovative low-carbon settlements.

As a significant share of emissions comes from the transport sector, several climate change mitigation projects (CLIMACTREGIONS, POWER, CLUE) address sustainable mobility from a climate perspective. The ITACA handbook and E/mob final publication, produced by the POWER project, offer solutions for sustainable mobility. Several RSC partners also promote cleaner technologies and support for public transport and the CLUE project identified innovative urban transportation practices.

GRaBS acknowledges the role of transport policies in emissions reductions, but also discusses interactions with the effects of climate change and the adaptation of transport infrastructure accordingly in urban areas. Agriculture is the sector facing the biggest climate challenge, and some of the good practices suggest how to implement effective adaptation measures in the agricultural sector. The solutions offered by the Douro region in Portugal (F:ACTS!) and the Veneto region in Italy (REGIOCLIMA) include the adaptation of vine management practices and the improvement of viticulture. Due to the increasing effects of climate change resulting in flooding, drought and extreme weather events, the role of disaster risk prevention is becoming increasingly important. Recognising this, both the MISRaR and CivPro projects offer techniques for assessing natural hazards risks and calculating the costs and benefits of mitigation measures. The WATER CoRe project presented methods for assessing the vulnerability of the water and agriculture sectors to drought at the regional level. These solutions could be of interest for regions involved in the REGIOCLIMA project that are addressing similar issues.
Core theme 2: Stakeholder involvement and policy networks

The participation of different stakeholders (either the general public or targeted groups) seems to be crucial for achieving success both in mitigation and adaptation actions. A variety of tools for stakeholder identification and involvement methods were identified, but as highlighted by both the CLIMACTREGIONS and the FUTUREforest project leaders, there is no ‘one-size-fits-all’ solution, due to societal and structural differences among the countries of Europe. These practices can serve as an inspiration, but country realities should always be taken into consideration, and methods should be tailored according to specific circumstances.

Core theme 3: Strategic and action planning

A participatory approach towards planning is considered important for the successful achievement of climate change goals. There are various ideas and techniques for involving wider stakeholder groups in the decision-making process, but such approaches are not widely practised. However, especially in the case of climate change adaptation, the involvement of various stakeholder groups may be regarded as essential for building resilience. Partner regions with traditions and experience in stakeholder involvement seem to be more active in building climate coalitions and engaging groups from the wider society. Although such techniques can be inspirational for regions with less experience, the adoption of such practices elsewhere is difficult due to different legal structures and environments.

Projects recognised the importance of providing guidance to regions for developing their own climate change strategies. The CLIMACTREGIONS project developed a good practice guide for regions about existing planning strategies. The POWER project prepared tailored regional roadmaps for its partner regions, while the RSC project developed a guidance document with step-by-step recommendations.

Assessment tools can be effective in mainstreaming climate change issues into planning. However, a large proportion of regional-level experience with SEA (Strategic Environmental Assessment) was related to Cohesion Policy planning documents for the 2007–2013 funding period — that is, before climate change became the EU agenda priority that it is today. This is one of the reasons why the opportunity to harness SEA potential for the integration of climate concerns into regional planning was not fully seized. When carried out in parallel with the planning process, SEAs helped in many RSC regions to modify initial development proposals to better focus on environmental protection and to incorporate specific indicators for monitoring climate change in the planning process. In addition to specific climate change measures (e.g. related to GHG emissions reductions, sustainable transport, renewable energy implementation) within policies, some projects identified examples of the integration of cross-cutting themes into sectoral policies. This is achieved by linking climate change to economic benefits and social inclusion, or by climate-proofing various plans for the water or food sectors and nature protection.

Core theme 4: Implementation measures

Common features can be observed in raising awareness of climate change among the population. These include techniques for engaging citizens in climate change actions and training them to use energy more efficiently. ‘Community Champions’ in the United Kingdom (POWER) and the ‘Energy Hunting’ campaign in Limburg (Netherlands) (F:ACTS!) are examples of awareness-raising initiatives that focus on education and behavioural changes among citizens. In terms of financing measures, the climate change mitigation projects identified many good practices that targeted public or private institutions, as well as citizens, and aimed to support investments in energy efficiency and renewable solutions. Among the adaptation-relevant projects, the public-private partnership (identified by the MiSRaR project) stood out as an innovative solution for financing disaster risk reduction investments, such as flood prevention.

Since the risks and the consequences of climate change are not obvious to most, the projects identified various solutions to raise awareness among the general public or targeted stakeholder groups about the consequences of climate change. Climate change mitigation projects also sought to identify efficient financing mechanisms for energy efficiency and renewables development.
Core theme 5: Measuring and monitoring progress

As discussed in subsection 3.2, one of the issues confronting regions is the availability of robust and accurate data on regions’ emissions performance, which are needed when formulating policies to reduce emissions. Some of the good practices from the analysed climate change projects offer solutions that range from collecting an inventory of GHG observations and climate protection policies across Europe (CLIMACTREGIONS) to implementing pilot projects on the GHG emissions balance at city and local levels (RSC partners Liguria and Cornwall). The collection of data is crucial, since constant and precise monitoring is a key to the success of climate change strategies, policies and actions in achieving climate goals. Some of the good practices address the knowledge gap and lack of tools for monitoring progress by developing concrete tools (an index for analysing regions’ preparedness to move towards low-carbon development, or the integration of specific indicators in territorial strategies and other strategic documents).

3.5 Synergies

This section gives an overview of synergies among the studied projects and also discusses their potential links to climate platforms and initiatives as well as to other climate change projects funded by different European Territorial Cooperation programmes and to INTERREG IVC projects covering other themes.

Within this context, the term ‘synergies’ refers to the result of enhanced cooperation and better integration among different projects, which is greater than the sum of the project’s individual effects. Such synergies can be identified via a benchmarking exercise, during which approaches and solutions provided by various projects, initiatives or programmes to a similar problem area are studied and analysed. Such exercise can help to identify project practices, tools and outputs, which can be then considered, reutilised or reapplied by other similar projects in different European regions. This can allow more efficient utilisation of available resources and help avoiding the situation of ‘reinventing the wheel’.

3.5.1 Synergies among the INTERREG IVC climate change projects

The INTERREG IVC climate change projects address a variety of common issues. This provides an opportunity to explore the similarities and synergies between the projects, which include the tools and methodological approaches used by the partners, as well as the identified solutions. Although the climate change projects address similar issues, they did have very little opportunity to share their knowledge and experience during project implementation, which has been identified as a disadvantage. The capitalisation workshops held in November 2012 and 2013 demonstrated that project partners are supportive of the idea of discussing solutions and approaches to similar challenges with other projects.

CLUE is the only ongoing climate change project, and it therefore has the possibility of benefitting from the knowledge and experience base of the completed projects. The lead partner has indicated that the Hammarby model identified within the POWER project and applied in Stockholm (Sweden) served as the inspiration for the development of the CLUE project and that they aim to investigate the potential of transfer to the Malopolska region in Poland during the project period. The project also sought synergies with the Re-Green and GreenITNet INTERREG IVC projects, which have several relevant aspects related to the development of climate neutral cities. Synergies may be also identified with the Adaptation Action Planning methodology of the GRaBS project, as a climate neutral city development should also aim for resilience.

Potential synergies can be observed between RSC and CLIMACTREGIONS projects regarding the theme of measuring and monitoring progress. An example of such linkages is the inventory of GHG observations and climate protection policies across Europe collected by CLIMACTREGIONS and the implementation of pilot projects on GHG emissions balance at city and local level (e.g., RSC partners in Liguria, Italy, and Cornwall, United Kingdom). Furthermore, the Low-Carbon Indicators Toolkit, developed by RSC project, can be also relevant for the CLIMACTREGIONS project partners and those involved in the ENERGee-Watch (European Network of Regional GHG Emissions and Energy Watch Network), as it provides detailed information on a variety of low-carbon indicators.
Moreover, the CivPro and MiSRaR projects both aim at disaster risk reduction and identified the need for common, integrated and transferable solutions at local and regional levels. Currently, the methodology of the MiSRaR project is being tested through the project PRIZMA, which is financed by the EU Directorate General for Humanitarian Aid and Civil Protection. The FUTUREforest project considered the role of forests management for tackling drought, floods and forest fires, which are closely related to disaster risk prevention. It is therefore possible to identify potential synergies between the FUTUREforest, MiSRaR and CivPro projects.

Strategic planning for climate change action is a focus of GRaBS, F:ACTS! and RSC, and valuable good practices have resulted from the projects’ work on this topic. For example, the GRaBS methodology for developing Adaptation Action Plans is generic and can be useful for regions participating in F:ACTS! and RSC aiming to strengthen the resilience of their territories to climate change. The good practices on and guidelines for integrated development of territories resulting from F:ACTS! are also relevant for GRaBS partner regions seeking adaptation approaches in urban areas based on ecosystems conservation. The guidelines, produced by RSC, on using SEA as a tool for mainstreaming climate change into planning can encourage other regions to include climate change as a cross-cutting theme in their plans and programmes. The GRaBS Adaptation Action Planning methodology was also outlined by the WATER CoRe and the GreenInfraNet projects as a good practice with high transferability potential across other regions in Europe.

Eventually, opportunities for mutual learning exist between REGIOCLIMA and WATER CoRe, as both projects address the challenges of water scarcity and drought resulting from the changing climate. The good practices included in the WATER CoRe Handbook can be useful for many of the REGIOCLIMA regions, as they provide technical solutions related to, for example water demand-side management, alternative sources to freshwater, water saving equipment and sustainable irrigation. The examples of water recycling and reuse schemes stemming from REGIOCLIMA can be useful for WATER CoRe partners. In addition, the FUTUREforest project has looked at how forest management can better handle drought in the future. It can therefore be linked to the practices of the REGIOCLIMA and WATER CoRe projects.

3.5.2 Synergies with climate-related platforms, initiatives and projects

The INTERREG IVC climate change projects address issues that are closely in line with the objectives of the EU climate policy, both in terms of climate change mitigation and adaptation. Bearing in mind the ongoing challenge of translating these objectives into policy actions at regional and local levels, there is potential to share knowledge and to use synergies with other initiatives and programmes addressing similar problems. The INTERREG IVC programme and its follow-up programme INTERREG EUROPE can contribute to the sharing of experiences and of good practices from the climate change projects among these other programmes and initiatives. In particular, the programme’s objectives related to climate change can be addressed more efficiently if dialogue between projects is fostered during implementation.

Climate change mitigation

Synergies can be sought with other initiatives focusing on low-carbon development and sustainable energy use. The Covenant of Mayors initiative, in which many European cities and regions are participating, demonstrates how European cities and regions can work together towards developing and implementing sustainable energy policies through the implementation of local sustainable energy action plans. The commitment of signatories is further translated into specific projects and measures stipulated in action plans, and which are subject to constant EC monitoring. The experiences of the INTERREG IVC core climate change projects in relation to strategic planning for low-carbon development can be of value for regions participating in the Covenant of Mayors. Good practices related to stakeholder involvement are also relevant, as cities are expected to mobilise society to participate in action plan implementation, organise local energy days, etc. Many European regions are also participating in the Covenant of Mayors as supporting organisations, since they are able to provide strategic guidance and financial and technical support to municipalities with the political will to sign the covenant but lacking the skills and/or resources to fulfil its requirements.

Synergies also exist between the INTERREG IVC climate change projects and initiatives targeting European cities, as mentioned in Chapter 2: Energy Cities, an association of local authorities in Europe,
promotes the transition to more sustainable energy use and low-carbon solutions through exchanges of experience, the transfer of expertise and the implementation of joint projects. The Smart Cities initiative (http://www.smart-cities.eu) builds on existing national and EU programmes such as CIVITAS, CONCERTO and Intelligent Energy Europe, and initiatives such as the Covenant of Mayors. It aims to provide support to cities across Europe by testing and implementing programmes and solutions for sustainable energy production and use in the building, energy production and transport sectors. The initiative should enable the transition to a low-carbon economy in 25 to 30 European cities.

The DG CLIMA initiative ‘A World You Like with a Climate You Like’ comprises the collection of success stories related to the implementation of the 2050 low-carbon roadmap. The collection includes practices related to travel and transport; production and innovation; building and living; shopping and eating; and re-use and recycling. Many of these practices could be of interest and useful to INTERREG IVC climate change project partners, and could help them to build greater awareness in their own regions and local communities.

The Climate KIC platform of the EIT has been funding projects since 2010 for: improving GHG emissions monitoring; moving towards low-carbon economy, developing sustainable city systems; and, providing better adaptation services. The projects create a platform for public, private and research institutions to find common solutions. While they place a stronger emphasis on the innovation aspects, the experience accumulated by the INTERREG IVC projects can be an inspiration for these projects. Similarly, the regional smart specialisation strategies currently in preparation can utilise the practices and experiences of the INTERREG IVC projects.

**Climate change adaptation**

One of the objectives of the EU Strategy on Adaptation to Climate Change is to ensure better-informed decision making by addressing gaps in adaptation knowledge. The INTERREG IVC climate change projects have the potential to contribute to this objective through the accumulated knowledge and good practice examples that can be beneficial for other regions in Europe. One way to promote this knowledge base, especially with regard to climate change adaptation, is through the European Climate Adaptation Platform (Climate-ADAPT), as mentioned in Chapter 2.

The Climate-ADAPT initiative (http://climate-adapt.eea.europa.eu/home) aims to address knowledge gaps by helping users to access and share information on expected climate change impacts in Europe; the current and future vulnerability of regions and sectors; adaptation strategies and methodologies that support adaptation planning. The information on adaptation action is targeted at all levels, from the EU through regional and national levels to the local level. The further development of Climate-ADAPT is emphasised in the newly adopted EU Strategy on Adaptation to Climate Change. Defined as a ‘one-stop shop’ for adaptation information in Europe, the portal can be a useful means of sharing the knowledge accumulated by the INTERREG IVC climate change projects with other regions in Europe and with stakeholders, while the projects themselves can benefit from the information on adaptation strategies, case studies and adaptation tools.

WATER CoRe project partners joined the European Innovation Partnership on Water, which is an initiative within the EU 2020 Innovation Union. It aims to facilitate the development of innovative solutions to address major European and global water challenges. The ‘WATER CoRe Action Group on regional governance of water scarcity and drought’ was established in May 2013 with a total of 21 partners. The main objective of the Action Group is not to generate additional knowledge but to implement the regional action plans derived from the WATER CoRe project and seek opportunities for innovation in water governance, such as better ways of cooperation, sharing costs and benefits, supporting legislation and policies, and public-private cooperation.

Some of the good practices identified in the INTERREG IVC climate change projects have already been acknowledged and used outside the INTERREG IVC community. The GRaBS methodology for developing Adaptation Action Plans has been referenced in the newly adopted European Strategy on Adaptation to Climate Change, while the Coastal Flooding Decision Support Systems (DSS) in Severozitochna (Bulgaria) (REGIOCLIMA) will be used as a training tool within the project ‘Advanced Numerical Simulation Tools for the Protection of Coasts against Flooding and Erosion’ within the 7th EU Framework Programme.
Other examples of how the knowledge base on climate change is being fostered at city level are the EU Cities Adapt project and RAMSES projects. The Cities Adapt project, implemented for DG CLIMA, offers capacity building and assistance for cities to develop and implement adaptation strategies. It also aims to engage cities across Europe to raise awareness of the importance of preparing for climate change, build capacity and share lessons learned. RAMSES is a European research project that addresses gaps in the quantification of the impact of climate change on cities and the use of criteria to prioritise adaptation options. Through understanding city characteristics and climate change impacts in the urban context, the project assesses risks and vulnerabilities, in addition to the costs and benefits of adaptation measures.

3.5.3 Synergies with other European Territorial Cooperation Programmes

Synergies can also be sought with the European Territorial Cooperation (ETC) programmes that are part of the European territorial cooperation objective of the 2007–2013 Cohesion Policy. In the 2007–2013 period, all of the 13 transnational programmes include the theme of climate change (though not as a priority theme for many of them) and address the problems that the regions may face as potential consequences of changing climate.

ETC programmes are an important driving force for designing and implementing adaptation measures in the Member States and regions, especially in those that are not so advanced in adaptation actions. Climate change is a transboundary issue, and to tackle it effectively regions must work together across administrative borders to understand and address common climate challenges. By cooperating in addressing common climate issues, regions have the possibility to learn from each other, exchange views and information, and enhance their capacity and knowledge. ETC programmes provide platforms for this mutual learning.

**Transnational cooperation programmes**

The Climate-ADAPT web portal provides an overview of the 13 transnational regions covered by EU transnational cooperation programmes and the climate change adaptation projects implemented under these programmes. This is a useful resource for further examination of the broad body of work done here, especially on transboundary adaptation.

While many of the INTERREG IVC projects (i.e. CLUE, GRaBS and RSC) developed concepts, methodologies and tools that are applicable Europe-wide for regions facing various problems, the transnational cooperation projects generally sought more tailored solutions, directly applicable at a macro-regional scale. Thus, many of the policy guidance documents, methodologies and approaches identified or developed by the INTERREG IVC climate change projects can be applied in addressing transboundary, climate-related issues. Examples of these include ecosystem-based adaptation solutions in coastal regions, practices related to flood risk prevention and forest management, strategic approaches for a more integrated territorial development, and urban planning approaches.

In addition, having larger regional coverage, the good practices collected by the INTERREG IVC projects demonstrate a wider variety of solutions than the ones gathered by the transnational cooperation projects. These practices, due to regional differences, may not be directly transferable, but they can serve as inspiration to other regions seeking innovative solutions and approaches.

