

COHESION POLICY AND SUSTAINABLE DEVELOPMENT

Final Synthesis Report

Institute for European Environmental Policy (IEEP)

Together with

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ABBREVIATIONS

BAT	Best Available Techniques
BaU	Business as Usual
CAP	Common Agricultural Policy
CBA	Cost Benefit Analysis
CBD	Convention on Biodiversity
CEC	Commission of the European Communities
CO ₂	Carbon Dioxide
DPA	Development Path Analysis
ECJ	European Court of Justice
EEA	European Environment Agency
EHS	Environmentally Harmful Subsidies
EIA	Environmental Impact Assessment
EMAS	Environmental Management System
EMAS	Eco-Management and Audit Scheme
ENEA	European Network of Environmental Authorities
EPI	Environmental Policy Integration
ERDF	European Regional Development Fund
ESPON	European Spatial Planning Observation Network
ETS	Emission Trading Scheme
EU	European Union
FCR	Full Cost Recovery
GBI	Grants for Business Investment
GPP	Green Public Procurement
GHG	Greenhouse Gas
GNP	Gross National Product
GPP	Green Public Procurements
GVA	Gross Value Added
IAS	Invasive Alien Species
MBT	Mechanical Biological Treatment
MSW	Municipal Solid Waste
OECD	Organisation for Economic Cooperation and Development
PES	Payment for Environmental Services
RDA	Regional Development Agency
RES	Renewable Energy Sources
SCP	Sustainable Consumption and Production
SDS	Sustainable Development Strategy
SEA	Strategic Environmental Assessment
SOP	Sectoral Operational Programme
SWOT	Strengths, Weaknesses, Opportunities, Threats
TEEB	The Economic of Ecosystems and Biodiversity
TEN	Trans-European Networks
TEU	Treaty on European Union
TFEU	Treaty on the Functioning of the European Union
UWWTD	Urban Waste Water Treatment Directive
WFD	Water Framework Directive
WLC	Whole Life Costing
WTO	World Trade Organisation

1. INTRODUCTION

1.1 Aims and Objectives of the Study

This is the final synthesis report of the project ‘Cohesion Policy and Sustainable Development’ (contract number: 2009.CE.16.0.AT.069 and 2009.CE.16.C.AT.035). It has been produced by IEEP (project lead) together with GHK, Matrix, CEE Bankwatch Network, BIO Intelligence Service S.A.S. (BIO), the Institute for Ecological Economy Research (IÖW) and the Netherlands Environmental Assessment Agency (PBL).

The purpose of this study, as stated in the Terms of Reference, was to examine how Cohesion Policy could contribute to managing the shift to the green economy and to contribute to the development of the framework for Cohesion Policy post 2013. The study focused on the four key environmental themes that were set out in the EU’s Sustainable Development Strategy (SDS)¹: climate change and clean energy; sustainable transport; conservation and management of natural resources; and sustainable consumption and production. Given the potentially wide coverage of the third of these themes, i.e. conservation and management of natural resources, the work under this theme focused on the two natural resources that were considered to be most relevant for Cohesion Policy: water resources and biodiversity.

The work included an extensive literature review and the development of an analytical framework for Cohesion Policy and sustainable development, the development of tools for the integration of environmental issues into Cohesion Policy, and identification of investments for the transition to a resource efficient, green economy. It also included an analysis of Cohesion Policy funding allocations and an assessment of practice focusing on 26 case studies, ranging from National Strategic Reference Frameworks (NSRFs) and Operational Programmes (OPs) to large investment projects.

This report is the main deliverable of the project and draws on the findings from the various tasks that have been reported upon in a number of supporting papers. These supporting papers contain more detailed evidence and analysis that underlie the conclusions in this report. These supporting papers can be found on the same website as this report² and cover:

- Supporting Paper 1: Literature Review
- Supporting Paper 2: Cohesion Policy Performance
- Supporting Paper 3: Role of non-Cohesion Policy Instruments
- Supporting Paper 4: Case studies (as an separate Annex to this report)
- Supporting Paper 5: Tools for Sustainable Development

The project, and this report in particular, aims to answer the six study questions that were asked in the Terms of Reference:

1. How can Cohesion Policy contribute to the shift to the green economy?
2. What win-win solutions exist between economic/social and environmental objectives, which could be financed through Cohesion Policy?

¹ Council of the European Union (2006) *Review of the EU Sustainable Development Strategy (EU SDS) – Renewed Strategy*, Document 10917/06, <http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf>

² www.ieep.eu

3. What environmentally harmful subsidies exist and what are the potential alternatives to these (taking into consideration the impact on the economic and social pillars)?
4. How can policy instruments that enhance environmental sustainability be incorporated into a consistent and complex regional development strategy and governance system?
5. What policy options exist to ensure the effective delivery of sustainable development within Cohesion Policy, particularly in relation to the application of the Polluter Pays Principle and financial engineering?
6. Is there a need for a change in Cohesion Policy to enhance integration of environmental considerations and win-win solutions?