Examples of climate change projects from ETC programmes that are relevant to the climate change topic are provided in Table 10, while a detailed list of projects relevant to climate change from different ETC programmes can be found in the annex.
Table 10: Examples of climate change projects from ETC programmes

<table>
<thead>
<tr>
<th>Programme</th>
<th>Project</th>
<th>Description</th>
<th>Relevant INTERREGIVC project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltic Sea Region</td>
<td>BALTICLIMATE</td>
<td>Climate change scenarios and solutions for the region</td>
<td>RSC, CLIMACTREGIONS, F:ACTSI, REGIOCLIMA</td>
</tr>
<tr>
<td>North West Europe</td>
<td>SIC adapt!</td>
<td>Adaptation to the Spatial Impacts of Climate Change: a Strategic Initiative Cluster of the INTERREG IVB North-West Europe Programme</td>
<td>F:ACTSI, GRaBS, REGIOCLIMA, RSC</td>
</tr>
<tr>
<td>Central Europe</td>
<td>CE FRAME</td>
<td>Mapping flood protection measures and risk area</td>
<td>REGIOCLIMA, WATER CoRe</td>
</tr>
<tr>
<td>South East Europe</td>
<td>OrientGate</td>
<td>A structured network for integration of climate knowledge into policy and territorial planning</td>
<td>REGIOCLIMA, GRaBS F:ACTSI</td>
</tr>
<tr>
<td>Alpine Space</td>
<td>CLISP</td>
<td>Climate Change Adaptation through Spatial Planning in the Alpine Space</td>
<td>GRaBS, F:ACTSI, REGIOCLIMA, RSC, MiSRaR</td>
</tr>
<tr>
<td>North Sea</td>
<td>CPA</td>
<td>Climate-proof areas to create a portfolio of climate adaptation strategies for the North Sea Region.</td>
<td>REGIOCLIMA, F:ACTSI, GRaBS, RSC</td>
</tr>
<tr>
<td>Northern Periphery</td>
<td>Clim-ATIC</td>
<td>Climate Change: Adapting to the Impacts, by Communities in Northern Peripheral Regions</td>
<td>REGIOCLIMA, F:ACTSI, GRaBS, Water CoRe, CivPro, FUTUREforest MiSRaR</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>CAT-MED</td>
<td>Change metropolitan metropolises Around Time</td>
<td>CLUE, GRaBS</td>
</tr>
<tr>
<td>Atlantic Area</td>
<td>ANCORIM</td>
<td>To strengthen the operational capacities of coastal decision makers and managers in the Atlantic regions</td>
<td>REGIOCLIMA, F:ACTSI, GRaBS, RSC</td>
</tr>
<tr>
<td>South West</td>
<td>Mi Ciudad AC2</td>
<td>Urban management practices to reduce GHG emissions and to address the impacts of climate change by strengthening the role of local governments</td>
<td>CLUE, RSC, GRaBS</td>
</tr>
</tbody>
</table>

Pan-European programmes INTERACT, URBACT and ESPON

Three ETC networking programmes, INTERACT, URBACT and ESPON, also address issues that are relevant for the other climate change projects.

INTERACT captures the knowledge and expertise of ETC programmes and projects from a number of thematic fields. Among these key areas are energy and low-carbon economy, as well as natural risks and climate change. A study developed by INTERACT analyses over 400 projects across all three ETC strands and their contribution to the European climate and energy targets. The issues addressed in the study are of relevance for the analysed projects dealing with mitigation aspects of climate change. In addition, the first thematic pillar developed by the Mediterranean Lab Group of INTERACT, relates to natural risks in general, with special focus on forest fire risks. The analysis carried out under this thematic pillar covers a wide range of hazards such as floods, forest fires, drought, earthquakes and landslides, which are addressed by some of the analysed INTERREG IVC climate change projects (e.g. REGIOCLIMA, WATER CoRe and FUTUREForest). The Mediterranean Lab Group is an example of capitalising project outcomes at geographic and thematic levels — namely, by promoting good practices and creating synergies between relevant stakeholders in the Mediterranean area.

Some of the key challenges that urban areas face are related to how climate change affects urban systems that provide energy, water, waste management and food. To address these challenges, cities need effective, locally-driven adaptation actions. URBACT is a European exchange and learning programme that promotes sustainable urban development. Improving energy efficiency in the housing
sector and enhancing urban planning and territorial governance leading to more efficient urban transformation are some of the topics that the URBACT projects address. One of the thematic areas of the projects is creating 'Low-carbon urban environments and sustainable mobility'. The issues tackled include improving the energy efficiency of the housing sector, proposing new solutions for sustainable renovation, and promoting cycling and cleaner transport systems. Some examples from POWER, CLIMACTREGIONS, CLUE, as well as from GRaBS and F:ACTS!, are relevant for some of the URBACT projects.

The ESPON Programme, the European Observation Network for Territorial Development and Cohesion, deals with applied research on different themes of European territorial dynamics. The results of this research make it possible to assess the strengths and weaknesses of individual regions and cities in a European context. The fact that climate change is a highly interdisciplinary issue and has significant territorial impacts is one of the territorial challenges that the ESPON projects address. The results of this research can be useful for the analysed projects from the perspective of the territorial effects of climate change and the differentiated responses needed to address a specific territory’s vulnerabilities.

3.5.4 Synergies with other INTERREG IVC capitalisation topics

Possibilities for mutual learning and exchange of information exist between the climate change projects that address mitigation aspects and the projects analysed under three other INTERREG IVC capitalisation topics: energy efficiency, renewable energy and sustainable transport.

Energy efficiency projects

With regard to energy efficiency, some of the climate change projects (e.g. RSC, CLIMACTREGIONS and POWER) experienced challenges related to accessing the necessary capital for energy efficiency measures, insufficient political will and stakeholder awareness, which have also been identified during the analysis of projects under energy efficiency capitalisation topic. The exchange of accumulated knowledge and experience to address these issues can be beneficial for some projects under both capitalisation topics.

The LoCaRe project (Low-Carbon Economy Regions) aimed to develop low-carbon solutions for emissions reductions at regional and local level and to contribute to economic growth at the same time. It is therefore closely linked to the CLIMACTREGIONS, POWER and RSC projects, which also focused on development and use of renewables in local energy systems, low-carbon territorial planning and stakeholder involvement. The LoCaRe project can offer useful insights to the themes of carbon capture and storage and sustainable procurement practices, which the INTERREG IVC climate change projects did not address. At the same time, good practices related to measurement and monitoring from the climate change projects can be useful for the former LoCaRe project partners.

Renewable energy projects

With regard to the development of renewable energy, several regions participating in the climate change projects have set themselves ambitious energy targets (e.g. the Burgenland Energy Strategy, RSC), and their experiences can serve as examples for projects under the renewable energy capitalisation topic. At the same time, climate change projects addressing the development of renewable energy can benefit from knowledge of those projects under the renewable energy capitalisation topic on themes such as regional SWOT analysis, initial demonstration projects, regional financing instruments, business leadership, or incentivising R&D. Some activities, such as developing action plans, stakeholder involvement and communication campaigns, have been explored by projects under both capitalisation topics, which provides an opportunity for cross-fertilisation and mutual learning.

The Renewable Energy Regions Network (RENREN) project aimed to improve regional RES policy frameworks and to improve strategic cooperation between regions. The project has many with the POWER project, which can serve as a basis for mutual exchange and learning among former partners of the two projects. The RENREN project developed a common framework and identified prerequisites for the successful implementation of renewable policies, while the POWER project took a different approach and explored different practical solutions for utilizing the regions’ potential for developing renewables.
### Sustainable transport projects

As transport is a significant contributor to global warming, measures to reduce the emissions resulting from this sector are of importance for the climate change projects dealing with its mitigation aspects (e.g. POWER and CLIMACTREGIONS). Relevant good practices from the sustainable transport capitalisation topic are related to integrating transport and land-use planning, use of electric vehicles and car-sharing schemes.

The CATCH-MR (Cooperative Approaches to Transport Challenges in Metropolitan Regions) project can offer useful practices to the ongoing CLUE project, which aims to build climate-neutral cities. For example, the project identified good practices that promote inter-modality, such as the ‘Ideal Intermodal Node’ guidebook in the Gothenburg region (Sweden). At the same time, the CLUE project can serve as an inspiration for urban development to former partners of the CATCH-MR projects, where transportation is viewed as an integral part of an urban eco-cycle model.

### 3.6. Long-term impact of project results

An essential result of project activities has been the use of accumulated knowledge in the preparation and implementation of more effective policies, plans, programmes or strategies. Some examples are presented below from the F:ACTS!, REGIOCLIMA, FUTUREforest and MiSRaR projects. In addition, many of the project outputs will continue to play a major role in effective policy planning and implementation beyond the project lifetime. Examples of such outputs include the methodology for development of Adaptation Action Plans (GRaBS), the PACE-tool (Prioritisation of Actions for a Low Carbon Economy) of the RSC project, and the PWICO policy guidelines (POWER). Finally, some of the projects' partnerships, such as the CLIMACTREGIONS project via the establishment of the ENERGEE-Watch Network and WATER CoRe project via the EIP WATER CoRe Action Group, also decided to continue working on climate change issues within an institutionalised, interregional cooperation format.

#### 3.6.1 Preparation and implementation of more effective policies, plans, programmes and strategies

In the region of Galicia (Spain), the results of the F:ACTS! project are being integrated into policy planning. A draft new law on improving management of agricultural land is currently pending approval by the regional parliament. One of the main strategic changes to the law is the inclusion of climate change impacts (especially related to forest fires) in territorial strategies dealing with land structures. In addition, one of the novelties will be the creation of an "advisory committee" which will aim to foster coordination across sectors. Part of the basis for the law derives from the F:ACTS! principles of multi-functionality and economic viability of the territory. Specifically, joint initiatives of local producers will be encouraged (in agriculture, forestry and other sectors) as well as new products that will diversify the agricultural practices and land use. Through this approach, it is expected to improve economic viability of the area, overcome land fragmentation and better utilize the potential of the territory.

The REGIOCLIMA project produced policy recommendations in its consolidated report on regional Climate Change Adaptation strategies. These have influenced the development of the 3rd Bulgarian National Action Plan for Climate Change (NAPCC) 2013–2020 specifically with regards to measures needed to address adaptation challenges in a number of sectors. The report results were translated into Bulgarian and presented to policymakers at various events.

The FUTUREforest projects considered as crucial the awareness raising of regional policymakers to ensure that climate change and biodiversity aspects are considered in forest management planning. As a result of regular discussions with politicians and their active involvement in the project, the Forest programme (Waldprogramm 2011) and Strategy for the Brandenburg state forestry corporation (Waldvision 2030) was developed with potential climate change impacts in mind (Germany); the forest section of the Catalan Strategy for Climate Change Adaptation (March 2012) was improved (Spain); the Auvergne region’s forestry directives have taken potential impacts of climate change into consideration (France); and the national ‘Latvia Spatial Planning Law’ was amended to consider linkages between forestry and spatial planning.
Based on the collective experience of MiSRaR project partners in lobbying and advocacy, the South Holland Safety region revised its lobbying and advocacy practices in addressing spatial challenges related to flood risks and safety. As a consequence, the region adjusted its policies and operational activities and became the first safety region\textsuperscript{12} in the Netherlands to influence the country’s Delta Programme\textsuperscript{13}.

3.6.2 Outputs to foster effective policy planning and implementation beyond a project’s lifetime

The Adaptation Action Plan developed by the city of Malmo (Sweden) as part of the GRaBS project went on to influence a number of other city policy documents, such as its Environmental Programme 2009–2020, its land-use and development plan, the Environmental Protection Programme, and the Storm Water Strategy.

Cornwall County (United Kingdom) applied the PACE-tool (developed by the RSC project) for assessing a range of low-carbon measures proposed in the area. The county aims to further apply the tool in the future to ensure the best use of public sector investments in terms of costs, carbon saved and jobs created.

The region of Andalusia (Spain) approved a regional decree governing the grid connection for on-shore wind energy. Inspired by the WICO Policy Guidelines on small wind-power plants implementation (POWER), an independent power quota of 30MW was granted in the decree to enable implementation of small wind installations.

3.6.3 Institutionalised interregional cooperation format

The CLIMACTREGIONS project has addressed the problem of insufficient standardisation on measuring GHG emissions. To ensure that the results of these efforts will be applied after the end of the project, the CLIMACTREGIONS platform established the ENERGee-Watch network to facilitate coordination and cooperation between regional and local authorities and observatories working on this area. The network cooperation is facilitated through an online platform (http://www.energee-watch.eu), and annual meetings are also planned. The network’s first report was published in 2013 and provides energy and GHG emissions data for eight European partner regions. The report will be updated yearly, and will include data from new members to the platform. The members also joined the IEE ‘DATA4ACTION’ project, which aims to facilitate public authorities’ access to energy data for better implementation and monitoring of sustainable energy action plans (SEAPs) through effective and structured collaboration with energy data providers.

The WATER CoRe project continues its activities within the framework of the EIP WATER CoRe Action Group in order to ensure the implementation of regional action plans developed during the project. The progress and process of implementation of the regional plans will be assessed on a regular basis. The results of the monitoring will be published in regional reports, and are targeted at improving regional implementation of the plans. In addition, a general report will be published yearly to disseminate lessons learned, and opportunities for innovations will be discussed at annual workshops.

\textsuperscript{12} A safety region in the Netherlands is an area where collaboration by several administrations and services for fire fighting, disasters, crises, medical assistance in accidents and disasters (GHOR), and maintaining public order and safety. The Netherlands has 25 safety regions.

\textsuperscript{13} The aim of the Delta Programme is to protect the Netherlands against high water and to ensure an adequate freshwater supply on the long-term. It integrates a variety of aspects, ranging from the environment and the economy, to nature, agriculture and recreation.
4. Key policy messages and conclusions

The 11 projects covered in this report have produced a range of good results aimed at tackling the complex challenge of climate change at both the local and regional level. Collectively, the results have demonstrated the benefits of taking early action on both mitigation and adaptation. In some cases this is driven by EU or national requirements to take some sort of action on climate change. And in many – if not most – of the cases, project partners demonstrated (or even learned for themselves!) that proactive efforts on climate change bring a wide range of co-benefits. Examples of these are economic savings through more efficient use of energy or quality-of-life improvements through green infrastructural approaches to cooling in cities and towns. It is these kinds of win-win situations that are motivating stakeholders and policymakers to make greater efforts on climate change. The concrete examples, support tools and methodological approaches generated through the real experiences of local and regional authorities working in INTERREG IVC climate change projects are a valuable contribution to climate change action in the EU, and should be further recognised as such in an effort to catalyse action in all parts of Europe.

Taking this into account, a number of recommendations aimed mainly at local and regional authorities, but also at the EU and at the future European Territorial Cooperation programmes, are given below. Some recommendations stem from the lessons learned in running INTERREG IVC climate change projects; others go beyond these achievements to focus on accepted good practice in the field, particularly for adaptation, where there is less experience on the ground.

This section contains general recommendations on climate change policies from the first-year analysis. These general recommendations are applicable both for climate change mitigation and adaptation policies, programmes and actions. More concrete recommendations in the field of climate change adaptation stemming from the second-year analysis complete the recommendations. Recommendations are presented for each of the core themes separately and in each sub-section the adaptation specific recommendations follow the set of general recommendations.

4.1 Making the case for climate change action

As climate change is a relatively new policy field for most of the regions, an understanding of how it translates into concrete mitigation and adaptation solutions is crucial. All the INTERREG IVC climate change projects addressed this issue in one way or another. This solid understanding and, where possible, demonstration of the risks of non-action and also the gains to be made from taking a strategic, coordinated approach to climate change action has been identified as a core prerequisite for coordinated climate change action by the projects.

A common challenge at local and regional levels is to identify concrete opportunities for reducing GHG emissions. These may include improvements in energy efficiency in the building sector, cleaner public transport, and the use of renewables to shift to low-carbon development. Many of the INTERREG IVC climate change projects implemented demonstration actions that illustrate how abstract climate objectives can lead to measures for protecting the environment, improving quality of life and achieving economic gains from systematic carbon reductions, such as reduced energy costs and low-carbon jobs created. These actions are also useful communication tools for building social and political consensus for the shift towards a low-carbon economy, particularly by highlighting the potential benefits.

On the adaptation side, it is clear that regions need greater access to information and methods for understanding climate change impacts and the specific vulnerabilities of their communities. As climate change is long-term in nature, demonstrating the benefits of action can be very challenging. The EU Strategy on Adaptation to Climate Change recognises that important work needs to be done at local and regional levels, as this is where impacts will occur and will need to be managed. Knowledge gaps include how to analyse and make use of ecosystems and improve the approaches taken (e.g. in agriculture, forestry, water management and flood prevention). At regional and local levels, technical solutions and tools to support decision making have helped to bridge the gap between climate-related problems and the design of realistic policy measures. The technical decision support tools identified by REGIOCLIMA are valuable in this context.
Continued action is clearly needed in this area, particularly the types of bottom-up, grassroots efforts that clearly demonstrate the benefits of climate action and contribute somehow to clarifying the mystery around the topic.

A number of general recommendations can be made in this regard:

- **Demonstration projects** with genuine added value should be captured and presented in such a manner that emphasises both the full range of benefits (environmental, social and economic), and the ways in which those actions set the stage for future planning and policymaking at the local level.

- There are a number of **EU initiatives** described in this study that can help to share this experience, along with future cooperation projects to be developed under the European Territorial Cooperation funds for 2014–2020.

- The gap between scientific knowledge and policymaking on climate change is important, as this policy field is so dependent upon **accurate information**. Demonstration projects can help to clarify concepts on both sides of this gap.

- The interaction between authorities or policymakers and the academic, research and other institutions responsible for providing and assessing climate change information is critical. Both sides should be clear about needs and realistic about expectations. This may require the use of **facilitators**, or ‘boundary’ organisations and individuals, who can help in the communication of needs from one side to the other.

More specifically on adaptation, the following should be considered:

- Assessment of current and future **climate change vulnerabilities** is a critical prerequisite for effective adaptation planning and action. If there are research gaps, consider the following:
  - More effective dialogue with scientific institutions and research providers to understand policymakers’ needs may be needed.
  - Seek external funding (see 4.4 below) if this is the barrier.

- However, regional and local authorities should not let a (temporary) **lack of data, information or assessment** stop them from taking action on climate change adaptation. Much can be done on the basis of high-level information (e.g. national-level data) or perception (e.g. recent climate events and their impacts) to start raising awareness and building the momentum required to activate resources for further development of the necessary knowledge base.

- Local and regional authorities should also take advantage of the information available via **portals such as Climate-ADAPT**, which includes adaptation case studies as well as tools and methodologies supporting adaptation. For those who are new to the field of adaptation, this portal provides a wealth of basic information and advice to enable fast learning.

### 4.2 Stakeholder involvement and policy networks

Tackling an issue as complex and cross-cutting as climate change requires sincere efforts to build consensus across stakeholders, and to cooperate with a new range of institutions, disciplines and people. Local and regional authorities frequently need to reach outside their typical collaborative networks in order to make real progress in this area. The GRaBS project, which carried out pilot Adaptation Action Plans in 11 local and regional authorities across the EU and developed a methodological approach to this, noted that a key pre-condition for successful strategic planning in this area is getting buy-in both from local planning authorities as well as a broad selection of professional disciplines, including the scientific research community.

Climate change mitigation, for example, will involve the energy sector, housing, transport and agriculture at a minimum — a broad range of stakeholders with diverse interests. Adaptation also cuts across socio-economic sectors. The challenge is to understand this and to build working coalitions both within and across institutions, and also with relevant stakeholder communities.
Techniques for identifying the appropriate people, establishing networks and highlighting the co-benefits that climate change brings are some of the approaches used by the INTERREG IVC climate change projects to engage key stakeholders in climate change actions. The EKKO (Energy Concepts for Municipalities) process is an example of how municipalities in the Burgenland region (Austria, a RSC partner) are involved in achieving strategic energy goals of the region.

The projects have also recognised political support at the decision-making level as a key starting point. To address this need, two of the projects created cross-cutting forums that aimed to engage the support of politicians for climate change action. These are the Planning and Climate Change Coalition (GRaBS) addressing adaptation, and the Norrbotten and Västerbotten Energy and Climate Offensive (Sweden, CLIMACTREGIONS), which covers low-carbon actions.

Climate change adaptation is, in particular, a cross-cutting policy issue and as such will require dedicated ‘vertical’ (across levels of governance) and ‘horizontal’ (across policy fields) coordination and cooperation. There are many ways in which this can be achieved, based on current experience across the EU.

Key recommendations in this area are:

- **Authorities must reach out to a wide range of stakeholders** — including many that they may not be accustomed to working with — to build a sound, scientific basis for climate change planning and action. There are good practices that demonstrate the value of this and provide examples of how to do it, but the first step is recognition and prioritisation of the need for this method of working.

- **The policymaking and the scientific and research communities each need to focus on the quality of mechanisms for sharing information** in this regard. Information also needs to be framed in a convincing manner, such that it can convince political decision makers of the extent of the risks that non-action will pose. The use of future EU funds for research, mainly through the Horizon 2020 programme, will be targeted to addressing the need for better interfaces between science, policymaking and business. Local and regional authorities need to stay informed of this progress and consider ways to translate this progress into policymaking approaches in their own territories.

- **Local authorities should consider joining EU initiatives** that fosters political commitment to climate change action at the highest levels and provides support and monitoring for planning and implementation. These include the Covenant of Mayors on sustainable energy plans, and the Mayors Adapt initiative for climate change adaptation.

More specifically on adaptation, the following should be considered:

- **National, regional and local authorities with competence in adaptation to climate change should set up a core team with high-level political commitment** and support. A clear mandate for the management of adaptation within an organisation or department is required. This may include steering the process across sectors, drafting policy documents and communicating adaptation internally and externally.

- **Cross-sectoral working groups** have proven effective at the national level, but are less common at the local and regional levels. At the regional level, institutions should also consider the extent to which cooperation is occurring among the local authorities in their territories.

- **Those that are most vulnerable to climate change should be involved to the greatest extent possible in adaptation policymaking.** Effective participation legitimises policy decisions and improves ownership, and also has the potential to ensure that policies are accurately designed to target needs. Authorities should consider **working groups, consultation, awareness raising** and other techniques for bringing stakeholders into the process.
4.3 Strategic and action planning

Whilst one-off demonstrations and building consensus are critical starting points, tackling climate change will require sound, comprehensive strategic planning at all levels of governance, including the local and regional. Climate change objectives, targets and responsibilities at the EU level are the direct competence of the Member States — but the extent to which regional and local authorities have competence and responsibility for climate change varies considerably. In addition, experience in planning and taking action on climate change varies widely between regions and localities; there is therefore considerable potential for the exchange of experience and the transfer of good practices from more to less advanced regions.

All of the INTERREG IVC climate change projects addressed strategic planning for climate change in one way or another. The GRaBS and RSC projects developed methodological approaches to planning for adaptation and a shift towards low-carbon economy, respectively. These and other examples, tools and methods developed by the projects can serve as a valuable basis for support and learning across the EU. At the same time, this has been one of the most challenging areas for regions and local authorities to address, mainly due to a lack of clarity in competence for climate change across levels of governance and sectoral authorities. In some cases this has prevented project partners from acting on good planning practices, as they are not certain of their own authority to do so.

The EU Adaptation Strategy calls for all Member States to adopt comprehensive national adaptation strategies. It will monitor progress on these initiatives over the coming years. This is supported by EU guidelines, which are available through the Climate-ADAPT web portal. In all Member States, regional and/or local authorities will play a role in this, ranging from local and regional strategic planning to the implementation of plans developed at higher levels of governance. It is important that they understand this role and are empowered to carry it out effectively.

On strategic planning, the following recommendations have emerged from the study and experience of the projects:

- **Clarity of competence** across authorities is an important pre-condition for confident and comprehensive strategic planning, especially for regions, which often fall in-between the more clearly understood roles of national and local authorities. National authorities should ensure that regional and local authorities clearly understand their roles in contributing to EU and national climate objectives and targets. Regional and local authorities, on the other hand, should put all the possible means in place to fully exercise their competence and take action for climate change at local level.

- For many regional and local authorities, **external funding** is required to carry out strategic planning for climate change, particularly when research and assessment is required as a basis for decision making. The EU adaptation strategy notes that the LIFE programme will dedicate funds for this for 2014-2020 under the climate sub-programme. Other EU funds, including the Cohesion Policy and rural development programmes also offer potential support for regional and local authorities to support their efforts on strategic planning and planning support work on climate change. This needs to be taken into account in the programming of funds, including the concentration of spending on objectives targeting low-carbon economy and climate change adaptation.

- **Technical support**, including education for staff who are unfamiliar with climate change issues, is often easily available and underused. On adaptation, a good example is the EU’s Climate-ADAPT web portal, and also national climate change information portals, which have been developed or are under development in many Member States.

- On broader planning, including sectoral plans, **Strategic Environmental Assessment (SEA)**, which is a procedure required by EU law (Directive 2001/42/EC) for the assessment of the environmental impacts of certain plans and programmes, has been identified by the projects as a key tool for integrating climate change considerations into other policy areas. Authorities should consider the guidance issued by the EC DG Environment on integrating climate change and biodiversity into SEA. This targets the specific challenges of considering climate change mitigation and adaptation into the procedures.
Wherever possible, Member States and regions should consider the natural environment, including the role of ecosystem services as a natural buffer against the impacts of climate change, in planning for adaptation to climate change. Results from the INTERREG IVC climate change projects show that such green infrastructure solutions are generally cost-effective as well as beneficial for the environment and for the community. The 2013 EU communication on green infrastructure\[^14\] contains a strategy for integrating this concept into future EU policies and funding instruments, in particular with regard to climate change mitigation and adaptation.

More specifically on adaptation, the following should be considered:

- **For most regions and local authorities with competences in this area, an adaptation strategy and action plan should be prepared to set forth and establish consensus on the main vulnerabilities and risks, to identify objectives and approaches for managing them, and to determine concrete actions going forward. This strategic planning process has to be coordinated across key sectors, such as spatial planning, economic development, water, agriculture and forestry, health and others.**

- **Planning for adaptation, and integrating adaptation into ongoing strategies and plans, requires thinking beyond the normal plan-led time-frames, and with an understanding of the relevant long-term climate risks. Authorities should promote thinking about the bigger picture, such as questioning the extent to which assets, plans, developments are resilient to the most severe climate scenarios at the end of the 21st century.**

- **Authorities and stakeholders need to take steps to understand and deal with uncertainty.** Looking at long-term trends and scenarios and understanding risk is important (see communication with the scientific and research community above). Flexible, forward-looking planning that can be revised regularly to achieve better performance as more becomes known about risks will work best. Details on strategies for dealing with uncertainty can be found on the Climate-ADAPT web platform\[^15\].

- **It is important to develop 'no-regret'\[^16\] adaptation measures or 'win-win' measures, which have other economic, social or environmental benefits.** For this, adaptation options need to be assessed in terms of time, cost, benefits and efforts. This is complex, but considerable guidance, tools and models are available to support this.

### 4.4 Implementation measures

Implementation measures are the core action items required to produce results. Most of the measures identified by or through the climate change projects considered in this study have focused on education and awareness of the population or key groups such as the private sector, as well as approaches to financing climate change. The approaches adopted by the INTERREG IVC climate change projects reflect this need to change the behaviour of citizens, businesses, academia, etc. This has been undertaken through educational activities, as well as through promotional campaigns and various financing mechanisms. Practices for engaging members of the local community in climate change issues, identified by POWER, are some examples in this context.

Many of the lessons learned from the projects show that a lack of funding is an obstacle, both for the development and implementation of strategic plans targeting climate change. Cohesion Policy funds, which target regional development and the Europe 2020 objectives, are an excellent opportunity for many EU regions to access funding for action on climate change. The 20% target for climate change mitigation and adaptation across the EU budget, plus the creation of specific thematic objectives for low-carbon economy and climate change adaptation (see Chapter 2), mean that there will be increased emphasis on climate change during the 2014–2020 programming period.

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\[^16\] ‘No-regret’ (or ‘low-regret’) adaptation measures yield benefits even in absence of climate change, and the costs are relatively low compared to the benefits of acting.
Key recommendations in this area are:

- **The efforts of the INTERREG IVC climate change projects on education and raising awareness**, particularly within the POWER and RSC projects, are important examples and can serve as a basis for similar efforts in other EU regions. These are key parts of climate change planning, and in some cases are pre-conditions for successful planning processes. Further efforts to encourage low-carbon consumption and production choices among the public and in the business sector are also needed. Project partners have identified limited access to funding for such measures as a barrier.

- **This is an important area for future interregional cooperation** within the climate change topic. As climate policies and their regulatory and incentivising measures become more developed and sophisticated, there will be increased potential for learning through experience sharing and the joint development of innovative policy ideas across regions and local authorities. This can extend beyond the current focus on education and awareness raising into other types of policy measures such as governance approaches, transboundary cooperation mechanisms, and approaches to integrated policymaking across sectors and the process for getting large-scale infrastructural solutions underway and funded.

- The **use of EU funds** should be maximised in this area, to target funding needs at the local and regional levels for support on climate change action planning and implementation of measures. Through this, Cohesion Policy can co-finance a range of climate change-related initiatives, such as investments in pilot technologies, disaster and risk management plans and mechanisms and, where eligible, infrastructure. In rural areas, the **rural development programmes of the Common Agricultural Policy** can address climate change measures. The LIFE programme, the EU’s financial instrument for the environment, includes a new sub-programme on climate action with about EUR 850 million for 2014–2020. Its main function is capacity building and technical assistance, making it particularly suitable for local and regional authorities.

- Member States and regions also need to take care that climate change concerns — both low carbon issues and vulnerabilities to climate impacts — are taken into account in all areas of public funding, particularly in places where EU funds constitute a large share of public development spending. For example, investment programmes and projects can be reviewed to ensure that they do not negatively impact the territory’s carbon balance through increases in energy consumption. They should also consider the long-term impacts of climate change on all investment areas, particularly in areas such as infrastructure, health care and agriculture.

- Ideally, all spending programmes for EU funds should be grounded in comprehensive and well-founded climate change strategies, backed up by credible scientific research. **SEA can be an important tool** in this regard, as it is aimed at identifying the environmental impacts (including climate change) of plans and programmes. Where climate strategies are not available, SEA can be useful as a catalyst for bringing a climate change perspective to the spending plans.

- For the recommendations on EU funds, Member States, regions and other stakeholders should consult the technical guidance released by DG CLIMA on integrating climate change adaptation in programmes and investments of Cohesion Policy and under the CAP rural development programmes for 2014–2020.

More specifically on adaptation, the following should be considered:

- **The implementation of climate change adaptation measures** is often complicated by the question of responsibility: Who should pay? This occurs across levels of governance and between public and private sector organisations and individuals. Action plans need to take this question into account, and consider the way financing programmes and market-based instruments, such as insurance, are structured in order to enable the implementation of measures.
• **Explore new areas of public-private cooperation. The private sector is entering into climate adaptation areas that have traditionally been exclusively in the public domain, such as weather and storm warnings or land-use planning. For further expansion of the private sector role in these emerging areas, the public sector could support the private sector in a variety of ways, including sharing the rights to weather data. The private sector’s involvement can lead to provision of such services at lower cost.**

### 4.5 Measuring and monitoring progress

The availability of data and information about climate change impacts has been identified as a key challenge for regions, as this requires monitoring and measuring techniques to be put into place. Another problem is the lack of coordination between parallel measurement and monitoring practices, which results in multiplication of similar efforts, slowing down and making these activities more costly. The ENERGee-Watch network (see section 3.6. for detailed explanation), initiated by the CLIMACTREGIONS project, can serve as a good example for EU and national policymakers for consolidating efforts and results in this field.

The use of indicators is important for enhancing the transparency of policymaking, and some of the INTERREG IVC projects have developed specific tools to address gaps in monitoring the progress of low-carbon policies. The ‘Low-Carbon Indicators Toolkit’, developed under the RSC project, aims to inspire and assist European regions in reviewing existing low-carbon indicators and developing new ones.

Key recommendations in this area are:

- **National data on climatic trends** (mainly related to temperature and precipitation) and information on potential climate change impacts should be further made available and in a format that regions can use. Regions should also boost activities to collect necessary and reliable data through cooperation with stakeholders, local universities, national authorities or other regions. Initiatives (such as the Climate-ADAPT) can be a valuable source of information.

- **Both in case of data related to mitigation activities and climate vulnerabilities, regular updating and monitoring of progress towards achieving climate goals is needed.** Regional and local authorities should therefore guarantee that the data collection for different climate change aspects will not remain a one-time effort: to this end, **human resources and financial means should be envisaged for the long term.**

- **The analysis revealed that most monitoring practices focus on preparation of emissions and energy inventories or climate vulnerabilities at the regional and local levels, and that there is less emphasis on data assessment. Although this is a useful start, progress towards development and the application of a multiple, complex assessment tools (i.e. for evaluating the costs and benefits of measures, or the outcomes of policies) are needed.**

More specifically on adaptation, the following should be considered:

- **Local and regional monitoring systems need to be adapted to include aspects of potential impacts from climate change.** REGIOCLIMA stresses the need for **integrating indicators in monitoring systems** across several sectors.

- **When developing adaptation strategies, authorities should consider monitoring and evaluation systems at an early stage.** This encourages a better collective understanding of what the strategy or plan hopes to achieve through the adaptation process, and enables a flexible approach to dealing with uncertainty.
5. Annexes

Annexe 1: Climate change projects overview

<table>
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<tr>
<th>Project Acronym</th>
<th>Project name</th>
<th>Detailed topic</th>
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<td>CLIMACTREGIONS</td>
<td>Regions for Climate Protection: toward Governance from Knowledge to Action</td>
<td>Improving the capacity of regions to build and apply greenhouse gases reduction policies</td>
</tr>
<tr>
<td>CLUE</td>
<td>Climate Neutral Urban Districts in Europe</td>
<td>Implementation and assessment of new technologies to support low carbon economy in urban areas</td>
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<td>F:ACTS!</td>
<td>Forms for: Adapting to Climate change through Territorial Strategies</td>
<td>Prevention of hazards resulting from climate change in areas touched by extreme weather</td>
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<td>GRaBS</td>
<td>Green and Blue Space Adaptation for Urban Areas and Eco Towns</td>
<td>Adaptation of urban development to climate change</td>
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<td>REGIOCLIMA</td>
<td>Regional cooperation towards adaptation to climate change</td>
<td>Adaptation to new climate conditions</td>
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<td>Promotion of climate-friendly programmes to sustain socio-economic development</td>
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<tr>
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<th>ERDF funding (€)</th>
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<th>Starting date</th>
<th>Ending date</th>
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\(^{17}\) Representing 22 Member States plus Norway  
\(^{18}\) LP: lead partner  
\(^{19}\) RIP: Regional Initiative Project
### Indicators - as of end 2013

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<td>RSC</td>
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* Projects (RIP) do not always result in the transfer of good practices, but they always have to identify good practices with view to improving policies

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**Partner legal status**

- **Bodies governed by public law**: e.g. Regional and local development agencies, Public universities, etc.

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**Public Authorities Governance level**

- Local Public Authority: 19%
- Regional Public Authority: 42%
- National Public Authority: 40%

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**Number of partners per country**

- Partners
Annexe 2: Climate change project partners Map
Annexe 3: Climate change projects factsheets

Improving the capacity of regions to build and apply GHG reduction policies:

CLIMACTREGIONS
Regions for Climate Protection: toward Governance, from Knowledge to Action

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/01/2010 – 31/03/2013
Website: www.CLIMACTREGIONS.eu

BUDGET

Total budget: EUR 2 132 370
ERDF contribution: EUR 1 627 004.20

PARTNERSHIP

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<td>France</td>
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</tr>
<tr>
<td>France</td>
<td>Rhonalpenergie-Environnement, Lyon</td>
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<tr>
<td>France</td>
<td>Nord-Pas-de-Calais Regional Council, Lille</td>
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<tr>
<td>Belgium</td>
<td>European Federation of Regional Energy and Environment Agencies, Brussels</td>
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<td>Germany</td>
<td>Berlin Senate Department of Economics, Technology and Women's Issues, Berlin</td>
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<tr>
<td>Spain</td>
<td>Fundacion Comunidad Valenciana Region Europea, Valencia</td>
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<tr>
<td>Sweden</td>
<td>Norrbotten Energy Network, Lulea</td>
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<tr>
<td>United Kingdom</td>
<td>Kent County Council, United Kingdom, Maidstone</td>
</tr>
<tr>
<td>Romania</td>
<td>Maramures County Council, Baia Mare</td>
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<td>Czech Republic</td>
<td>Energy Agency of the Zlin Region, Zlin</td>
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<tr>
<td>Italy</td>
<td>Regional Energy Agency of Liguria, Genoa</td>
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<td>Spain</td>
<td>CEAM Foundation, Paterna</td>
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Lead partner:

Regional Council Rhone-Alpes
DCESE, 1 esplanade Francois Mitterrand
CS 20033
69269, LYON Cedex 02
FRANCE
Project objectives

The CLIMACTREGIONS project aimed to strengthen regional capacity to develop and implement policies to reduce greenhouse gas emissions (GHG). Its objectives were to enable regions to efficiently monitor and observe greenhouse gases, to develop regional policies for greenhouse gas mitigation using good governance processes, and to strengthen the dialogue between regions and the EU on climate change policies and their implementation in the field.