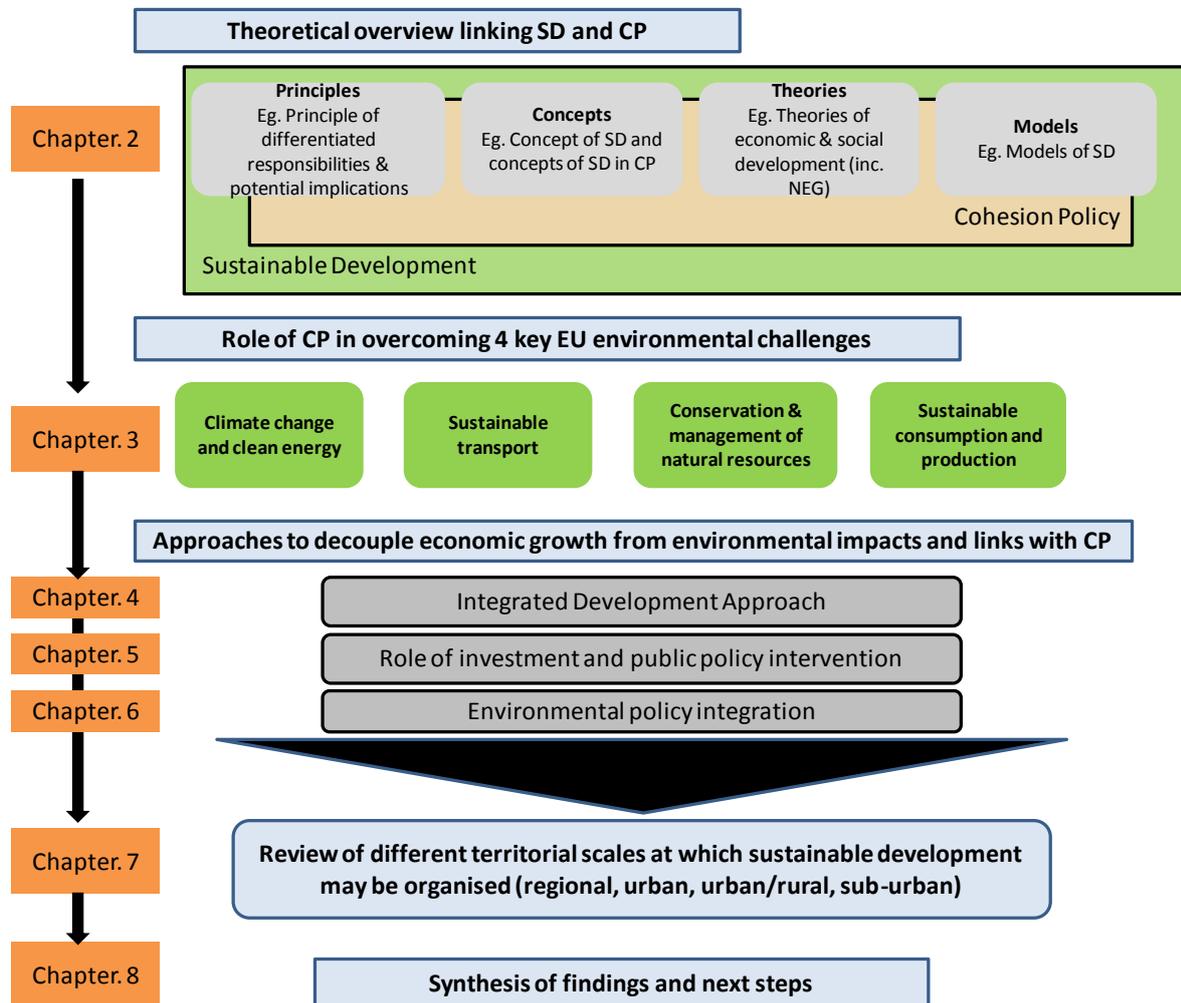
It is worth noting that the sixth question could be considered to be a high level question, as the answer to this question draws on all of the answers to the previous five questions.

1.2 Study Approach and Scope

As noted in the previous section, a number of supporting papers were produced within this study, which corresponded to various tasks that were specified in the terms of reference. Within this report, reference is made to these supporting papers where more detailed evidence or relevant analysis can be found. The scope of these supporting papers is outlined below, as these set the scope of the study as a whole.

Supporting Paper 1: Literature review provides a platform and input for the range of study tasks by helping to identify the range of links between Cohesion Policy and sustainable development in the context of the green economy and approaches to decouple economic growth from environmental impacts. It helped identify environmental challenges for Cohesion Policy and explored the “sustainable development performance” of Cohesion Policy and which tools there are for the integration of environmental considerations into Cohesion Policy. The review was also useful for the identification of case studies that offer interesting insights into the use of Cohesion Policy funding and complementary measures to Cohesion Policy that help in the delivery of its objectives. A schematic overview of the literature review is given in Figure 1.

Figure 1: Schematic Overview of the Literature Review³



The aim of **Supporting Paper 2: Cohesion Policy Performance** is to provide an overview of the integration of sustainable development into Cohesion Policy, the impact of Cohesion Policy on the environment, as well as the integration of sustainable development processes and governance mechanisms. Within this paper, approaches for assessing or measuring sustainable development are discussed and the approach that was used within this study – Development Path Analysis (DPA) based on the four capitals model – was developed and applied to the financial allocations of the 2007-2013 programming period.