Main outputs

- Collection of good practices: The project identified more than 140 good practices in the field of greenhouse gas observation, climate protection policies and governance in 60 regions representing 23 countries. The good practices were presented on an interactive map and in a booklet. Good practices from European regions are presented. For each good practice, a PDF file is provided that contains a description, key achievements, the implementation process, lessons learned and success factors. (http://www.climactregions.eu/web/guest/best-practices)

- ENERGee-Watch (the European NEtwork of Regional GHG Emissions and Energy Watch- http://www.energee-watch.eu), launched by CLIMACTREGIONS, aims to connect GHG emissions observatories throughout Europe. The observatories identified through the ENERGee-Watch network so far have confirmed the need for further standardisation among observatories in order to enable comparisons between territories and the establishment of European methodologies. To date, many observatories in Europe are built on air quality observation, with their structures governed by a local consortium and financially supported by public authorities. Furthermore, the methodologies used to observe GHG emissions are based on International standards (IPCC and Corinair) and national methodologies, rather than European-wide methods. The creation of a European network of emissions inventories can provide participating regions with an opportunity to achieve this standardisation, and to share experiences and improve together. As the project states, regional GHG observatories, governed by a local consortium and financially supported by public authorities, also have the potential to demonstrate the need for bottom-up approaches to tackle climate change.

- Report on GHG mitigation strategies and actions: The report identified main barriers and solutions to developing strategies and actions at local and regional levels across Europe. The topics tackled are: data collection, stakeholder involvement, financing, political support and commitment, and technical knowledge. (http://www.climactregions.eu/c/document_library/get_file?uuid=64d4bc9e-2fe4-4b4a-870e-95fd14b3cac0&groupId=10136)

Examples of good practices

The Green Berlin Zone project aimed to reduce GHG emissions and air pollution by prohibiting the use of high-emissions vehicles in the inner city of Berlin. As a result, the project achieved a 50% reduction of fine particulates and a 20% reduction of NOx emissions in 2011 (compared to 2007). The Berlin ImpulsE program aims to provide information about energy efficiency potentials by transferring R&D knowledge to practice and motivating different stakeholders (housing industry, architects, planners, engineers and politicians) to invest in energy-efficiency solutions.

The Norrbotten and Vasterbotten Energy and Climate Offensive contributes to the improvement of industrial and commercial activities in Norrbotten and Vasterbotten with respect to climate change. The initiative created possibilities for environmentally driven and sustainable company development that will contribute to a safe and cost-effective energy supply for the region. Activities comprise networking and the organisation of seminars and roundtable discussions with politicians and other stakeholders. These activities provide support for developing and implementing local energy and climate strategies and projects (actions, for example, that SMEs find easy to use). This good practice demonstrates that an institutionalised form of business community involvement in climate change mitigation activities can lead to more successful results, as companies establish long-lasting relationship with politicians, public bodies and other businesses.

Kent County Council produced a Climate Change Delivery Plan for its local authorities to identify where partnership activity can be undertaken to reduce emissions (mitigation) and prepare for climate change (adaptation). The mitigation plan addresses carbon emissions across the public-, domestic-, travel and transport-, business- and planning sectors. The adaptation plan is process-based to help counties
identify their priorities related to preparing for climate change. In addition, there are actions to increase communications and monitor progress. These targets are worked on across a Local Strategic Partnership (Kent Partnership) consisting of partners including other local authorities, emergency services, the NHS and business, among others. Also, the newly established Kent Climate Change Network consists of forerunners on energy efficiency and adaptation across the Kent partnership network. The Kent Climate Change Network maintains an ongoing communication via quarterly meetings, a web portal and a monthly e-bulletin.

The Kent Local Climate Impacts Profile (LCLIP) underpinned the development of the Kent Climate Change Network, a network of local authority officers leading on climate change across Kent. It developed key headline messages to communicate to stakeholders, which led to senior management buy-in for the development of the Kent Adaptation Action Plan (a plan to build the county’s resilience to climate change). It also highlighted a gap in how Kent is currently monitoring impacts from severe weather events, leading to the development of an innovative new tool, the Severe Weather Impacts Monitoring System (SWIMS). SWIMS is a decision-support and engagement tool to help Kent partners collect a robust evidence base of how they are currently impacted by and responding to severe weather, and to support long-term planning for climate change. The main drivers of the project were: cost and resource-efficiency savings, better use of public sector resources, reduced risk, economic advantage, and health side-benefits. Key success factors are strong partnership, an inclusive development process, and willingness to do things differently.

AGIR is a public initiative in the Region Provence Alpes Cote d'Azur (France) that is using a EUR 70 million public fund to promote energy efficiency and renewable energy actions inside the region: 100 000 citizens and 1 500 companies, organisations and associations were involved in the project, resulting in combined project savings of 14 000 MWh by 600 projects. The project reported the main difficulties in mobilising public stakeholders whose participation was essential. A key success factor was the definition of a simple governance scheme that could ensure good understanding and maximal participation of potential beneficiaries.

The Berlin Energy Supply Contracting project, operating since 1996, targets building owners, real estate companies, public administrations and industry companies by offering them complex solutions for developing, installing, operating and financing energy-efficient supply plants in buildings. The investments are realised without any additional cost to building owners, as all costs are borne by the contractors.

The West Mill Co-op at Westmill Farm in Oxfordshire (United Kingdom) is the first community-owned wind farm in the South of England. This project involved the purchase, construction and 25-year operation of five wind turbines. The wind farm started commercial generation in February 2008. As a following step, a solar plant was developed. On the community-owned Isle of Gigha, Scotland, there are three second-hand wind turbines, installed in 2003. Return on the investment came in 2009 and provides an income for the Isle of Gigha Heritage. These examples all highlight the fact that, to ensure the long-term successful operation of renewable plants, the involvement of residents as owners can be an innovative way forward for other regions as well.

Examples of transferred good practices

Implementation of good governance principles for designing, implementing and evaluating a regional SEAP: The Kent County Council (United Kingdom) is experienced in engaging local stakeholders in the design and implementation of sustainable energy plans. The Zlin region in Czech Republic adopted principles for engagement of local politicians, citizens, businesses and communities in the governance of actions and introduced them through local workshops. As a result of these consultations, a regional plan for reducing emissions and improving air quality was developed, and a regional plan for increasing the effectiveness of the municipal waste management through the collection of biodegradable waste from households was developed. The Rhone-Alpes region applied the Kent-based approach for the development of four local action plans. To mobilise local stakeholders, 20 workshops were organised in order to introduce a participative process involving local stakeholders and citizens. During the process, common indicators were defined and the impacts of the proposed measures were assessed.

Effective financial support mechanisms: The Berlin Senate (Germany) applies different funding approaches for different type of investors in different sectors. The practice was transferred to Valencia region (Spain), which developed a climate change action plan throughout the course of the project. The plan includes 100 mitigation and adaptation measures to help a host of sectors in Valencia reduce their impact on, and increase their resilience to, climate change (i.e. combined heat and power (CHP))
initiatives, work on providing advice to Small-and-Medium Enterprises (SMEs) and types of financial support for the refurbishment of buildings).

Developing a regional GHG emissions observatory (Rhone-Alpes region, France): Through exchange processes, three of the project partners (Norrbotten County, Sweden; Nord-Pas de Calais, France and ARE Liguria, Italy) learned to build a regional observatory for monitoring and comparing greenhouse gas emissions, and to apply the results for different purposes (e.g. regional energy plan, Covenant of Mayors). Partners in Norrbotten used this knowledge in the development of two action plans to improve their regional greenhouse gas observatory, Energy Loup, and to construct a regional database for energy statistics. Nord-Pas-de-Calais used this knowledge to introduce a new methodology in GHG emissions accounting and to help develop their Regional Climate Action Plan. ARE Liguria applied this knowledge in the implementation of methodology for accounting GHG emissions and to upgrade the SIRA database (regional energy and environmental database) being used in the design of new Sustainable Energy Action Plans.
Implementation and assessment of new technologies to support low-carbon economy in urban areas:

CLUE
Climate Neutral Urban Districts in Europe

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/01/2012 – 31/12/2014
Website: www.clue-project.eu

BUDGET

Total budget: EUR 1 895 431.00
ERDF contribution: EUR 1 439 142.81

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Lead partner:
City of Stockholm City Planning Administration
P.O.Box 8314
SE 104 20, STOCKHOLM SWEDEN
**Project objectives**

During the course of the study, CLUE has been the only ongoing project from the seven core climate change projects. Approved under the fourth call for application, the project is now in its phase of implementation. CLUE aims at developing a shared perspective on ‘climate-neutral urban districts’ within the partnership. A climate-neutral urban district is a district that uses innovative new technologies and building techniques and inducing behavioural changes to reduce its carbon footprint. The project will also result in increased capacity within the sphere of policy development to facilitate implementation and assessment of new solutions and technologies to support low-carbon economies in urban areas.

**Planned outputs**

To achieve this, the project aims to develop best practice guides and policy recommendations on the integration of climate aspects in the urban development process. This effort includes guidelines on: carbon neutrality; development of a common language on key topics and concepts (e.g. a common understanding of the concept of carbon-neutral urban districts) among professionals and academics; and novel assessment methods and tools for evaluating low-carbon economy incentives.

Regarding the identification of good practice, the project has developed an inventory of local good practice examples, numbering 89 examples. As a next step, the partnership identified the most valuable pieces of policy advice with the aim to incorporate them into policy guidelines.

**Examples of innovative practices**

In the **Stockholm Royal Seaport project**, the City of Stockholm aims to transform an industrial harbour zone of 236 ha into a sustainable city district with 12000 new dwellings and 30 000 workspaces. The project builds on the previous experience with the eco-district of Hammarby Sjostad. The city has elaborated a high ambitious eco-profile concept, which is laid down in the Overall Programme for the Environment and Sustainable Urban Development. The major objectives are to build a climate-positive city district that is fossil fuel-free by 2030 and has CO\(_2\) emissions below 1.5 t/capita by year 2020, due to the use of new environmental techniques and integrated urban development approaches. Other crucial goals are to adapt to climate change, to use fewer resources (eco-cycle), to limit the impact on health and environment, and to develop supporting green infrastructure.

The **Capacity Development Programme for enhanced public-private collaboration** in Stockholm aimed to ensure that the environmental requirements for the Stockholm Royal Seaport (SRS) project are met. The programme addressed builders involved in the project. The first programme comprised of 12 thematic seminars and discussed energy efficiency, storm water management, sustainable transport and waste management solutions. The content was tailored to the project developers’ needs and site-specific characteristics, which are either residential or commercial buildings. The participants were also asked to present possibilities and challenges related to their own projects. The programme has contributed to raising the level of knowledge on sustainable urban planning, provided insight into R&D development and good practice, and has contributed to the exchange of experiences.

The **reMAC, Regenerative Energy for Metropolitan Areas and Cities** tool was developed within the METREX network as a benefit to its members as an urban planning tool to assess the future energy needs of cities and identify options for renewable energy use. Hamburg was responsible for its roll-out. It consists of nine components, including reduced waste energy, lower energy demand, lower energy demand from metropolitan renewable energy sources, capture and storage of residual carbon energy emissions, electro-mobility and hydrogen mobility, saving of energy costs, improving economic competitiveness, energy self-sufficiency and energy security.

The **Mitte Altona** urban development project of the City of Hamburg concerns converting land previously used by railway lines. Numerous stakeholders have been involved in the project development process from very early on. Open and proactive stakeholder involvement was considered crucial to the success of the project. Different forms of participation were considered. City officials hold public meetings, such as information events or workshops, on a regular basis within the development area. These meetings are held in an information centre established for this reason in 2011. In addition, also in 2011, an advisory board was elected consisting of residents, local businesses, joint building ventures, local initiatives, cultural institutions and others.

The **Zona Franca, Marina District and Gran Via** area in Barcelona aim for high energy efficiency and reduced fossil energy consumption. A district heating and cooling solution will replace conventional heating systems in buildings/homes. The project combines several systems including the use of residual...
cold gasification process that takes place in the port, the generation of cold and hot water distributed through the district network, and the use of biomass that comes from municipal parks and gardens. This project is the first large-scale investment that creates residual energy from the regasification plant in the Barcelona harbour and connects it with tertiary and industrial district heating and cooling systems.

The International Building Exhibition (IBA) Hamburg’s METROZONE strategy demonstrates how inner peripheries can be transformed into attractive neighbourhoods. The Elbe Islands contain container stacks and dockside cranes next to residential districts and derelict industrial sites, with railway lines, docks and marshland in between. These areas provide new opportunities to develop the city. Within the “Metrozones–New Urban Spaces” strategy, attractive homes and workplaces are being created in the city centre, which also helps to reduce demand pressure on popular in-neighbourhoods. Metrozones are neighbourhoods characterised by short distances and a high degree of energy efficiency. The IBA’s planning and realisation process (2007–2013) was used to accelerate the realisation of the city’s overall urban development strategy.
Promotion of climate protection linked with business-green-inclusive growth:

POWER

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Energy and sustainable transport

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Mini-programme: Yes
Duration: 01/09/2008 – 31/03/2012
Website: www.powerprogramme.eu/

BUDGET

Total budget: EUR 5 515 519.00
ERDF contribution: EUR 4 233 347.51

PARTNERSHIP

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<tr>
<td>1</td>
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<td>Poland Marshal Office of the Malopolska Region, Krakow</td>
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<td>Italy Environmental Protection Agency of Emilia-Romagna Region, Bologna</td>
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Lead partner:
South East England Development Agency (SEEDA)
Cross Lanes
GU1 1YA, Guildford
UNITED KINGDOM
Project objectives

The POWER programme aimed to improve regional and local policies related to climate change mitigation. The seven partner regions funded nine sub-projects, delivering results on the five POWER themes, which were: energy efficiency, renewable energy, sustainable transport, behavioural change, and eco-innovation and environmental technologies. The sub-projects were: 'Green ENERgy AuditTing for a Low CarboN Economy' (GENERATION), 'Transition Island Communities Empowering Localities to Act', 'Wind of the Coast' (about deploying small wind-powered technology), 'Innovative Transport Approach in Cities and Metropolitan Areas', 'E-Mobility accelerator', 'Strategy for Energy Efficiency through Climate Agreements', 'Strategies for Innovative Low Carbon Settlements', 'Tools for Integrated Management of Biomass Energy Resources', and 'Transport Carbon IntenCities'. The programme has enabled the improvement of many regional and local policies and instruments, and has also empowered over 78 000 citizens, industrials and public authorities with increased capacity and awareness to reduce their carbon footprint. The knowledge generated and transferred has helped regions to develop concrete plans for adaptation and mitigation of climate change, and to contribute to national and international frameworks to reduce carbon emissions.

Main outputs

Good practices were identified and tools were developed at the overall project level as well as within each sub-project, namely the following:

Project outputs:
- Best practice collection: the POWER programme identified over 100 best practices and through these demonstrated how interregional exchange can support the transition to a low-carbon economy. ([http://www.powerprogramme.eu/best_practices.php](http://www.powerprogramme.eu/best_practices.php))
- General policy recommendations: POWER policy experts and the Regional Correspondents analysed project results and worked together to identify and formulate macro-policy recommendations for the following themes: cross-thematic solutions, energy efficiency, renewable energy, sustainable transport, eco-innovation, behavioural change and low-carbon economies. ([http://powerprogramme.eu/recommendations.php](http://powerprogramme.eu/recommendations.php))
- Regional roadmaps for partner regions: the roadmaps were prepared to guide each partner region in taking steps towards a low-carbon economy. The roadmaps show how POWER results have influenced policy, and will continue to influence policy in each region. They also identify the key agencies that have the competence to deliver low-carbon policies, as well as stakeholders who will need to work together to develop initiatives. ([http://powerprogramme.eu/roadmaps.php](http://powerprogramme.eu/roadmaps.php))

Sub-project outputs:
- ITACA Handbook: This was a report about achieving sustainable mobility by providing a wide-ranging, integrated approach towards establishing low-carbon transport models in urban areas.
Examples of good practices

The ‘Hammarby Model’ in Stockholm, Sweden is an innovative good practice. Originally planned as part of Stockholm’s sustainable bid for the 2004 Olympics, the Hammarby District has strong ecological and environmental sustainability credentials. Under the project, almost 10,000 homes were built, and an additional 9,000 homes will be developed by 2015. In Hammarby, the City of Stockholm has imposed tough environmental requirements on buildings, technical installations and the traffic regime from the onset of construction activities. The Stockholm Water Company, Fortum, and the Stockholm Waste Management Administration have jointly developed a common eco-cycle model — i.e. the Hammarby Model. This model binds together the entire environmental programme and demonstrates how the various technical supply systems are integrated. The Hammarby Model handles energy, waste, sewerage and water for both housing and offices in one eco-cycle. For example, combustible waste is incinerated to produce both electricity and district heating, and the waste heat from treated wastewater is used for heating water in the district heating system. The project not only focused on the design aspect, but also recognised the need to influence how residents use places. The Hammarby Model achieved this through the creation of an environmental centre that promotes understanding of how residents can help to achieve the city’s environmental aspirations. The Malopolska region (Poland), involved in the CLUE project, has expressed an interest in studying and transferring this good practice.

The project identified two ‘Community Champions’ training practices in the UK. The WinACC Low-Carbon Champions are encouraged and trained by Winchester Action on Climate Change to reduce their own carbon footprint and to support others to do the same. The training lasts for five weeks, although WinACC subsequently provides them with continual access to support. The Thornhill Community Energy Champion project, carried out by the ‘Thornhill Plus You’ initiative, trains residents on energy saving and energy-efficiency solutions, enabling them to gain knowledge on these issues and to advise other residents. Both practices underline the importance of identifying and training individuals who can serve as examples for and spur other members of the community to take steps towards climate change mitigation.

An eco-calendar developed by the Polish municipality Niepolomice aims at encouraging inhabitants to improve energy efficiency, to reduce pollution in their immediate surroundings, and to reduce CO₂ emissions. The calendar, as a form of communication, proved to be effective for transferring information on energy issues and can be easily replicated in other regions. The eco-calendar is available at http://www.powerprogramme.eu/uploads/kalendarz%20English.pdf.

The Uppsala County Climate Agreement (Sweden) targets industry, government and non-government organisations and encourages them to sign voluntary agreements to reduce their carbon footprint. The SEECA (Strategy for Energy Efficiency through Climate Agreements) sub-programme, a climate agreement website, has been developed to allow companies to pledge a commitment to the environment and work towards achieving an environmental quality standard.

The WICO sub-programme core outputs have been the production of Policy Guidelines for Planners and Administrators of Small Wind Systems. These guidelines can simplify planning procedures for the
installation of small renewable energy systems by automatically delegating small developments to local planning officers and not requiring committee involvement. Since WICO produced its policy guidelines well before the end of the project, it was capable of improving policies during the project lifetime. Improved policies include: the transfer of successful incentive schemes for small wind systems, such as a feed-in tariff scheme in the Municipality of Huelva; the creation of local bylaws and small wind pilot installations in Andalusia (Spain); and the installation of small wind turbines in public buildings and their connection to the national grid in the Diputacion de Huelva (pending legislative modifications). The guidelines can also be applied and provide inspiration in other regions.

Within the Timber project, a standard biomass model was developed to support regional development. As a result, an integrated landscape management and biomass flows policy was developed in Noord-Brabant (Netherlands) and increased the role for biomass in the region’s renewable energy plans.

Within the TraCit project, a common methodology for measuring the carbon intensity of travel was developed. In the course of delivering the methodology, the TraCit partners undertook a range of activities on sustainable transport, which has also led to increased knowledge and capacity among partners on sustainable transport, particularly in the Tallinn region (Estonia), where TraCit has already helped make the case for funding a better connection of cycle routes between Tallinn and Viimsi. The project applied an innovative stakeholder engagement methodology, the so-called Charrette-process. This method enables holistic and inclusive community and stakeholder engagement. As a result, the potential for conflict decreases, and the participants have strong ownership of the resultant scheme. The project also increased the visibility of sustainable transport’s contribution to reducing carbon emissions in Poland via presentations to the National Advisory Committee on CO₂ emissions.

Examples of transferred good practices

The Climate and Energy Strategy of Stockholm created a sustainable regional framework for the development of regional climate and energy strategies, and it was transferred from the Swedish partner to the Estonian partner in Tallinn.

Climate Agreements focused on energy savings — not just on carbon emissions — which makes the connection between the twin goals of emission reductions and economic gains clear. The idea was transferred from Sweden to Estonia and Poland.

Eco-driving seminars were organised in Estonia that targeted CO₂ reduction from major municipal services in Tallinn. The Swedish project partner transferred this good practice. The eco-calendar was transferred to Estonian, Finnish and Swedish partner regions.
Promotion of climate-friendly programmes to sustain socio-economic development:

RSC
Regions for Sustainable Change

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/10/2008 – 31/12/2011
Website: rscproject.org

BUDGET

Total budget: EUR 2 099 983.00
ERDF contribution: EUR 1 661 380.72

PARTNERSHIP

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<td>Hungary</td>
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<td>Spain</td>
<td>General Directorate of Environmental Quality, Ministry of Agriculture, Animal Industry and Environment La Rioja, Logrono</td>
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<td>Cornwall Development Company, Truro</td>
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Lead partner:
The Regional Environmental Centre for Central and Eastern Europe
Ady Endre ut 9-11
2000 Szentendre
HUNGARY
Project objectives

The RSC project focused on the capitalisation of regional potential to address climate change by preparing practical guidance to assist local and regional authorities and agencies across the EU, and by exchanging experience and providing expertise and capacity building to partner regions. The aims of the project were to:

- share good practices in the field of low-carbon development and develop long-lasting relationships between partners;
- raise awareness and disseminate information via workshops, conferences and written materials;
- prepare inventory and compare approaches to Strategic Environmental Assessment (SEA), and investigate and incorporate the use of SEA and Sustainability Assessment (SA) into regional development programmes;
- prepare practical guidance to assist local and regional authorities and agencies across the EU to address climate change issues in regional development programmes;
- provide expertise and capacity building for partner regions;
- give partner regions the opportunity to undertake pilot actions related to climate change; and
- communicate findings from the project at a strategic, policy-forming level.

Main outputs

A baseline assessment of the partner regions in terms of low-carbon economies defined the characteristics of a climate-confident region. For the baseline assessment, the project team developed a general template for assessing preparedness of European regions to tackle the low-carbon challenge and turned these into regional profiles and the Regional Climate Confidence Index. The report presenting the regional baseline assessments also contains good practices from the partner regions. (http://www.rscproject.org/docs/RSC_Baseline_Assessment_Report.pdf)

The Low-Carbon Indicators Toolkit offers a wide-range of indicators on the characteristics of a low-carbon economy. The toolkit collects and presents indicators relevant for measuring the progress of low-carbon development. It was designed to be user-friendly, with the indicators categorised into seven different topics and numerous sub-topics. A literature source and measurement unit — or relevant short description — is included for each indicator. (http://www.rscproject.org/docs/RSC_Low_Carbon_Indicators_toolkit_3.pdf)

A macroeconomic analysis of three partner regions Burgenland, Cornwall and Marche (http://www.rscproject.org/activities.php?section=Analysis-on-three-partner-regions'-economy-) to identify the structural changes required for regions to achieve low-carbon status. The analysis includes different tools and templates to establish a baseline for regional climate change indicators, to examine the climate change risks faced by regions, and to calculate the environmental and economic costs and benefits of moving towards a low-carbon economy. For the latter, the PACE Tool (Prioritisation of Actions for a Low-Carbon Economy) was developed, which is a complex calculation methodology that allows the comparison of a range of carbon mitigation measures by quantifying their economic and environmental impacts.

An SEA/SA discussion and guidance paper ‘Opportunities for Integrating Climate Change into Regional Planning through Strategic Environmental Assessment’, reviewed the use of assessments as tools for climate change integration in regional development programmes. The document provides advice to regional planners on ensuring the proper integration of climate change issues into regional planning. A separate guidance section suggests tips for integrating climate aspects into each stage of the SEA process as required by the EU SEA Directive, and is applicable in regions with insufficient experience in using assessments as tools for mainstreaming climate change issues into plans and programmes requiring SEA, including investment programmes. (http://www.rscproject.org/docs/SEA_Report_Dec2011.pdf)

A methodological handbook includes a collection of relevant best practices, measures and tools from across the partnership. The guidance document suggests a four-step methodology for regional policy improvement in order to support regions in moving towards low-carbon development. The project developed tools for each step, all of which are summarised in the handbook. (http://www.rscproject.org/activities.php?section=Handbook-for-building-a-low-carbon-economy)
Examples of good practices

The project identified good practices in the partner region throughout the process of preparing different reports and tools covering the following topics: GHG inventories, sustainable energy management, climate change policies, and climate change institutions. In addition, the project aimed at offering methodologies/tools to help all European regions along the path to low-carbon development. These methodologies include a regional profile template for baseline assessments, a wide-range of low-carbon indicators for progress measurement, guidance for integrating climate change aspects into SEAs and a methodology for macroeconomic analysis of the carbon-related aspects of European regions. The most innovative good practices and transferable tools are summarised in the project’s final output, the methodological handbook.

Through **EKKO (an energy concept for communes)**, the Austrian region of Burgenland is implementing its energy strategy by pursuing long-term energy self-sufficiency through the exploitation of renewable energy and energy savings at municipal level. The region provides one example of how ambitious regional low-carbon targets can be achieved through action and commitment from municipalities, policy makers, businesses and citizens. Specifically, the Burgenland energy strategy has envisioned:

- electricity autonomy in 2013;
- complete energy autonomy by 2020;
- use of its own resources with added value;
- the introduction of new businesses and technologies;
- avoidance of conflict with food production; and
- implementation at regional, municipal and private levels.

Through the exploitation of renewable energy potential and the implementation of its energy strategy, the region took an integrated approach and linked energy-saving potential to cost savings and local job-creation opportunities. This approach, known Europe-wide as the ‘**Gussing model**’, provides important lessons for other local communities wishing to improve the sustainability of their energy sources and usage, while at the same time boosting the number of green jobs in their region. The model successfully supported the Gussing area in efforts to increase wealth and enhance well-being by providing citizens with long-term life perspectives. This example can serve as an inspiration for European regions that are remote from main business hubs, as well as regions affected by the economic crisis and looking for win-win opportunities that simultaneously achieve cost savings and boost employment. The region provides an example of how ambitious regional low-carbon targets and actions can trigger economic development, which can also be a possible way forward for many European regions. This cooperative, bottom-up process is a critical factor in designing communal energy concepts that specifically target the needs of municipalities and at the same time contribute towards achieving the region’s energy goals. This is an innovative and ambitious regional effort towards planning low-carbon development, in that it extends to all stakeholders and requires that they fulfil all of their own strategy objectives. The approach can serve as an example for other regions aiming to boost economic development through low-carbon solutions.

The study ‘**Mainstreaming climate change into Malta’s land-use planning process**’ reviewed the Maltese land-use planning structures and processes, and developed recommendations for improving the system by taking greater account of climate change. All aspects of land-use planning were considered, including organisational aspects, planning policy, development control, and environmental impact assessment. The review focused on the potential of the planning system to promote better control of GHG emissions, and also on adaptation potential. Recommendations ranged from training and capacity building to policy changes or modifications to current decision-making processes. The recommendations, discussed with key stakeholders in the land-use planning process, were then considered by the Maltese Environment and Planning Authority and the Maltese Government in the context of environmental reform. The study revealed that SEA might not always be sufficient to produce ‘climate-proof’ policies — that is, the SEA process does not necessarily ensure that policies will perform successfully in the context of a changing climate. A combination of assessment methodologies might therefore be necessary, such as an SEA to assess the impacts of climatic factors on planning, and the application of a so-called ‘climate change lens’. A sample climate change lens, which is essentially a checklist for climate proofing policies, has been designed for this purpose.
The project developed a **Low-Carbon Indicators Toolkit** and the **PACE-tool** (Prioritisation of Actions for a Low-Carbon Economy) methodology.

- The **Low-Carbon Indicators Toolkit** is a user-friendly online tool that comprises two main modules: the Low-Carbon Indicators Library, which includes extensive information on indicators and their use; and the Regional Climate Confidence Index (RCCI), which aims to assist European regions to measure their status and progress towards low-carbon development. The toolkit can assist regions to review existing monitoring practices and improve them by developing new indicators for progress monitoring. The RCCI is an innovative tool, as it introduces the key characteristics of climate-confident regions. It enables the regions to critically evaluate their strengths and weaknesses with regard to climate change, and encourages them to improve. The RCCI was adapted to circumstances in Bulgaria, where the index was integrated into the monitoring of regional development plans.

- The **PACE-tool** was developed to assess the costs and benefits of low-carbon measures on a regional scale, and to help authorities to prioritise those measures which are most beneficial in terms of GHG emissions reduction, job creation and investment and operating costs. The Excel-based tool assesses and compares measures according to their impact on carbon saving, cost efficiency and job creation on a regional scale. Tested in three RCS regions, the PACE-tool is easy for decision makers to use. Through the table and charts produced it shows which measures should be prioritised for support or investment by decision makers. Based on the methodology, an analysis was carried out of the carbon emissions-related aspects of the Hungarian economy. The tool can assist other regions to prioritise low-carbon measures and find win-win solutions with benefits for the climate, economy and social domain. The tool is available at: [http://rscproject.org/activities.php?section=Analysis-on-three-partner-regions’-economy.](http://rscproject.org/activities.php?section=Analysis-on-three-partner-regions’-economy.)

**Examples of transferred good practices**

Using the **SEA guidance** developed within the framework of the project, the Piedmont region in Italy explored the potential for integrating climate change issues into local SEA plans and programmes. A qualitative assessment on experiences from the SEA process of municipal urban plans in the region revealed that, in most cases, climate change is either not taken into account or is merely a superficial concern. The results of the study were thus developed into an easy-to-use working tool, in the form of guidelines, providing criteria and practical approaches to climate change integration at local level. The exercise aimed to achieve greater political, social and cultural awareness of climate change issues, and to strengthen the role of SEA in local planning.

Based on the **macro-economic analysis** commissioned for three partner regions, an analysis of the carbon emission-related aspects of the Hungarian economy was carried out. The analysis aimed to identify opportunities for and the costs and effects of moving to a low-carbon economy. To perform this work, the subcontractor applied both a generic, transferable model and the PACE-tool developed within the framework of the original analysis.

Cornwall and Isles of Scilly region implemented a pilot project to quantify and compare regional **GHG emissions** for the years 2007 and 2008 following the International Local Government GHG Emissions Analysis Protocol. This inventory is the first of its kind in the United Kingdom and is based on the most comprehensively available published data. In addition to covering emissions from energy sources in buildings, transport, agriculture and waste, it also extends to areas such as marine and aviation emissions. The production of this inventory provides an important opportunity for the region to actively measure and manage GHG emissions, and it is anticipated that the inventory will be repeated in future years in order to review progress against national and European targets. The estimated emissions for the year 2008 were 4,726,000 tonnes of CO\(_2\)-eq.

Italy’s Liguria region implemented a pilot project in the Montemarcello Magra Regional Nature Park aimed at introducing effective regional climate change policies and achieving the goals of the Kyoto Protocol and the EU’s 20-20-20 initiative. The pilot project was implemented in 21 towns with the aim of drawing up a precise CO\(_2\) emissions balance according to the Intergovernmental Panel on Climate Change (IPCC) GHG emission guidelines. The pilot project takes emission sources into consideration, as well as the absorption ability of plants, in order to ensure the appropriate management of park territory, which has 50% forest cover. The data will be used to map areas where emissions are higher and where absorption can be increased through efficient forest management in order to counterbalance emissions from neighbouring areas.
F:ACTS!

Forms for: Adapting to Climate Change through Territorial Strategies!

**PROJECT DETAILS**

**Priority:** Environment and risk prevention

**Theme:** Natural and technological risks (including climate change)

**TYPE OF INTERVENTION**

**Type of intervention:** Regional Initiative Project

**Duration:** 01/01/2010 – 31/03/2013

**Website:** [www.factsproject.eu](http://www.factsproject.eu)

**BUDGET**

**Total budget:** EUR 2,286,000

**ERDF contribution:** EUR 1,797,890

**PARTNERSHIP**

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<td>14</td>
<td>Greece Development Enterprise of Achaia Prefecture (NEA), Patras</td>
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**Lead partner:**

Government Service for Land and Water

Management (DLG)

P.O. Box 19275

2500 CG, Den Haag

NETHERLANDS
Project objectives

The F:ACTS! project aimed to find suitable approaches for adapting land use to climate change in order to reduce hazards and other negative effects on the environment. To achieve this objective, the project dealt with flood and fire-prone areas and natural areas particularly vulnerable to disturbance. Exchanges of knowledge occurred in workshops during partner meetings and coaching visits (http://www.factsproject.eu/coachingvisits/Pages/default.aspx) between partners.

Main outputs

The F:ACTS! Handbook on climate adaptation presents knowledge gathered and explains how to set up integrated territorial strategies to implement territorial adaptation and mitigation actions. Eleven guidelines are formulated for developing climate-proof areas grouped around three pillars of integrated territory strategy: 1) understanding and using an area’s potential; 2) mobilising cooperation, and 3) governance for integrated territory strategy. (http://www.factsproject.eu/home/Pages/detail.aspx?itemId=24&webId=6248ce52-4ebf-403b-aed5-913928f7cd27)

Five pilot projects were implemented for applying the guidelines developed by the project. These pilots targeted areas facing drought, floods or forest fires. Partners looked for solutions to these specific problems, which are intended to serve as examples for areas in Europe facing similar issues. The project also produced a number of recommendations and policy papers. (http://www.factsproject.eu/pilotprojects/Pages/default.aspx)

Examples of good practices

The project identified good practices that focus on: techniques and methods for stakeholder involvement; communication campaigns and creation of new networks; integrating climate change adaptation issues into spatial and territorial planning; biodiversity conservation as part of the measures for flood protection and sustainable land use; as well as use of indicators for monitoring performance of adaptation efforts.

The project identified a governance model for adapting the Douro wine region in Portugal to climate change. A local association of 180 wine producers, ADVID, was created with the aim of contributing to the modernisation of viticulture in vine yield of the Demarcated Douro Region, as well as improving the quality of its wines. ADVID carried out technical activities, nowadays specially focused on climate change effects (especially temperature and water availability to the soil) and its variance over the years. A climate information network is currently being refurbished with stations equipped for radio transmission in six locations in the region, in addition to the collection and processing of climate data. This facilitates data analysis and the preparation of follow-up reports on climate, plant and phyto-sanitary aspects. The results of this research are actively promoted via publications and seminars. Another objective was to discuss adaptation strategies with farmers and to assist them in implementing a territorial adaptation strategy.

The Concept of Natural Climate Buffers (Netherlands) applied in territorial and land-use planning focuses on climate change adaptation through the provision of adequate room for ecological processes. The concept is applied in the De Molenkade (Nieuwe Hollandse Waterlinie, the Netherlands) project, which aims to achieve climate adaptation on an area of 75 hectares in which water storage and water buffering are made possible by creating new ponds and taking measures to make the land suitable for inundation. This flood-prevention scheme also includes nature-restoration measures. The potential for combining biodiversity measures with climate change adaptation often remains overlooked; thus this concept can be useful in spatial planning in other flood-prone areas in Europe and help to lower the probability of flooding while gaining control over the flooding process. The concept’s innovative character lies in the fact that natural processes are used as spatial solutions to develop climate-resilient urban and rural landscapes.

Another practice focused on integrating flood-risk mitigation with habitat conservation and recreation in Italy’s Secchia River basin. This practice explored multi-functional use of the river basin’s capacity for water retention and flood control, natural habitat conservation and recreation. Five municipalities established a consortium with the aim of creating and managing the Secchia River Park. The park is managed in an integrated way via upgrading the initial function of water retention for flood-risk mitigation, but with two other main purposes: natural habitat preservation and recreation. The park
Integrated Territorial Intervention, applied in Portugal, aims to promote sustainably managed agroforestry. It combines different policy instruments that are framed by the regulations of the Common Agriculture Policy. ITI design starts with the selection of main goals (related to biodiversity and landscape) and the preparation of a proposal. The ITI has a top-down approach, although implementation is local and requires cooperation between national and local authorities and farmers. The ITI scheme can be efficient in other rural areas as it promotes the establishment of a framework for local actions, focusing simultaneously on nature conservation and 'traditional' economic activities. The ITI is also an innovative example of combining agro-environmental and forest measures.

Tips for successfully designing and applying Payment for Ecosystem Services (PES) aim to address some of the barriers encountered when implementing such schemes. In the case of the Monte do Carrio pilot project (Spain), a proposal was made to fund wildfire prevention activities along with other new land management activities. The funds come from payments by electricity companies to forest associations for the installation of wind power mills. The PES model is applicable in areas where a link can be established between climate hazards and people at risk. The F:ACTS! approach is valuable as it offers a series of concrete actions and steps for establishment of PES. An example of the PES design is also provided.

The coupling of industrial development with the development of green buffers around villages was shown in the ECO2 project, in Ghent (Flanders, Belgium). Public and private actors financed measures for landscape development. The most important feature of this good practice is that it identifies private interest in investing in climate change adaptation measures.