The purpose of **Supporting Paper 3: Role of non-Cohesion Policy Instruments** is to understand the role that non-investment, non-Cohesion Policy instruments could make in support of both Cohesion Policy and environmental objectives, focusing on the key themes of the EU SDS (see Section 1.1). The impact of all relevant Cohesion Policy interventions (see the list of the intervention categories in Annex 3b) on the environment was assessed in order to identify where there could be considered to be ‘wins’, i.e. beneficial impacts on the environment, or ‘losses’, i.e. detrimental impacts on the environment. Where Cohesion Policy interventions had the potential to deliver ‘win-wins’, i.e. were beneficial from both the

³ In the Figure, ‘NEG’ stands for **N**ew **E**conomic **G**eography.

economic and environmental perspective, the analysis of the non-investment policy instruments considered how these could be used to enhance the win-wins. Where Cohesion Policy interventions delivered ‘win-losses’, i.e. were beneficial from the economic perspective, but detrimental from the environmental perspective, an assessment was made of the potential to use non-Cohesion Policy instruments to mitigate or eliminate the losses to the environment. An assessment was also made of whether relevant categories of Cohesion Policy investment should be expanded, reduced or removed from Cohesion Policy, as a result of both their environmental performance, as well as their potential to lead to the crowding out of potential private investment.

In order to identify practical examples of good practice in environmental integration from within the 2007-2013 programming period, 26 detailed case studies were assessed and developed from which lessons could be extracted to improve the environmental sustainability of Cohesion Policy investments. The case studies are collated in **Supporting Paper 4: Case Studies** as an Annex to this report. The case studies were chosen to provide examples of good practice and innovative approaches in relation to improving the environmental sustainability of Cohesion Policy interventions. In this respect, they included case studies that were successful in integrating sustainable development principles into Cohesion Policy investments, as well as cases where win-wins were enhanced or where win-losses were mitigated or eliminated. In such cases any relevant tools or approaches that were important to improving the environmental sustainability of Cohesion Policy interventions were reviewed. In some examples, the case studies were not necessarily successful in improving the environmental sustainability of Cohesion Policy investments; in these cases lessons were drawn with respect to overcoming the barriers that existed.

Finally, **Supporting Paper 5: Tools for Sustainable Development** reviews the available tools that could be used within, or alongside, Cohesion Policy in order to deliver sustainable development. The focus was on existing tools that were part of Cohesion Policy (e.g. SEA and EIA), as well as other tools such as those identified in the case studies (e.g. carbon accounting in France, etc.), that could be used to improve the environmental sustainability of Cohesion Policy. The aim was to identify what changes, if any, should be made to existing tools, and how new tools might be applied within different stages of the Cohesion Policy cycle.

1.3 Structure of the Report

Section 2 sets out how the policy context within which Cohesion Policy operates is changing, it underlines the importance of Cohesion Policy in terms of the EU’s potential influence on the environment and sets out why Cohesion Policy is currently failing to contribute as well as it might do to deliver the smart, sustainable and inclusive growth to which the Europe 2020 Strategy aspires. This section is complemented by additional evidence and analysis in Annex 1 (which analyses the policy context) and Annex 2 (on the contributions of Cohesion Policy).

Section 3 introduces the methodological analysis framework of the study – the trade-off analysis and development pathway analysis – as well as results from its application to Cohesion Policy funding allocations. It also presents the range of tools (strategic, procedural and organisational) for integrating environmental sustainability into the Cohesion Policy cycle.

Section 4 reviews the evidence from the case studies that were undertaken within this study. It begins by reviewing the environmental performance of the case studies in order to identify

examples where opportunities were missed to integrate better environmental considerations into investments and to identify where these opportunities were realised. It then reviews the experience of the case studies with the use of the various instruments to see how these were used to integrate environmental considerations into Cohesion Policy investments.

Section 5 outlines how Cohesion Policy in the 2014-2020 programming period could improve its environmental performance and contribute more to the aims of Europe 2020. It does this by discussing each potential environmental integration instrument in turn and identifies how these might be changed in order to integrate the sustainability concerns outlined by Europe 2020 into Cohesion Policy investments.

Section 6 presents study conclusions and recommendations on how Cohesion Policy could develop to realise its full potential as a key tool to implement Europe 2020 and to address a wide range of EU economic, environmental and social objectives. In doing so, Cohesion Policy would realise its potential as a catalyst and driver of the transition towards smart, sustainable and inclusive growth and a green economy.

2. STUDY BACKGROUND

2.1 Cohesion Policy and Evolving Challenges in the EU: The context of Cohesion Policy is changing

The political realities of the European Union are changing as is the context for Cohesion Policy. Long term challenges such as climate change, energy security, resource scarcity (raw materials, water), biodiversity loss, global competitiveness, aging society as well as the political stability of the EU's neighbours have become some of the key strategic priorities of the EU. These are coupled with short-term threats such as increasing sovereign debt and fiscal discipline which require intelligent, timely and forward-looking policy responses. At the same time, the implementation of EU legislation (the *acquis Communautaire*) continues to pose considerable challenges in an enlarging EU.

The new overarching strategy, *Europe 2020*, which sets out the objectives for smart, sustainable and inclusive growth, responds to some of these changing challenges. It builds on the EU 20/20/20 climate and energy package through flagship initiatives such as Innovation Europe, Resource Efficient Europe and Industrial Policy for the Globalisation Era. It is also complemented by a wide range of EU strategies and commitments, for example the commitment to halting biodiversity loss and investing in restoration/green infrastructure (CBD 2010 Aichi Accord and the 2011 EU Biodiversity Strategy). Similarly the growing evidence base of the benefits of addressing environmental concerns – e.g. Climate Change (Stern Review⁴), biodiversity⁵ and environmental improvements for health – is changing the underlying paradigm of one where economy and environment are seen as trade-offs to one where the synergies and co-benefits are increasingly appreciated.

Europe 2020's objectives and priorities, the complementary EU commitments and objectives, the wider set of societal challenges, and the growing evidence base needs to be further reflected in the reform of key EU Policies, one of which is the post-2013 Cohesion Policy. Cohesion Policy has the potential to be an important mechanism to deliver Europe 2020, be a driver of sustainable development, and indeed, be a catalyst for the transition to a resource efficient, low carbon, equitable, green economy.