Examples of transferred good practices

The creation of a sense of urgency to undertake climate change actions was achieved through communication and marketing activities. The Geofort, an old fortress linked to the Nieuwe Hollandse Waterlinie is used as ‘climate info point’ for visitors, combining different interactive materials for presenting diverse topics related to climate in an understandable way. Strofylia (Greece) integrated this practice within the framework of its pilot project.

The project involved the use of a rich toolbox of methods for stakeholder involvement at the planning phase of integrated territorial strategies. VLM and DLG (Flanders and the Netherlands) have already used several methods, such as mind mapping, stakeholder analysis, facilitation, etc., that other partner regions find to be relevant. These public participation methods were used in O Carrio (Galicia, Spain) and Baixo Vouga (Portugal), where participatory workshops were held for the first time in planning phases for integrated territorial strategies at local level. This led to improved communication processes among different departments of public bodies responsible for rural space, with clear benefits for territorial activities.

The Ministry of Rural Affairs of Galicia (Spain) has used the land-bank concept to reduce levels of land abandonment. Within this concept, a public entity acts as an intermediate management body for stimulating, via renting, the transfer of land from absentee owners to active farmers. This can be an engine for territorial strategies dealing with adaptation to climate change. The NLS partner from Lithuania took steps to reorganise the structure and activities of the Lithuanian Land Bank, and good practice is transferred on a pilot-programme basis. This has led to steering private land management practices towards the maintenance of good agro-environmental conditions.

One of the methodologies of the structured programme for staff training for public participation strategies and methods (DLG, Netherlands), the Sketch Match method, was transferred to the Municipality of Varna (Bulgaria), which in turn introduced the method into spatial planning processes at local level. Defining the main aspects of spatial planning objectives in an explicit and visual way is one of this method’s important elements. It also facilitates communication to local stakeholders regarding potential climate-related hazards.

Public-private partnership and governance at the territorial level (Primiero Valley, Italy) enable a more sustainable development of communities. In addition, such territorial partnership takes one step beyond a typical public-private partnership or vertical-horizontal cooperation. The two most remarkable projects are the Oil Free Zone project (which seeks oil independence for the area), and My Valley (an innovative project aiming to promote the adaptation of ICT services to needs of local communities).
inspired the Flemish Land Agency to adopt the ‘energy landscapes’ concept, which is about analysing energy flows and land use from a landscape perspective.

Innovative public campaigns for awareness raising were applied in Limburg/Flanders. Municipalities challenged inhabitants to save energy, and volunteers were trained to become ‘energy masters’, who afterwards advised home owners on how to save energy. Innovative communication approaches were also used (the ‘Limburg Isoleert’ campaign, and the travelling Blue Pearl in the ‘De Wijers’ project). The practice can inspire other regions to mobilise and involve communities in climate actions by highlighting the economic benefits they will provide to the population, in addition to the environmental impacts. Baixo Vouga has now adopted Limburg’s approach and the aforementioned concrete examples.
Adaptation of urban development to climate change:

GRaBS
Green and Blue Space Adaptation for Urban Areas and Eco Towns

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/09/2008 – 31/08/2011
Website: www.grabs-eu.org

BUDGET

Total budget: EUR 3 182 929.00
ERDF contribution: EUR 2 428 198.75

PARTNERSHIP

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Lead partner:

Town and Country Planning Association
17 Carlton House Terrace
SW1Y 5AS, London
UNITED KINGDOM
Project objectives

The aim of the GRaBS project is to ensure that existing and new mixed-use urban development is adapted to the impact of climate change through the improvement of local and regional planning policy, particularly through planning to put in place green and blue infrastructure.

Specifically, the project aims to:

• raise awareness and increase the expertise of key bodies responsible for spatial planning and development as to how green and blue infrastructure can help new and existing mixed-use urban development adapt to projected climate scenarios;
• assess delivery mechanisms that exist for new urban mixed-use development and urban regeneration in each partner country, and to develop good-practice Adaptation Action Plans to coordinate the delivery of urban greening and adaptation strategies, as well as cooperation among planners, policymakers, stakeholders, and local communities;
• develop an innovative, cost-effective and user-friendly risk and vulnerability assessment tool to help strategic planning for climate change adaptation;
• collaboratively develop regional and local good practice Adaptation Action Plans, including a ‘high-level policy statement’ in order to ensure the delivery of climate change adaptation through urban greening and water management and cooperation among decision makers, planners, stakeholders, the private sector and local communities; and
• improve stakeholder understanding and involvement in planning, delivery and management of green infrastructure in new and existing urban mixed-use development, based on community involvement techniques.

Main outputs

The main outputs of the project are 11 Adaptation Action Plans (AAPs), which were produced using the exchange of experience and best practices in adaptation to climate change. The plans aim to build the adaptive capacity of those delivering Adaptation Actions and of other stakeholders. According to the GRaBS lead partner, the strength of the AAP process has been its transferability to a variety of different organisations and geographical scales. The AAP guidance document is generic in nature and provides a robust framework that enables any local or regional authority to work on its policy framework and easily adapt the guidance to its needs. (http://www.grabs-eu.org/downloads/GRaBS3-4%20Adaptation%20Action%20Plan%20Guidance_1.pdf)

A database of 15 case studies was developed in order to showcase climate change adaptation approaches, with a particular emphasis on those relating to green and blue infrastructure. The database describes in detail the processes that have supported the implementation of adaptation responses in a range of urban areas across the world. The case studies were selected based on factors influencing the success of the development and implementation of adaptation responses as identified in previous studies, and on the analysis of strengths, weaknesses, threats and opportunities faced by the GRaBS partners. (http://www.grabs-eu.org/casestudies.php)

High-Level Policy Statements committed partner organisations to action on climate change adaptation. Each statement reflects individual partner needs, experience and political situation, and invokes the common theme of improving regional policy via the inclusion of climate change adaptation actions through enhanced green and blue infrastructure. (http://www.grabs-eu.org/news.php)

Expert Papers were produced to share experience and best practice, and to increase awareness of and knowledge about climate change adaptation. The papers were written by experts involved in the GRaBS project, drawing on lessons learned during the project and adaptation approaches that have proved useful in the development of partner Adaptation Action Plans. (http://www.grabs-eu.org/news.php)

Examples of good practices

An Assessment Tool was developed within the project that played an important role in the preparation of Adaptation Action Plans (AAPs), with a particular focus on flooding and heat stress. The tool assesses the vulnerability of urban areas to climate change impacts, while offering an additional assessment of relative patterns of spatial risk where suitable data is available. The tool also allows stakeholder networks and members of communities to visualise vulnerability, exposure and climate hazards within a particular location, thus raising awareness, aiding decision making and facilitating stakeholder participation in formulating adaptation responses. GRaBS partners have fed data into the tool, which
works at two spatial scales: at European and GRaBS partner levels. Ultimately, the tool is designed as a platform to display spatial data and provide information to aid climate change adaptation planning and decision making. The tool is now accessible via the University of Manchester website for European local and regional municipalities and other stakeholders involved in adapting towns and cities to climate change.

The Province of Styria Department of Spatial Planning produced the ‘Green and Blue Spatial Planning’ guidebook for hands-on practical use by architects, spatial planners, geographers and landscape planners. This is aimed at municipality planners and includes a revision to the ‘climate checklist’, which GRaBS developed into a ‘risk’ register. The register advises on the measures to take once risks are identified (such as heat islands, flooding, etc.).

The Amsterdam City District Nieuw-West’s approach to community engagement, described in the GRaBS Expert Paper, sets out principles for effective participation in adaptation planning, and suggests how to manage consultation locally and at more strategic levels. Guidance is also given on how to supplement top-down approaches with bottom-up approaches by linking national policies and regional/local activities. Nieuw-West’s participation principles were transferred to a number of partners, who consulted with community groups and stakeholders during the development of their AAP.

Examples of transferred good practices

The Adaptation Action Plans are new instruments that influence policies and climate change adaptation actions at local and regional levels, and also help to integrate adaptation planning into mainstream planning. They also establish targets to embed green and blue infrastructure within existing and new developments. The AAP Guidance document, produced by the lead partner in collaboration with the AAP Task Team, sets out an iterative approach towards adaptation planning via an ‘AAP development cycle’, beginning with implementing a baseline review via a SWOT analysis that identifies a region’s baseline situation. The cycle describes how to improve adaptive capacity, engage high-level stakeholders, and determine adaptation measures. Once the final AAP is developed and its actions are implemented, the plan is reviewed and the cycle recommences. The strength of the AAP process has been its transferability to a variety of different organisations and geographical scales. The AAP process has been successfully tested by GRaBS partners. The methodology for the development of plans can be used by other regions aiming to develop urban greening and adaptation strategies through cooperation and a participatory approach. The EU Strategy on Adaptation to Climate Change emphasises the need to develop adaptation strategies and action plans, and the AAP process can be useful for many regions in Europe that lack experience of and knowledge about addressing adaptation issues at policy-planning level.

The Green Space Factor and Green Points System are innovative planning instruments used to secure a minimum amount of green space and the incorporation of adequate and functional green infrastructure in new building lots. The system was pioneered in Germany and Sweden and was adapted and transferred for use by other GRaBS partners. In submitting plans, developers must describe in detail how they would achieve the requested green space factor. The applied instruments can be useful in regions wishing to design and incorporate similar tools into wider planning systems. The system is also an innovative example of how partnerships between the private, public and voluntary sectors can result in the achievement of new, climate-resilient communities.

Collaborative work across sectors in the UK is demonstrated by the Town and Country Planning Association-led Planning and Climate Change Coalition (PCCC). It brings together over 40 organisations from across sectors (including businesses, housing associations and local authorities, etc.) to develop a consensus on how governments should respond to the challenges of climate change mitigation and adaptation. Using a collaborative approach, the coalition represents a transparent and honest forum for innovative and reflective policy making. The transfer of this good practice has been evident in the cross-sector collaboration by partners in producing their Adaptation Action Plans and high-level policy statements. This practice is considered ‘good’ because of the cohesive working of over 40 different groups — all with the common aim of improving our ability to respond to the impact of climate change — leading to a robust and long-lasting exchange of ideas and approaches to climate change adaptation.
Adaptation to new climate conditions:

REGIOCLIMA
Regional cooperation towards adaptation to climate change

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/10/2008 – 31/12/2011
Website: www.REGIOCLIMA.eu

BUDGET

Total budget: EUR 1 999 970.00
ERDF contribution: EUR 1 621 793.50

PARTNERSHIP

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<tr>
<td>1</td>
<td>Cyprus Larnaca District Development Agency, Larnaca</td>
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<td>2</td>
<td>Italy Veneto Regional Authority, Venice</td>
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<td>3</td>
<td>Spain Fundacion Comunidad Valenciana Region Europea, Valencia</td>
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<td>4</td>
<td>Estonia Estonian Marine Institute, University of Tartu, Tallinn</td>
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<td>Slovenia Bratislava Self-Governing Region, Bratislava</td>
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<td>6</td>
<td>France Pays d'Aubagne et de l'Etoile urban communities, Aubagne</td>
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<td>Greece Region of Crete, Heraklion</td>
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<td>8</td>
<td>Bulgaria Regional Agency for Entrepreneurship and Innovations - Varna, Varna</td>
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Lead partner:
Larnaca District Development Agency
1 Laras str., Voroklini
7040, Larnaca
CYPRUS
Project objectives

The main objective of the REGIOCLIMA project is to enhance cooperation among EU regions in order to avoid risks and identify benefits from a changing climate. Specifically, the project aims at:

- identifying optimal resource allocation and efficient resource use when adapting to a changing climate;
- building regional alliances and coordination of regional action towards adaptation to climate change;
- reducing uncertainty and expansion of the knowledge base in adapting to climate change;
- integrating adaptation issues into existing and forthcoming legislation and policies; and
- preparing climate change adaptation strategies.

Main outputs

- Identification and selection of 17 good practices focused on applying various technologies and tools, as well as innovative approaches in policy planning.
- Good Practice guide for regional authorities.
- Layman’s booklet on best adaptation practices.
- A mini-documentary on adaptation strategies and best practices.
- 32 brief bi-annual regional reports on coordination with other regional policies and integration of adaptation strategies.
- Three climate change adaptation strategies (Northern, Central and Southern Europe) and a consolidated adaptation strategy report.
- A web portal for information exchange and e-cooperation on climate change adaptation.

Examples of good practices

A main topic for many partners is sustainable water management and flood prevention (e.g. the Valencia region in Italy and Severoiztochna in Bulgaria). The partners located in Southern Europe were also interested in tackling drought-related water scarcity (Cyprus). The climate change in the Mediterranean area might become a problem for the agricultural sector, and for viticulture in particular. The partnership also identified adaption practices for vineyard management in the Veneto region (Italy).

AQUATOOL is a decision support system for planning and management in river basins (or any other water resource system). It provides different interfaces that facilitate the design of models representing water flow in a river basin. The tool facilitates the analysis of many problems related to hydrological planning. It can provide a first low-cost approach to improving climate change adaptation and can easily be applied across many geographic regions and in different contexts. The tool has been tested overseas and in several areas in Europe, which shows its robustness and flexibility to adapt to a great variety of conditions. As the spatial configurations of water resource systems are variable, AQUATOOL can be transferred to other regions if geo-referenced data bases are available, or at least editable.

Coastal Flooding Decision Support Systems are tools for the management of coastal flooding based on the application of simulation software. The system is suggested for use as a tool in the context of coastal flooding management plans in a number of towns on the Bulgarian Black Sea coast. Such tools can be useful in coastal areas that are becoming increasingly vulnerable to climate change impacts, and where authorities often lack technical solutions for flood risk prevention and management. The tool provides comprehensive information that is indispensable for sound decision making, such as data on water-level forecasting, flood inundation mapping, flood-risk assessment of coastal areas, assessing the environmental impact of flooding, etc.

The Construction and Operation of Seawater Desalination Plants (Cyprus) practice covers technology used for the construction of seawater desalination plants, which is helping to address the water scarcity problem in Cyprus. The technology is applicable in cities of various sizes. Mobile plants can be placed to best suit the needs of rural coastal areas. Drawbacks of the solution are mainly related to the relative energy intensity of the technology used. However, recent developments in desalination plants allow the use of renewable energy sources and/or co-generated electricity and heat, with very positive results.
In the Veneto region of Italy, researchers explored links between vineyard management and cultivation practices and climate change (REGIOCLIMA). As a result, the introduction of new varieties of grapes and the extension of vine cultivation into new zones have been proposed, as well as a new system for vineyard irrigation and land management. This practice can be valuable in other agricultural areas in the Mediterranean focusing on vineyard management, as it offers practical tips on how to adapt cultivation practices to the changing climate. This approach is quite innovative, as it demonstrates how to preserve the local varieties by applying new practices in irrigation, disease prevention and land management. In addition, its adoption requires only minimum investment on the part of vintners.

**Transferred good practices**

The ‘Parnu City autonomic early warning system’ practice, developed by the City of Parnu, Estonia, was transferred to Recoaro Terme (RT) in the Veneto region (Italy). A similar early warning system to that used in Parnu for floods, was designed and implemented in RT to protect both the people and infrastructure from landslides. The transferred practice facilitates the monitoring of 'Rotolon landslide', which was reactivated following the extreme weather events that occurred in 2010.

**Water recycling and re-use schemes** in Cyprus were transferred to the Region of Crete, Greece: as a result, municipalities in Agios Nikolaos, Sitia and Heraklion have proceeded to invest in water recycling and re-use schemes.

**Vineyard management and cultivation** practices take climate change into consideration and have been transferred from the Veneto region (Italy) to Cyprus and Greece.
CivPro
Regional Strategies for Disaster Prevention

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/01/2012 – 31/03/2013
Website: http://www.CivPro-gr.eu/

BUDGET

Total budget: EUR 1 643 978.00
ERDF contribution: EUR 1 356 973.30

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Lead partner:
**Project objectives**

The project aimed to exchange experience and share know-how on regional policies and strategies aiming to prevent and reduce any potential threat and damage to people, property, the environment and society from natural and manmade disasters.

Specifically, the project aimed to:

- improve governance to introduce cross-cutting thinking into disaster prevention and enhance coordination between authorities responsible for civil protection and authorities dealing with protection of the environmental, energy and transport issues, as well as insurance companies;
- improve instruments (risk mapping, early warning, risk screening, specific experiences from disaster events, and effective prevention measures) and establish ways to strengthen the link between crisis management and disaster prevention;
- build capacity on disaster prevention at regional level, and raise awareness of the strategic approach needed towards prevention by inclusion of all actors in Regional Support Networks; and
- provide input for the setting up of an EU Knowledge and Training Centre (KIC) on Disaster Prevention.

**Main outputs**

Policy recommendation: The Model for Local/Regional Disaster Prevention Policy Plan summarises and capitalises on the knowledge gained through the various activities of CivPro, and showcases an integrated approach towards developing a multi-hazard local/regional disaster prevention policy plan. It includes a detailed description of potential hazards, capability assessment methods, recommendations for developing a local/regional disaster risk prevention strategy, implementation action plan and monitoring tools.


Disaster prevention regional analysis reports: each project partner compiled a regional analysis report on predominant disaster risks and relevant prevention activities. Each report presented the main natural hazards in the region, gave an overview of the national, regional and local civil protection system and supporting legislation; each also contained a regional-level disaster risk assessment and a set of good practices for disaster prevention methodology and activities.

(\url{http://www.civpro-gr.eu/page/Disaster-Prevention-Analysis-Reports})

CivPro Common Risk Theory: Since some hazards are common to several project partners, the project identified and assessed these risks to facilitate exchange relevant information and best practices on disaster prevention. Similarities among the structures of civil protection systems have also been identified. While local governments are generally in a good position to plan and implement appropriate disaster prevention strategies, they often lack the necessary resources (e.g. funding, expertise, or equipment) to design and implement a disaster prevention strategy. Regional administrations therefore need to provide necessary additional resources to municipalities and to integrate municipal level efforts into a regional disaster prevention strategy.

(\url{http://www.civpro-gr.eu/page/Common-Risk-Theory})

**Examples of innovative good practices**

**Flood protection measures in Evros, Macedonia:** Two types of measure were implemented in order to ensure effective water management and mitigate flood risk for the Evros River. In order to ensure cost-efficiency, the measures were introduced as part of an integrated flood management system where land use, population needs, availability of resources, flood occurrences are all considered. First, a prevention-monitoring system was installed, namely automatic stations — or, censors —for remote monitoring of the river water level. Second, infrastructure was constructed (e.g. dams, reservoirs, mounds, ditches) according to land-use preferences.