The EU funding instruments have a critical role to set examples of excellence and innovation. Against this background, EU Cohesion Policy is well placed to deliver the highest EU added value if it steers the necessary transition towards green sources of development. This will entail the promotion of resource efficient and climate resilient solutions through balanced investment strategies in all four capitals (natural, human, social and man-made) while tailoring them to meet regional needs and to capitalise on local potentials. The *5th Cohesion Report*,⁶ which was published in November 2010, provided a more strategic outlook for future Cohesion Policy that responds to many of the above challenges and offers a vision for

⁴ Stern (2006) Stern Review on the Economics of Climate Change.

⁵ TEEB (2011) The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London.

⁶ European Commission 2010. Conclusions of the fifth report on economic, social and territorial cohesion: the future of cohesion policy, (COM(2010)642), 9/11/2010, Brussels, http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion5/pdf/conclu_5cr_part1_en.pdf

the next phase of the evolution of Cohesion Policy. An evolution that has historically taken place in the context of Cohesion Policy, consisting of:

- **Past Cohesion Policy (pre 2007):** The key focus was on economic and social cohesion across the EU and economic growth / regeneration at the regional level, with a focus on expenditure on infrastructure (road, water, waste). Investment in compliance with environmental infrastructures was the key environmental measure.
- **Present (2007-2013):** The strategic focus was inspired by the Lisbon Strategy, i.e. growth, jobs and competitiveness. New opportunities for the environment were included relating to climate mitigation and natural hazards.

More information on the historical policy context in which environmental considerations have been integrated into Cohesion Policy is presented in greater detail in Annex 1, where Annex 1.1 sets out the wider policy framework, including the emerging policy framework, while Annex 1.2 discusses the emerging environmental challenges in more detail.

2.2 Cohesion Policy is Missing Opportunities to Secure Sustainable, as well as Smart and Inclusive, Growth

This section presents insights on the environmental performance of Cohesion Policy to date and identifies ways in which the current approach misses opportunities for improving the environmental performance of Cohesion Policy. Section 2.2.1 presents insights from the literature on the environmental impacts and performance of Cohesion Policy. Sections 2.2.2 and 2.2.3 identifies missed opportunities to minimise win-losses and to enhance win-wins, respectively, which means that Cohesion Policy is currently missing important opportunities to develop the smart, sustainable and inclusive growth envisioned by Europe 2020⁷. More detail on these missed opportunities can be found in Annex 2. The section concludes with a discussion of governance issues that are also acting as a barrier to the integration of environmental concerns into Cohesion Policy (Section 2.2.4), focusing on insights from previous periods.

2.2.1 Environmental impacts and performance – Insights from the literature

Most EU funds make some contribution to environmental objectives in one form or another. However, in most cases the total sums involved are relatively small compared to total environmental expenditure in the EU (across different stakeholders (public, private sector and consumers/citizens) and governance levels (from EU to national to local) and expenditure needs to avoid environmental degradation and realise positive opportunities of investing in natural capital. There are various estimates of the scale of environmental provision from the different funds, mostly at a broad brush scale, but there is little doubt that the Structural Funds and the Cohesion Fund taken together represent a main source of environmental funding within the EU budget⁸. Cohesion Policy funds can and do play important roles as

⁷ This section is a shorter version of an earlier draft. The full version is available in Annex 2.

⁸ Analysis undertaken as part of the LIFE Impact Assessment, GHK et al, 2011 (DG Environment), unpublished. Cohesion Policy planned environmental spending was around €105 billion, which is approximately 30% of total planned spending of some €344 billion (2007-2013). The planned spend across environmental activities with themes was: Transport € 36.3 bn (~ 35% of total) *Note transport spending largely comprises spending on rail.*; Water /Waste Water € 22.0 bn (~21%); Land use € 13.6 bn (~13%); Renewables € 9.0 bn (~9%); Nature € 6.9 bn (~7%); Waste € 6.2 bn (~6%); Eco-innovation € 2.5 bn (~2%); Air & climate change € 2.1 bn (~2%); Other € 5.8 bn 6%); Total€ 104.4 bn. *Source: DG*

drivers and catalysts of change in a range of countries and environmental domains and can leverage additional efforts from a range of stakeholders. The challenges are how to ensure that this is optimised and how to encourage the greatest EU added value from the Cohesion Policy funds and instruments.

Previous research⁹ analysed the effectiveness of spending under EU Structural and Cohesion Funds for environmental measures (waste water, biodiversity and sustainable energy) in three countries - Italy, Spain and Austria. Some of the findings indicate that the 2000-2006 Structural and Cohesion Funds provided significant resources for **wastewater treatment and sewerage** in Italy and Spain (approximately €1 billion in Spain and about €1.5 billion in Italy). They are found to have played an important role in increasing the share of population and the number of municipalities whose wastewater is treated. In Spain, the results can also be seen in terms of the country's increasing compliance with the UWWT Directive. In terms of impacts, it has been found that EU funds have contributed to the **improvement of water quality** of many rivers in Spain. At the same time, however, the report stresses that the links between spending, outputs in terms of new treatment facilities and broader impacts on water quality are not straightforward. The analyses carried out on the relationship between wastewater financing in Apulia and coastal bathing water quality suggest that other information sources (scientific, monitoring data) need to be taken into account.

The analysis showed that there is a considerable lack of **absorption capacity** in some countries and regions, especially in spending money on biodiversity objectives. An in-depth case study of Italian regions demonstrated an additional issue. While regions allocated funds to biodiversity objectives through the support of 'ecological networks', in reality it was found that only a small share of the budget was allocated to specific measures for the protection of biodiversity. The resources were mostly used to promote tourism, build facilities for visitors and stimulate the development of jobs and small enterprises linked to natural areas.

EU Structural Funds have sometimes been found not only to contribute positively to financing **biodiversity** measures but also to impose considerable threats to biodiversity protection. A case study of the 'The Jerez – Los Barrios Motorway' in Spain shows that a project for motorway construction was approved by the European Commission despite the fact that almost 40 km of the motorway was planned directly through Los Alcornocales Natural Park, the most important cork oak forest of the Iberian Peninsula and a Natura 2000 site. Specific measures were designed to mitigate the possible negative impacts (e.g. green bridges and cross ways, noise insulation walls).

Regarding **energy**, an increase in spending from Structural Funds was observed specifically for projects promoting renewable energy and energy efficiency. Austria has used its Structural Funds to co-finance projects for renewable energy and energy efficiency in enterprises, and also to launch innovative pilot projects, such as the use of biomass in Güssing. Italian regions prioritised support for municipal projects, commercial wind farms (apparently the case in Campania) or the construction of mini-hydroelectric power plants. As far as specific impact is concerned, in Austria, Structural Funds are estimated to have

Regio: Com(2011) 17Final: Regional Policy Contributing to Sustainable growth in Europe 2020 Sec(2011) 92 final (Table 1). The CAP (Common Agricultural Policy) related funding represents the other main source of environmental funding. The EFF (European Fisheries Fund) related to the CFP (Common Fisheries Policy) and Life+ are relatively smaller.

⁹ EEA (2009) *Territorial cohesion – analysis of environmental measures under EU regional policy*. Task 1: final report. European Environmental Agency: Copenhagen.

supported 20 per cent of new renewable energy generation which led to a reduction of emissions of almost 300,000 tons of CO₂.

The nature of Cohesion Policy funding, i.e. in relation to the projects that can be funded, also risks contributing to increased **greenhouse gas emissions**. While there are no comprehensive assessments of the impact of Cohesion Policy on climate change in terms of greenhouse gas emissions, the fact that Cohesion Policy funds many transport projects, for example, suggests that there is a risk that the way in which Cohesion Policy funds are spent could lead to increased emissions. Given that there is a need to reduce CO₂ greenhouse gas emissions substantially to meet the EU's long-term climate change objectives¹⁰, then clearly the risk that Cohesion Policy-funded projects lead to increased emissions needs to be reflected in forthcoming programming periods.

2.2.2 *Missed Opportunities to Minimise Win-Losses*

Where Cohesion Policy investments deliver win-losses, i.e. an economic (or social) benefit at a clear environmental cost, it could be argued that such investments amount to an environmentally harmful subsidy (EHS), e.g. transport infrastructure is often seen as a potentially harmful subsidy¹¹ This can also apply to subsidies more broadly, as found by OECD:

‘Subsidies are often inefficient, expensive, socially inequitable and environmentally harmful, imposing a burden on government budgets and taxpayers – all strong arguments for reforming the existing subsidy policies.’

OECD (2005)¹²

There are different definitions of subsidies that are used in different contexts that cover a range of different measures (see Annex 2.2); different terms are also used when talking of subsidies, such as ‘transfers’, ‘payments’, ‘support measures’, ‘assistance’ and ‘protection’. From the perspective of Cohesion Policy and sustainable development the key issue is whether a measure (e.g. an investment) creates an incentive for a more efficient allocation and use of resources within the economy or a less efficient use of resources (e.g. by creating externalities). In both cases, the damage to the environment needs to be balanced against the economic (and social) benefits, as it might be possible to justify the environmental damage if there are sufficient economic (and social) benefits (see the discussion of the four capitals model, in Section 3.1).

The role of Cohesion Policy in this respect can be seen, for example, from the fact that approximately 12 per cent of the 2007-2013 allocation is to be invested in motorways projects. In this respect, the **Barca report** stresses that if Cohesion Policy is to promote a policy agenda that seeks to reduce pressure on the environment and climate, it needs to revisit the transport portfolio, consider phasing out such subsidies and shift funding towards measures stimulating mobility services and modal shift.

¹⁰ There are an increasing number of studies that highlight this. For transport, the EEA's 2009 TERM report was one example, i.e. EEA (2010) *Towards a resource-efficient transport system, TERM 2009: Indicators tracking transport and environment in the European Union*, EEA Report no 2/2010

¹¹ EEA (2007) *Size, structure and distribution of transport subsidies in Europe*. EEA Technical report No 3/2007 http://www.eea.europa.eu/publications/technical_report_2007_3

¹² OECD (Organisation for Economic Co-operation and Development) (2005) *Environmentally Harmful Subsidies: Challenges for Reform*, OECD, Paris

Hence, there is a clear political consensus behind the need to reform subsidies, and it is clear that Cohesion Policy investments can be included in this respect. At this point, it is important to note that the debate about subsidy reform is not simply about getting rid of subsidies, but also about reforming them. Different options in this respect are:

- Reform to *deliver the same objective through different means*, e.g. meeting mobility needs through providing for rail, rather than road, infrastructure or encouraging other mobility services;
- Reform to *reduce the environmental, and particularly carbon, footprint of existing activities*, e.g. enabling transport to be powered by potentially less carbon intensive energy sources through investing in the development of networks of electricity charging points for road infrastructure;
- *Applying 'conditionalities'* to subsidies that at least mitigate any environmental damage, or reduce the level of investment needed. For example, whole life costing (WLC) and GPP has the potential to mitigate environmental damage, while applying water pricing and full cost recovery (FCR) can mitigate environmental damage and reduce the levels of investment needed in the first place; and
- *Applying 'cross-compliance' requirements*, e.g. linking the subsidy to particular environmental practice by requiring compliance with higher legislative standards or the adoption of EMAS or eco-label, which can increase the power of policy filters and reduce impacts.