**Emergency Planner in Oost-Vlaanderen:** The Emergency Planner serves as the right hand of the governor of the province of West-Vlaanderen in Belgium, who prepares emergency plans and advises the mayor or governor during an emergency. The tool also has the support of the planning committee. The establishment of the post acknowledges the need that a dedicated person needs to oversee
emergency operations to ensure that regions take an integrated and coordinated approach towards disaster prevention and planning.

**Common New Civil Protection Methodology for Disabled and Elderly People in Case of Disaster (Eszak-Alfold, Hungary):** This practice responds to the need to protect persons with disabilities, which requires a new human rights-based approach in emergency management. According to the lead partner, it is expected that in the future, relevant local, national and international institutions will increasingly modify their approaches according to this principle. The practice provides training for disabled and elderly participants so that they can learn how to communicate with care providers in case of emergency. The role of ICT is underlined for this practice as it requires functional stability and easy access to telephones or other emergency signal equipment.

**ARCUS application — ‘Database of forces and resources’, Lower Silesia:** The ARCUS database is a multi-layer and universal system tool to collect, store and use up-to-date information about resources and the potential of personnel and equipment for disaster risk prevention. It encompasses all necessary information from municipalities, counties, departments, inspection entities and institutions involved. The database is updated regularly, and database maintenance costs are relatively low. During the 2010 flood, the Lower Silesian Voivodeship Crisis Management Centre and the Department of Safety and Crisis Management used the database to inform the public and monitor resources available in the most threatened areas. It consequently streamlined the decision-making process for the deployment of various types of emergency equipment.

**Transferred practice**

The lead partner of the project recognised the ‘Study visits’ methodology and the ‘Common risk theory’ as good practices, with high transfer potential. In addition, the following practice can be considered as an example of good practice transfer:

**Bilateral Disaster Management and Civil Protection Cooperation between the City of Kosice and the City of Miskolc:** The cooperation agreement between Kosice and Miskolc is a direct result of the CivPro project. The cooperation agreement set the common ground for integrated river basin management and prevention coordination between the two regions in case of real disaster events. The agreement aims to compare the two protection systems, and optimise the procedures for common best practice development in the following fields: common disaster prevention and preparedness activity; disaster management operation support; and, recovery, reconstruction and humanitarian aid support after the event. The Bukk Mountains in northern Hungary, Gomer Karst and Salanzy mountains in Slovakia, and the Sajo Hernad River Valley Region (Borsod Abauj Zemplen County/Kosice region) also participate in this project. The parties agreed to cooperate on disaster prevention, management and recovery. This regional project seeks to accommodate the interests of all sections of the population in the Carpathian region, and it responds to the principles of EU flood protection regulation.
**FUTUREforest**

Woodlands for Climate Change

### PROJECT DETAILS

**Priority:** Environment and risk prevention  
**Theme:** Natural and technological risks (including climate change)

### TYPE OF INTERVENTION

**Type of intervention:** Regional Initiative Project  
**Duration:** 01/10/2008 – 31/12/2011  
**Website:** [http://www.futureforest.eu](http://www.futureforest.eu)

### BUDGET

**Total budget:** EUR 1,899,320.00  
**ERDF contribution:** EUR 1,492,022.82

### PARTNERSHIP

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<td>French Forestry Office</td>
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<td>4 Spain</td>
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<td>5 Bulgaria</td>
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<td>6 Latvia</td>
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<td>7 Slovakia</td>
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<td>8 Slovakia</td>
<td>The Association for Education of Sabinov</td>
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</table>

**Lead partner:**  
Ministry for Infrastructure and Agriculture  
Henning von Tresckowstr. 2-8  
14467 Potsdam  
Germany
**Project objectives**

The project aimed to improve regional and local forest management policies and practices in order to help European regions to adapt to the effects of climate change (such as flooding, drought, forest fires and soil erosion) via sharing ideas among the project partners. The project aimed to better understand how the resilience of forests can be improved under changing climatic conditions, how forests can help societies to adapt to the impacts of climate change.

The project aimed to identify the threats, weaknesses and strengths of Europe’s forests in the context of climate change, and to develop best management techniques to guide policy makers and stakeholders. During the course of the project, study tours were organised to see examples of good practices and to kick-start the exchange of experience among the partners. Workshops were also held to develop transferable good practice guides, policy recommendations, strategic guidelines, forest programmes and policy tools.

**Main outputs**

Good practices guides: The series of good practice guides shares information on general guidance and practical solutions on how forests can adapt to and help mitigate climate change. In particular, the guidelines focus on biodiversity aspects, forest regeneration, biomass use, timber production, water management and erosion control, water quality, flood risks, drought risks, forest fires, monitoring and management of forest practices. ([http://www.futureforest.eu/goodpractice.php](http://www.futureforest.eu/goodpractice.php))

Summary of Recommendations: The partners of FUTUREforest have jointly drawn up a prioritised key list of essential issues that must be addressed immediately. Recommendations focus on: better communication; tackling natural risks; integration of water management issues into forest management practices; promoting forest products; adapting forestry; protecting biodiversity; improving carbon sequestration and saving forest soils. ([http://www.futureforest.eu/uploads/futureforest_final_summary_report.pdf](http://www.futureforest.eu/uploads/futureforest_final_summary_report.pdf))

**Examples of good practices**

The **Great Triley Wood in Abergavenny** (Wales) is a hectare of broadleaved woodland, lacking in large woody debris dams in the river channel due to past clearance. After ten large woody debris dams were constructed along the main river, water levels increased upstream of the dams, flow velocities were found to be reduced and out-of-bank flows occurred upstream during high flows. As result, peak flow was delayed by 15 minutes over 0.6km and the receding limb of the outflow hydrograph was delayed by approximately 30 minutes, which may be sufficient to protect downstream built up areas from surges of floodwater that breach flood defences. It was outlined by the project leads that the environmental agency of Wales saw the benefits of the investments, but the policymakers and the public sometimes need additional education about the usefulness of green investment solutions. A similar preventive practice was also observed in Bulgaria, where stone dams where build higher up in the mountains to reduce downstream flooding.

**Plant trees to improve water quality and water flows** (Wales): Land managers could improve water quality and better manage water flows and extreme events with targeted actions through new woodland creation, or planting simple shelterbelts, streamside or floodplain planting or the planting of individual trees. This approach is also valid at the landscape scale: therefore the Pontbren Group diversified its farming practices and secured higher economic benefits. With new tree planting the group ensured streamside protection to protect water quality both on the farms and downstream. This activity has resulted in additional economic and environmental benefits.

**Improved coordination between organisations to reduce and manage forest fires** (Bulgaria): In order to improve the coordination between the responsible institutions for forest management, an inter-institutional Council was established. In order to achieve better coordination between state forestry and other stakeholders, local groups were created from fire fighters, forest employees and volunteers that the State Forestry and Municipalities organised. These groups helped to reduce the risk of forest fires, regardless of forest ownership stakes, and they also improved communication with public agencies to help them to take more informed decisions. A similar process was identified in Auvergne (France), but in this region, the information exchange between authorities and other stakeholders is more institutionalised, and takes place during an annual meeting.
The Marteloscope of Algeres (France) was created for a privately owned forest by the Centre Regional de la Propriete Forestiere (CRPF) in Auvergne to teach forest managers about the impacts of management actions. The Marteloscope software is used for a one-hectare forest stand where all individual trees are numbered and described by various parameters. By applying the software for the area, specific management decisions and their potential effects to the forest management can be tried out. The results of these experiments can support effective dialogue among policy and decision makers, forest managers and owners in order to improve their knowledge of multifunctional forest management. Since 2009, 70 forest stakeholders (forest managers and private forest owners) have trained and improved their capacity to manage forests; 150 other persons (forest professionals or non-professionals) have visited the plot and learned about the challenges facing forest management, especially in a context of climate change.

Examples of transferred good practices

‘Plastic forestry’ for adaptation of forests to climate change, choice of species and risk management: This concept, adopted in Germany, refers to the concept of planting different species that can withstand and adapt to climate change trajectories. While productivity used to be the main management principle for forests, in future this will need to be replaced with the principle of plasticity due to changes in precipitation patterns. For example, forests in North Brandenburg currently consist of mostly oak and beech trees, but there will be a need for a greater variety of species — up to ten at least — in the future. Wales took over the principles of the concept in specific consulting documents for regional forest owners.

A school for small forest owners ‘Waldbauernschule’: In Europe there are more than 1 million owners classified as small-forest owners (owning up to ten hectares). While these areas add up to an area of considerable size, the owners often lack education and necessary knowledge about forest management. The association of small forest owners in Brandenburg, founded by Enno Rosenthal, established a school for further training of these owners on topics related to forestry and its linkages to nature protection. The Latvian partner of the project has transferred the experience with the aim to establish a training course with a similar structure.

The Marteloscope of Algeres (France): The lead partners of the project pointed out that the tool was important for raising awareness and generating interest about nature and biodiversity protection among forest managers of other regions. As a result, national discussion on the topic began in many of the project partner regions (in Latvia and Germany), and it became more evident that forest management and sustainability are no longer ‘remote’ topics. A partnership was also struck with several regional and natural parks to set up Marteloscopes in other regions. Two FUTUREforest project partners (Brandenburg and Catalonia) hope to implement a Marteloscope in their home region. There is also potential for using this tool in urban areas.
MiSRaR

Mitigating Spatial Relevant Risks in European Regions and Towns

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Natural and technological risks (including climate change)

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/01/2010 – 31/12/2012
Website: http://www.misrar.nl/project

BUDGET

Total budget: EUR 1 229 760.00
ERDF contribution: EUR 979 329.99

PARTNERSHIP

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<td>2</td>
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<td>Greece Region of Epirus</td>
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<td>8</td>
<td>Greece Thesprotia Prefecture</td>
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</table>

Lead partner:
Safety Region South Holland
P.O. Box 350
3300 AJ Dordrecht
The Netherlands
Project objectives

The overall objective of the project was the creation of a European knowledge and experience network that fosters the integration of risk assessment and risk management in spatial planning efforts through the exchange of experiences and best practices, in order to assist participating partners in the development of successful approaches to mitigate spatial relevant risks. Specifically, the project aimed to:

- exchange experience and best practices among local and regional government on the inclusion of risk assessment and risk management in spatial mitigation efforts;
- develop an integrated approach for risk assessment and risk management to assist regional and local government in the EU to develop their mitigation plans for spatial relevant risks; and
- disseminate aggregated experience and best practices to regional and local authorities across Europe.

Main outputs

Definitions of relevant concepts: Partners in the project defined and exchanged experiences in all fields related to the mitigation of risks, starting with a risk assessment and ending with the implementation of relevant spatial measures. ([http://www.misrar.nl/best_practices/definition_of_mitigation_concepts](http://www.misrar.nl/best_practices/definition_of_mitigation_concepts))

A Handbook on Mitigating Spatial Relevant Risks in European Regions and Towns ([http://www.misrar.nl/publications/handbook](http://www.misrar.nl/publications/handbook)) was developed. The handbook summarises the results of sixteen MiSRaR seminars and the exchange of experiences. It lays down the principles of risk mitigation, discusses how mitigation processes should be launched, how risk and capability assessment should be undertaken, and provides ideas for drafting mitigation plans, for financing of and lobbying for implementation actions, and for monitoring, enforcement and evaluation. Lastly the handbook provides recommendations to local governments and suggests the so-called RISCE approach (pronounced ‘risky’) as minimum requirements for future risk mitigation.

Examples of good practices

Bulgaria’s geographic location makes the country very prone to hail storms. In order to mitigate this problem, Bulgaria established a Hail Suppression Agency and hail suppression system, which was introduced in 1968. The method operates through the RAPIRA system, which delivers an artificial ice-forming nucleus (AgI) reagent into clouds using rockets. The system also includes three MRL5-IRIS radar stations for automatic volumetric scanning of the atmosphere and data archiving. The practice carries out hail suppression activity to effectively reduce the risks of hail damage to agricultural crops in protected areas.

A case study in the Province of Forli-Cesena (Italy) focused on lobbying, advocacy and public-private partnerships for implementing and financing mitigation plans. In order to mitigate hydraulic risks in the province, extensive mediation activities were undertaken, involving all stakeholders, to define detention areas along main rivers that are acceptable for all stakeholders while ensuring the lowest level of risks. As a result, areas that are to be turned into detention basins were identified. In order to overcome financial constraints related to the plan's realisation, it was suggested that private organisations exploiting the area should also be obliged to create the detention bases. This practice was an innovative way to ensure that public and private interests were met in achieving territorial safety. In addition, it also led to changes in the regional legislation via the introduction of a new article in Regional Law No. 17, issued on July 18, 1991: ‘Discipline of extracting activities’.

The ‘Municipal Plan of Defence against Forest Fires’ is an instrument used in Mirandela (Portugal) to provide help in taking political choices and setting goals: This plan is based on methodological recommendations of the National Forest Authority (AFN), and its aim is to operationalise legislation to defend against forest fires and to create a strategy adapted to local circumstances over five-year period. It encompasses a background analysis and an action plan, and emphasises the importance of stakeholder involvement and public awareness raising. The plan successfully supports the municipality in setting priorities in policy planning for mitigating damage from forest fires.

The Region of Epirus (Greece) has used several instruments to combat forest fires. Due to large expansion of forests, the region faces considerable risk of forest fires during the summer months. To
reduce the occurrence of such events, the region introduced a variety of measures, including spatial instruments and mitigation policies. Emphasis was placed on stakeholder involvement and rapid response. To ensure the latter, an early warning system has been installed at the Thesprotia Regional Unit.

**An Adaptation Tipping Point - Mainstreaming Opportunity** method was applied for an urban storm water system in Dordrecht (Netherlands). The method defines how and when to incorporate potential adaptation measures into normal investment projects, such as for urban renewal and regeneration. By applying the methodology for the Wielwijk neighbourhood, a number of solutions were then developed for the regeneration of the urban storm water system. The solutions were fine-tuned via a series of collaborative design workshops attended by urban designers, architects, and sewerage and water managers. The use of this method has enhanced the understanding of the robustness and adaptive potential of the urban storm water system, and has contributed to the climate-proofing of cities. This good practice showcases how the implementation of adaptation responses might be mainstreamed with normal investment projects and responses to deal with flood risk, and which can also address air quality, heat stress, drought and even social problems. The methodology also underlines the importance of stakeholder involvement, which can ensure that local circumstances and interests are taken into consideration.

**Examples of transferred good practices**

**Risk assessment tools in the municipalities of Mirandela and Aveiro (Portugal):** These municipalities transferred the risk assessment tools of the South Holland Safety region. These practices were shared during the first three seminars in 2010 and afterwards; during the second half of the project lifespan, the instruments used for risk analysis and evaluation were put into practice in both municipalities.

**Flood Risk and Safety Lobby and Advocacy Policy:** Based on project partners’ experience in lobbying and advocacy, the South Holland Safety region revisited its lobbying and advocacy practices in spatial mitigation challenges related to flood risk and safety. As a consequence, it adjusted its policies and operational work within both a regional and national context. It was the first safety region in the Netherlands to actively influence the national ‘Delta Programme’.

**Cleaning and regulating pathways in Natura 2000 areas:** The municipality of North Tallinn has visited multiple Natura 2000 locations and related institutions working in the field of risk mitigation in the South Holland Safety Region. The presented legislation and instruments were used to further develop and implement North Tallinn’s own risk mitigation policies for its Natura 2000 areas.
WATER CoRe

Water scarcity and drought: coordinated actions in European regions

PROJECT DETAILS

Priority: Environment and risk prevention
Theme: Water management

TYPE OF INTERVENTION

Type of intervention: Regional Initiative Project
Duration: 01/01/2010 – 31/07/2013
Website: http://www.WATER CoRe.eu/

BUDGET

Total budget: EUR 2 547 858.98
ERDF contribution: EUR 1 997 054.43

PARTNERSHIP

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<td>General Directorate for Environment and for Soil and Coast Protection of Emilia-Romagna</td>
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<td>France</td>
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Lead partner:

Ministry of Environment, Energy, Agriculture and Consumer Protection of Hessen
Mainzer Strasse 80
65189 Wiesbaden
Germany
Project objectives

The overall objective of WATER CoRe was to:

- strengthen interregional cooperation by providing a platform to identify common strategies and instruments to confront water scarcity, drought and climate change issues, applicable for any affected European region;
- provide tools for public authorities to act on political and operational level during periods of water scarcity and drought at the regional level;
- change behaviour of water consumers towards a more economic use of water;
- initiate appropriate local investments; and
- ensure policy implementation in partner regions.

Main outputs

Survey on water scarcity and draughts in Europe: The WATER CoRe project partners carried out a survey on water scarcity and drought activities in Europe to get an overview on: EU policy strategy on water scarcity and drought, networks and projects dealing with the issue for further cooperation, and the technical and scientific state-of-the-art (http://www.watercore.eu/). The result of this work is a bibliography on water scarcity and drought which focuses on the description of content and relevance of the references, based on each partner’s expertise on the issue.

E-learning Programme (http://www.watercore.eu/e-learning/index.html): All the best practices and the lessons learned within the project have been revised and implemented under seven e-learning modules concerning the main topics on water scarcity and drought issues. Each topic is developed in a proper e-learning platform, combined in a chain of e-learning tools.

Good Practices handbook (http://www.watercore.eu/documentos/2012/WATER%20CoRe_GoodPracticesHandbook.pdf): The best exchanged practices are collected in the Handbook, the knowledge core of the project. The practices are organised in five thematic sections covering all the WATER CoRe main topics, including water demand side management (technical), water demand side management (economic/financial), drought management, adaptation to climate change, communication and participation. The whole process led to a selection of 103 good practices.

The WATER CoRe Guide (http://www.watercore.eu/documentos/2013/GOOD%20PRACTICES%20GUIDE.pdf) focuses on practical solutions for dealing with water scarcity and drought in Europe. Solutions are grouped in five main themes according to the categorisation of the good practice handbook.

Examples of good practices

The KLIMZUG Northern Hessen – Regional Network for Climate Change Adaptation consists of research institutions, partners from business, administration and the education sector. The KLIMZUG network aims to identify regional need for adaptation and develop measures for adapting to climate change. To facilitate cooperation among the various stakeholders “Climate adaptation officers” and “Climate adaptation managers” posts were created and a “Climate adaptation academy” was established. The climate adaptation officers provide an interface to the administration, the climate adaptation managers undertake this role for business, and the climate adaptation academy addresses wider civil society groups. The antecedent of this initiative was a regional Integrated Climate Protection Plan for the period 2004–2009, which concerned both climate change mitigation and adaptation and took an integrated approach towards these topics.