If applied to Cohesion Policy investments, all of these options have the potential to contribute to the mitigation of win-losses. Addressing EHS within Cohesion Policy will therefore require changes to current investment categories and priorities and the use of policy instruments in parallel to Cohesion Policy in order to mitigate or avoid win-losses.

Within Cohesion Policy, there are a number of areas where there is the potential to reduce EHS by moving towards a wider application of **price mechanisms to at least deliver full cost recovery, and eventually external cost pricing**. One particular area of potential is to make a move towards *full cost recovery via water pricing* a condition of funding and hence encouraging the implementation of Article 9 of the Water Framework Directive (2000/60/EC)¹³, which says:

Recovery of costs for water services (Article 9): Member States are required to 'take account of the principle' of recovery of the costs of water services. This should take account of the economic analysis of water use required by Article 5. Member States are required to ensure, by 2010, that water pricing provides adequate incentives to ensure efficient water use and that this is spread across different water use sectors.

This will contribute to **resource efficiency** and also liberate Cohesion Policy funding by moving financing to private individuals (see Box 1 for an example of **water pricing reform**). This needs to be done with due care to affordability¹⁴, which can be addressed via the design of the instrument and by having a gradual transition to full cost recovery over an appropriate time period. It has been estimated that moving to an average of 5 per cent of household

¹³ Directive establishing a framework for Community action in the field of water policy [2000/60/EC](#) (OJ L327 22.12.2000)

¹⁴ As a rule of thumb, affordability for water supply, waste water treatment and MSW taken together can be seen as 5% of household income (as recorded for the 10% of households with the lowest incomes). See GHK et al (2006)

income for the range of environmental services, with due consideration for lower income households, would enable all additional investment needs to be met via the charges¹⁵. This would **free up significant funds** from Cohesion Policy.

Box 1: Reforming water subsidies

Czech Republic: Until 1990, water pricing covered only a fraction of its real cost as it was only EUR 0.02 per m³. This low price led to indirect subsidization of water extraction, treatment and distribution. This hidden subsidy was removed in the 1990s, moving to full cost recovery. By 2004 the cost of water had reached EUR 0.71 per m³. The reform also addressed fees for withdrawing surface and ground water and discharge of waste water. Between 1990 and 1999, water withdrawals decreased by 88 per cent in agriculture, 47 per cent in industry and 34 per cent in public water mains.

Source: IEEP et al (2007)

Ireland: The on-going financial crisis has led to the government embracing fiscal reform, and this reform included plans for water charging. On 24th November 2010 the Irish government released its National Recovery Plan 2011-2014. To achieve the Maastricht Criteria of a deficit of below three per cent of GDP by 2014, the Government estimated that an overall saving of 15 billion Euro is needed, ten billion Euro to come in spending reductions and five billion Euro in tax and revenue raising measures. One of the green fiscal measures launched was that of water charges for households to cover local authorities' operational costs. These are expected to raise 500 million Euro.

“Given that we in Ireland have to raise taxes, it makes sense to raise them in ways that simultaneously improve our environmental quality, provide incentives for new low carbon enterprise, ensure that we manage our resources efficiently, help meet our EU obligations, apply the polluter pays principle, and that allow other taxes that damage economic performance to be reduced or at least limit the extent of the rise.”

Frank J. Convery, Director of the Earth Sciences Institute, University College Dublin¹⁶

Another growing area of potential subsidy reform where Cohesion Policy has the capacity to contribute is that of **road pricing** that takes externalities into account (see Box 2 on Benefits of road pricing). The revised ‘Eurovignette’ Directive ([2006/38/EC](#)) in 2006 offered some, albeit limited, scope for charges to reflect environmental externalities. The 2007 Green Paper on urban mobility ([COM\(2007\)551](#)) enlarged this scope, as did the 2008 ‘Greening of transport package’ and the 2008 proposal (COM(2008) 436 final¹⁷) to amend the Eurovignette further (see Box 2 below, which also presents estimates for benefits).

In the 2011 transport White Paper, the Commission signalled the importance that it attaches to the notion of getting the prices right and avoiding economic distortions in the transport sector¹⁸. One of the 40 initiatives included in the White Paper focused on the development of smart pricing and taxation. As part of this, the Commission stated its intention to phase in mandatory user charging for heavy duty vehicles, as opposed to the voluntary Eurovignette, to cover the costs of infrastructure damage, noise and local air pollution. Additionally, the Commission will develop guidelines for the application of user charging to other road vehicles, including cars, in order to cover the associated costs of congestion, local pollution,

¹⁵ GHK, Ecolas, IEEP and CE (2006): Strategic Evaluation on Environment and Risk Prevention Under Structural and Cohesion Funds (2007-2013), No. 2005.CE.16.0.At.016, for DG Regio.

¹⁶ <http://www.foes.de/pdf/GreenBudgetNews27.pdf>

¹⁷ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0436:FIN:EN:PDF>

¹⁸ European Commission (2011) *White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system* COM(2011) 144, Brussels 28.03.2011

noise, accidents and possibly CO₂, unless this has been covered by other economic instruments (e.g. included in fuel taxation).

Box 2: Eurovignette and Road pricing – internalising externalities can reduce CO₂ emissions and save money

The proposed current amendment to the Eurovignette Directive is to have a road-transport charging framework so as to enable Member States to calculate and vary tolls on the basis of the external costs of road freight transport in terms of air pollution, noise and congestion, by further implementing the "polluter pays" principle. A political agreement was reached by the Council on 6 October 2010.

The introduction of road pricing to internalise externalities in a revised Eurovignette would potentially reduce CO₂ emissions from road freight transport and fuel consumption by 8 per cent, and that 'if an average increase in transport costs of 3% is assumed, a decrease of 13.5 billion tonne kilometres in road transport volumes would be expected'. The internalisation of road freight transport costs at EU level on Europe's main roads has been estimated to result in a total net welfare gain of €1.8 billion per year. Extending congestion charging to passenger cars would increase the net welfare gain to a yearly €2.3 billion.

Source: Cristidies and Brons (2010)¹⁹ and EC (2008)²⁰

A third area is that of encouraging *waste charging* (e.g. the 1996 UK landfill tax, revised in 2008; see EEA, 2005²¹) that encourages the waste hierarchy to be respected. Again there is potential to make use of conditionalities linked to investment in landfills. The effectiveness of different policy instruments for waste management within Member States is currently the focus of research funded by DG ENV.

2.2.3 Potential opportunities to enhance Win-Wins

EU Cohesion Policy aims to foster economic, social and territorial cohesion across European regions. Therefore, the range of interventions co-financed by EU Structural and Cohesion Funds is in line with the EU's overarching economic strategies: for the 2007-2013 period, this was the renewed Lisbon Strategy for growth and jobs; from 2014 to 2020, this will be the Europe 2020 Strategy (see Section 2.1). Investments are also supposed to be in compliance with the EU SDS, while 50 per cent of the Cohesion Fund is targeting specific environmental interventions linked to the 6th Environmental Action Programme and the implementation of the Community environmental *acquis*. Hence, Cohesion Policy should be contributing to a range of win-wins.

However, EU Structural and Cohesion funds are relatively small when compared to the financial resources available from public budgets in most Member States and private investments. Therefore, interventions co-financed by the EU Cohesion Policy should be well justified. In this sense, there is a strong rationale that the most value added of EU financed

¹⁹ Christidis P. and Brons M (2010) *Impacts of the proposal for amending Directive 1999/62/EC on road infrastructure charging. An analysis on selected corridors and main impacts* Working Papers on Energy, Transport and Climate Change N.3

²⁰ EC (2008) European Commission Staff Working Document, Impact assessment on the internalisation of external costs accompanying the proposal for a directive (COM) and a communication on the internalisation of external costs (COM), 2008.

²¹ EEA (2005) *Market-based instruments for environmental policy in Europe* EEA Technical report No 8/2005 http://www.eea2006.org/presentations/EEA_technical_report_8_2005.pdf

intervention in the context of Cohesion Policy is through the provision of support for interventions that deliver multiple benefits and aid regions to achieve compound policy objectives. In this respect, there are a number of potential win-win interventions that could bring along benefits for both the economic and environmental domains.

At the same time, between 2007 and 2013 the Structural and Cohesion funds have a budget of €347 billion, amounting to one-third of the EU's total budget. Consequently, in terms of the influence that the EU can have on the environment in the Member States, this is still a significant financial resource that benefits especially new Member States and poorer regions in the EU15. Furthermore, EU funds have an important **leverage effect** on attracting additional public and private financing and in this regard they play a crucial role determining the development pathways of many European regions. In this sense, EU funds interventions could support **structural changes** in the economies of these regions in relation for instance to improving the resilience of economies to climate change impacts, fostering greater sustainability and ensuring energy security, as envisaged by Europe 2020. There is also a strong case for Cohesion Policy, which traditionally assists in regions' structural reforms, to stimulate more win-win interventions which could stir the transition pathways to low carbon and resource efficient economies of European regions.

This can be generally done in two ways, both of which are likely to offer 'win-win' solutions to the economy and the environment:

- Through **direct environmental investments**, such as investments in natural capital, environmental infrastructure ('green infrastructure'), the conservation and restoration of biodiversity, ecosystems and their services. Cohesion Policy can assist regions to achieve better environmental performance, to provide different ecosystem services (e.g. clean water to cities), to reduce economic costs (e.g. from reduced (risk of) climate change impacts or due to improved resource efficiency) and to implement the investment-heavy Directives of the EU *acquis*, which has been the more 'traditional' focus of CP ; and
- Through **indirect environmental investments**. Cohesion Policy can 'green' energy, transport and production systems and therefore contribute to innovation, competitiveness, the development of new markets and business niches, growth, employment and an overall better quality of life²². Such investment can also contribute to the decarbonisation of traditional economic sectors such as energy and transport in line with the EU commitments beyond 2020 towards 2050.

The following sections provide an overview of potential win-win interventions, which could realise multiple policy outcomes in the context of Cohesion Policy. From a purely economic perspective, the total **turnover of eco-industries** in the EU-25 in 2004 was €227 billion, making up 2.2 per cent of their GDP. Pollution management activities accounted for 64 per cent of total turnover (€144.9 billion) and the remaining 36 per cent (€81.8 billion) is from resource management²³. An evaluation by GHK et al²⁴ showed that environmental

²² ENEA (2007) Ideas Paper – Stimulating innovation through the cohesion and environmental policies. DG Environment. 21/02/2007.