Adaptation Strategies for Climate Change and Extreme Weather Conditions and Measures for a Sustainable Groundwater Management (AnKliG) in Hessen, Germany: The research project “AnKliG” was set up by the Hessian Agency for Environment and Geology, a major water supplier (Hessenwasser) and an engineering company (BGS Umwelt), and was funded with a budget of EUR 1 million by the Federal Ministry of Education and Research (BMBF) under the national research programme “klimazwei”. Research activities were carried out in South Hessen (Hessian Reed) and Odenwald with the aim to identify vulnerable sectors and develop adaptation measures and strategies for a sustainable and integrated groundwater management. For this purpose, spatially distributed
groundwater modelling was carried out for different emission scenarios. Activities included the quantification of the future water demand for drinking water and irrigation, the evaluation of the supply guarantee of local facilities for public water use (e.g. springs in the Odenwald region), the assessment of conflicts of groundwater utilisation with other kind of land use and the identification of the capabilities, and the limitations of groundwater management to counterbalance the impact of climate change on groundwater resources. During the project the Groundwater Management Plan Hessian Reed was also climate proofed.

The Department of Agriculture of the Government of Aragon (Spain) introduced a guidance on climate change through the watering community office (WATER CoRe). As result, a platform for farmers was created where they receive daily recommendations for watering according to local agricultural and climate conditions. This platform serves as a tool to optimise water use, and engages local farmers in daily water-saving activities.

The project identified several climate impact modelling practices:

- various modules of the Hessen Integrated Climate Protection Plan;
- LIFE08 POWER Project for Optimisation of Water and Emissions Reduction in Aragon, Spain;
- local Climate Change Scenarios and Impacts project and the MODMET-2 tool of ARPA Emilia-Romagna Climate Impact and Vulnerability Assessment for the CEE region (CECILIA); and
- sectoral climate impact studies on water resources in Albania and Turkey, food production in Romania (CLIMPACTPOMI).

Examples of transferred good practices

Adaptation Strategies for Climate Change and Extreme Weather Conditions and Measures for a Sustainable Groundwater Management (AnKliG) in Hessen, Germany: The spatially distributed water balance methodology may be applicable to other regions for assessing the potential impacts of climate change on groundwater recharge and other water-balance components. The experience of assessing and handling uncertainties associated with regional hydrologic impact modelling can also be transferred.

Local climate change scenarios and impacts for the Emilia-Romagna region applied a downscaing methodology to generate high-resolution climate change scenarios for the periods 2021–2050 and 2071–2099. The results of the climate scenarios were successfully applied through impact studies. The methods could be applied to different areas upon the availability of long-term temperature and precipitation forecasts. The region of Hessen is interested in transferring the practice, and a feasibility study was carried out to show that the technique is applicable in Hessen. The region is now looking for potential funding opportunities.
Annexe 4: ETC projects that have linkages to the analysed projects

One of the priorities of the Baltic Sea Region Programme is the ‘Baltic Sea as a common resource’, and climate change aspects are mentioned in relation to water management and coastal areas. Under another programme priority, ‘Attractive and competitive cities and regions’, some of the projects focus on sustainable energy development in cities. As a final output, the BALTICCLIMATE project developed the Baltic Toolkit, which discussed climate change scenarios and possible impacts in the region and presented good practices and solutions for a variety of issues — from urban structures to public participation. Since the Baltic Climate project focused on a specific area in Europe, it was able to identify climate challenges that are specific to the region; therefore the projects had good potential to increase awareness among the project partners. At the same time, innovative good practices to tackle such challenges can be sought after in other regions of Europe, and the INTERREG IVC climate change projects (i.e. RSC, CLIMACTREGIONS, F:ACTS! and REGIOCLIMA) can offer a wide variety of practices that serve as an inspiration to project partners outside INTERREG IVC.

The North West Europe Programme (NWE Programme) addresses the problem of increasing frequency of natural hazards such as floods, drought and forest fires. The priority of building ‘Strong and prosperous communities’ also considers sustainable transport and energy efficiency challenges, which are important aspects of climate change mitigation. Good practices of the GRaBS, REGIOCLIMA and RSC projects can serve as useful inspiration for the partners of the NWE project SiCadapt!.

Recognising the importance of cooperation for tackling climate challenge, eight NWE projects formed a strategic initiative cluster for ‘Adaptation to the spatial impacts of climate change’. The cluster initiative aimed to capitalise on the projects’ results, to provide policy recommendations at regional, national and EU levels, and to further disseminate project findings. The experiences from this initiative may serve as an inspiration for running INTERREG IVC projects and future interregional cooperation projects, especially because several project leads outlined the lack of available time for extensive dissemination of their project results.

One priority of the Central Europe Programme is to improve ‘Environmental risk management and climate change’ in the programme area. The CEframe project focused on flood protection management in the Danube, Thaya-Morava, and Leitha catchment areas (in Austria, Czech Republic, Hungary and Slovakia) and has resulted in relevant institutions signing a memorandum of flood protection to develop river-specific cooperative strategies after the project ends. The participating institutions can utilise outcomes of the F:ACTS!, GRaBS, REGIOCLIMA and WATER CoRe projects and incorporate good practices identified by the INTERREG IVC projects into the cooperation strategies. The hands-on experience of the CEframe project with cooperative strategy development can serve as an inspiration to the EIP partnership of the WATER CoRe project, which aims to identify innovative approaches for water governance.

The South East Europe Transnational Cooperation Programme (SEE Programme) has supported ten projects on preventing environmental and technological risks, including adaptation to climate change, and 13 on energy and resource efficiency. OrientGate, a structured network for integration of climate knowledge into policy and territorial planning, aims to coordinate climate change adaptation efforts in SEE countries by bridging the gap between scientific and research communities and policy planners. A core output to be developed by the OrientGate project is a set of web tools designed to provide access to data and metadata from climate observations and simulations that will be available through a data platform connected to the European Climate Adaptation Platform (CLIMATE-ADAPT). Project outputs will include six pilot studies on specific climate adaptation issues related to the adaptation to climate change in the areas of forestry and agriculture, wetlands ecosystems, water management, urban adaptation and health. OrientGate could build on the good practices and the lessons learned of the REGIOCLIMA, the GRaBS and the F:ACTS! project partners.

Among other objectives, the Environment and Risk Prevention priority of the Alpine Space Programme aims to foster the development of resource efficiency policies and to support regions in coping with the effects of climate change. The ‘Climate Change Adaptation by Spatial Planning in the Alpine Space’ (CLISP) project aimed to prevent increasing climate change-related vulnerability, damages and costs by climate-proofing spatial planning solutions in the Alps. The project prepared vulnerability maps, identified options for mainstreaming climate change into national planning instruments and developed guidance for risk management in spatial planning. In this regard, links can be identified to the GRaBS, F:ACTS!, REGIOCLIMA, RSC and MISRaR projects.

One of the priorities of the North Sea Programme is to promote sustainable use of the environment. As the region faces considerable water stress due to climatic changes, many of the projects address this problem in urban, agricultural and coastal contexts (i.e. the Aquaries, CLIWAT, DiPol and MARE...
Projects approved under the **South West Programme**'s 'Environment priority' address both climate change adaptation and mitigation. These projects tackled a variety of issues, including energy-efficient buildings, mitigation technologies in urban areas, research on the impacts of climate change, and identification on adaptation solutions. The Mi Ciudad AC2 project aims to identify urban planning solutions, both to mitigate GHG emissions and to tackle the effects of climate change. The main way to achieve this is to build the capacity of local governments. While some INTERREG IVC projects have addressed the issue of climate change local-level planning efforts (e.g. CLUE and GRaBS) they either focused on mitigation or adaptation aspects. The Mi Ciudad AC2 project offers useful insight into an integrated urban planning approach, which considers both the integration of climate change mitigation and adaptation into urban planning.
## Examples of Baltic Sea Region Programme Projects

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## Examples of North West Europe Projects

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<td>Changing Climate, Changing Lives</td>
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<td>SIC adapt!</td>
<td>Adaptation to the Spatial Impacts of Climate Change – A Strategic Initiative Cluster of the INTERREG IVB North-West Europe Programme</td>
<td>F:ACTS!, GRaBS, REGIOCLIMA, RSC</td>
</tr>
</tbody>
</table>

## Examples of CENTRAL EUROPE Programme Projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>INCA-CE</td>
<td>Addressing adverse effects from natural disasters by establishing systems for real-time meteorological forecast</td>
<td>REGIOCLIMA, MiSRaR</td>
</tr>
<tr>
<td>UHI</td>
<td>Deals with urban heat island phenomenon</td>
<td>GRaBS</td>
</tr>
<tr>
<td>HABIT-CHANGE</td>
<td>Helps to evaluate and adapt nature conservation strategies to the changing climate</td>
<td>F:Acts!</td>
</tr>
<tr>
<td>LABEL</td>
<td>Addresses flood prevention and management along Elbe river; incorporation of flood risks into land-use planning</td>
<td>REGIOCLIMA, F:ACTS!, WATER CoRe</td>
</tr>
<tr>
<td>CE FRAME</td>
<td>Mapping flood protection measures and areas of risks</td>
<td>REGIOCLIMA, WATER CoRe</td>
</tr>
</tbody>
</table>
### INARMA
Flood management in small river basins; mapping flood prone areas
REGIOCLIMA, WATER CoRe

### Examples of SEE Transnational Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE-NATUR</td>
<td>Addresses biodiversity loss by defining common action plans and strategies for protecting the natural heritage and landscape in SEE from the impacts of climate change</td>
<td>F:ACTSI!</td>
</tr>
<tr>
<td>CC-WARE</td>
<td>Shares knowledge about the vulnerability of water resources and aims to develop an integrated strategy for water protection and the protection of drinking water supplies</td>
<td>REGIOCLIMA, WATER CoRe</td>
</tr>
<tr>
<td>CC-WaterS</td>
<td>Identifies and evaluates climate change impacts on the availability and safety of the public drinking water supply, and proposes adaptation measures</td>
<td>REGIOCLIMA, WATER CoRe</td>
</tr>
<tr>
<td>DANUBE FLOODRISK</td>
<td>Deals with most cost-effective measures for flood risk reduction and on developing a scaleable system of flood risk maps for the Danube River floodplains</td>
<td>REGIOCLIMA, WATER CoRe</td>
</tr>
<tr>
<td>DMCSEE</td>
<td>Deals with the development and application of drought risk management tools and policies with the goal of improving preparedness and reducing drought impacts</td>
<td>REGIOCLIMA</td>
</tr>
<tr>
<td>OrientGate</td>
<td>Links communities that produce climate scientific knowledge with policy planners; prepares vulnerability assessments in several sectors; delivers web tools providing access to climate data</td>
<td>MiSRaR, REGIOCLIMA, WATER CoRe</td>
</tr>
<tr>
<td>MONITOR II</td>
<td>Deals with hazard mapping and contingency planning</td>
<td>MiSRaR</td>
</tr>
<tr>
<td>SEERISK</td>
<td>Addresses disaster management and risk assessment</td>
<td>MiSRaR</td>
</tr>
</tbody>
</table>

### Examples of Alpine Space Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>AdaptAlp</td>
<td>Adaptation to Climate Change in the Alpine Space</td>
<td>REGIOCLIMA, F:ACTSI!, GRaBS,</td>
</tr>
<tr>
<td>ALP FFIRS</td>
<td>Alpine Forest Fire waRning System</td>
<td>CivPro, MiSRaR</td>
</tr>
<tr>
<td>Alp-Water-Scarce</td>
<td>Water Management Strategies against Water Scarcity in the Alps</td>
<td>Water CoRe, REGIOCLIMA, F:ACTSI!</td>
</tr>
<tr>
<td>ALPSTAR -</td>
<td>Towards carbon neutral Alps</td>
<td>CLIMACTREGIONS, RSC, CLUE</td>
</tr>
<tr>
<td>C3-Alps</td>
<td>Capitalising Climate Change Knowledge for Adaptation in the Alpine Space</td>
<td>REGIOCLIMA, F:ACTSI!, GRaBS</td>
</tr>
<tr>
<td>CLISP</td>
<td>Climate Change Adaptation by Spatial Planning in the Alpine Space</td>
<td>REGIOCLIMA, F:ACTSI!, GRaBS, RSC</td>
</tr>
<tr>
<td>MANFRED -</td>
<td>Management strategies to adapt Alpine Space forests to climate change risks</td>
<td>FUTUREforest</td>
</tr>
<tr>
<td>SEAP_ALP -</td>
<td>Supporting local authorities in the implementation of Sustainable Energy Action Plans in the Alpine Space Area</td>
<td>CLUE, CLIMACTREGIONS, POWER, RSC</td>
</tr>
<tr>
<td>START_it_up</td>
<td>State-of-the-Art in Risk Management Technology; Implementation and Trial for Usability in Engineering Practice and Policy</td>
<td>CivPro, MiSRaR, REGIOCLIMA, F:ACTSI!</td>
</tr>
</tbody>
</table>
Examples of the North Sea Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aquarius</td>
<td>The farmer as water manager under changing climatic conditions</td>
<td>REGIOCLIMA, Water CoRe</td>
</tr>
<tr>
<td>CPA</td>
<td>Climate Proof areas to create a portfolio of climate adaptation strategies for the North Sea Region.</td>
<td>REGIOCLIMA, F:ACTS!, GRaBS, RSC</td>
</tr>
<tr>
<td>CLIWAT</td>
<td>Adaptive and Sustainable Water Management and Protection of Society and Nature in an Extreme Climate</td>
<td>REGIOCLIMA, Water CoRe, CivPro, MiSRaR</td>
</tr>
<tr>
<td>DiPol</td>
<td>The Impact of Climate Change on the quality of urban and coastal waters</td>
<td>GRaBS, Water CoRe, CivPro, MiSRaR</td>
</tr>
<tr>
<td>MARE</td>
<td>Managing Adaptive Responses to changing flood risk in the North Sea Region</td>
<td>REGIOCLIMA, F:ACTS!, Water CoRe, CivPro, MiSRaR</td>
</tr>
</tbody>
</table>

Examples of the Northern Periphery Programme projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clim-ATIC</td>
<td>Climate Change - Adapting to The Impacts, by Communities in Northern Peripheral Regions</td>
<td>REGIOCLIMA, F:ACTS!, GRaBS, Water CoRe, CivPro, FUTUREforest MiSRaR</td>
</tr>
<tr>
<td>CoastAdapt</td>
<td>The Sea as Our Neighbour: Sustainable Adaptation to Climate Change in Coastal Communities and Habitats on Europe's Northern Periphery</td>
<td>REGIOCLIMA, F:ACTS!, Water CoRe, CivPro, MiSRaR</td>
</tr>
<tr>
<td>OCTES</td>
<td>Opportunities for Community groups Through Energy Storage</td>
<td>POWER</td>
</tr>
<tr>
<td>RASLRES</td>
<td>Regional Approach to Stimulating Local Renewable Energy Solutions</td>
<td>POWER, RSC</td>
</tr>
<tr>
<td>SECRE</td>
<td>Social Enterprises in Community Renewable Energy</td>
<td>POWER</td>
</tr>
<tr>
<td>WARES</td>
<td>Water Asset Renewable Energy Solutions</td>
<td>POWER, Water CoRe</td>
</tr>
</tbody>
</table>

Examples of the Mediterranean Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAT-MED</td>
<td>Change metropolitan metropolises Around Time</td>
<td>CLUE, GRaBS</td>
</tr>
<tr>
<td>CLIMADAPT</td>
<td>Adaptation of Mediterranean woodlands to climate change effects</td>
<td>FUTUREforest, REGIOCLIMA, F:ACTS!</td>
</tr>
</tbody>
</table>
### Mediterranean Ports’ Contribution to Climate Change Mitigation

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLIMEPORT</td>
<td>Mediterranean Ports’ Contribution to Climate Change Mitigation</td>
<td>CLUE, CLIMACTREGIONS, POWER, CLUE</td>
</tr>
<tr>
<td>COASTANCE</td>
<td>Regional COmmon Action STrategy Against Coastal Erosion and climate change</td>
<td>REGIOCLIMA, F:ACTS!, GRaBS</td>
</tr>
<tr>
<td>COASTGAP</td>
<td>Coastal Governance and Adaptation Policies in the Mediterranean</td>
<td>REGIOCLIMA, F:ACTS!, GRaBS, Water CoRe, CivPro, FUTUREforest MiSRaR</td>
</tr>
</tbody>
</table>

### Examples of the Atlantic Area Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCORIM (Atlantic Europe)</td>
<td>To strengthen the operational capacities of coastal decision makers and managers in the Atlantic regions</td>
<td>REGIOCLIMA, F:ACTS!, GRaBS, RSC</td>
</tr>
<tr>
<td>ATLANTIC POWER</td>
<td>A cluster to exploit the renewable energy potential of the marine and coastal environment of the Regions</td>
<td>POWER, RSC</td>
</tr>
<tr>
<td>ENERGYMARE</td>
<td>Renewable marine energy development</td>
<td>POWER</td>
</tr>
<tr>
<td>MAREN</td>
<td>Renewable marine energy development</td>
<td>POWER</td>
</tr>
<tr>
<td>REINFORCE</td>
<td>Adaptation of the Atlantic forest to Climate Change</td>
<td>FUTUREforest, REGIOCLIMA, F:ACTS!,</td>
</tr>
</tbody>
</table>

### Examples of the South West Programme Projects that have linkages to the analysed projects

<table>
<thead>
<tr>
<th>Project</th>
<th>Focus</th>
<th>Related INTERREG IVC projects</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADAPTACLIMA</td>
<td>Research on climate change effects and establishment of a knowledge network</td>
<td>REGIOCLIMA, CLIMACTREGIONS and RSC</td>
</tr>
<tr>
<td>e-AIRE</td>
<td>Mitigation of GHG emissions to improve the quality of polluted urban spaces</td>
<td>CLIMACTREGIONS, CLUE, RSC</td>
</tr>
<tr>
<td>Mi Ciudad AC2</td>
<td>Urban management practices to reduce GHG emissions and to address the impacts of climate change by strengthening the role of local governments.</td>
<td>CLUE, RSC, GRaBS</td>
</tr>
<tr>
<td>OPTIMAGRID</td>
<td>Energy-efficient building technologies</td>
<td>POWER, RSC, CLUE</td>
</tr>
</tbody>
</table>
INTERREG IVC Thematic Capitalisation

- Innovation systems
- Innovation capacity of SMEs
- Eco-Innovation
- Creative Industries
- Entrepreneurship
- E-government services
- Demographic change
- Rural development
- Climate change
- Energy efficiency
- Renewable energy
- Sustainable transport

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