²³ Ernst and Young, 2006, *Eco Industry, Its Size, Employment, Perspectives and Barriers to Growth in an Enlarged EU*, for DG Environment of the European Commission.

investments under the Cohesion Policy are able to have a significant impact on regional economic development, contributing to the increase of GDP by 1-2 per cent in most Member States.

There are also important social impacts in terms of **job creation**. GHK et al²⁵ estimated that total EU-27 employment in eco-industries and all activities dependent on the environment amounted to 21 million people. Including multiplier effects, the total estimate was 36 million, representing 17 per cent of EU employment. Another study by Ecorys²⁶ found that direct employment in the EU eco-industries was 3.4 million in 2007, having grown by more than 70 per cent since 2000.

Reports by IVM²⁷, ENEA²⁸, ENEA-REC²⁹ and the project on Greening Regional Development Programmes³⁰ have found that supporting environmental interventions (both direct and indirect) in Cohesion Policy is likely to realise the following win-win benefits:

- Tackling poor environmental quality and unsustainable practices that are barriers to development;
- Promoting economic diversification;
- Providing infrastructure for economic modernisation and competitiveness;
- Stimulating skills and innovation to provide new high value opportunities in the knowledge economy;
- Creating opportunities for tourism and improving attractiveness of places for investors, workers and businesses;
- Tackling the effects of industrial decline and dereliction;
- Providing new opportunities in peripheral regions and under-developed rural areas; and
- Economic multiplier effects associated with all the above.

An overview of potential win-win interventions by environmental theme is given in Table 1, which are discussed in more detail in Annex 2.3.

²⁴ GHK, CE and IEEP (2007) Links between the Environment, Economy and Jobs, DG Environment, European Commission.

²⁵ GHK, CE and IEEP (2007) Links between the Environment, Economy and Jobs, DG Environment, European Commission.

²⁶ Ecorys (2009) Study on the Competitiveness of the EU Eco-industry.

²⁷ IVM, GHK, and SERI (2009) The economic benefits of environmental policy, 15 December 2009.

²⁸ ENEA (2007) Ideas Paper – Stimulating innovation through the cohesion and environmental policies. DG Environment. 21/02/2007.

²⁹ ENEA-REC (2009) Improving the climate resilience of Cohesion policy funding programmes. REC: Szentendre

³⁰ Greening Regional Development Programmes (2006) Beyond Compliance - how regions can help build a sustainable Europe. INTERREG IIIC.

Table 1: Categories of win-win interventions and associated economic and social gains

Category	Positive gains for social and economic domains
Direct	
Biodiversity, ecosystems and ecosystem services	Provides ecosystem services (provisioning, regulating, cultural and supporting) and consequently supports socio-economic wellbeing for example improves attractiveness of places (locational quality) and hence can attract more labour force into greener areas; attached certain industries (e.g. access to cleaner water); increase house values; benefits from ‘green infrastructure’ (e.g. water purification and retention and erosion control); and ecosystem-based adaptation to and mitigation of climate change
Waste prevention/recycling/reuse	Creates more jobs compared to landfills and incineration facilities Improves overall the resource efficiency of the economy Reduces dependence on resource imports and extraction
Water and waste water	Access to clean water Better quality of life Attractiveness of places/territories Improved resilience of ecosystems to provide ecosystem services
Climate change adaptation	Resilience of economies and economic sectors to the impacts of climate change; depending on the nature of the investment this can also lead to a range of other co-benefits.
Indirect	
Energy efficiency	Improves living conditions Integrates jobless or low skilled persons into the workforce Creates three to four times the number of jobs than comparable energy supply investments Provides competitiveness edge for industry
Renewable energy	Foster innovation and new technologies Improved energy security Improved competitiveness and new sources of growth
Energy efficient transport systems	Provides access to mobility services and agglomeration benefits Improves access to jobs Creates jobs in planning, running, and maintaining transit systems, outweighing any reductions in employment in car and truck manufacturing and related fields Reduces congestion, cost savings Increases productivity and competitiveness Improves quality of housing and life in general Reduces energy poverty
Eco-innovation and environmental technologies	Improved resource efficiency and improved productivity Strengthens competitiveness Creates innovation and new business niches, new sources of growth Creates new employment Reduces dependence on resource imports Creates jobs for both low and high qualified workers

2.2.4 Governance barriers to the integration of environment into Cohesion Policy

While there has been some success in integrating environmental considerations into Cohesion Policy, there have been a number of factors that one way or another have hindered environmental integration. Some of the most common factors are considered to be the unfamiliarity with the concept of sustainable development and how it could be operationalised in practice. Therefore, one of the critical points often highlighted in ex-post evaluations is that there was too much focus on the environmental pillar, and not so much on integrated approaches reflecting the three-dimensional nature of sustainable development. This is known to be largely due to the lack of a clear definition and understanding of what sustainable development actually implies³¹. The ex-post evaluation study of ERDF interventions for the period 2000-2006 also points out that even potential synergies between the economic and environmental pillars of sustainable development were not taken advantage of. It concludes that the main drivers for using the ERDF in the environment have been the need to comply with environmental standards established in the relevant Community Directives and, as a result, 'the integration of environmental measures with other parts of the OPs has been generally weak'.³²

Furthermore, it has been pointed out that environmental actors often lacked capacity to engage in the preparation of programmes and participate in Monitoring Committees. Also, even if they did participate, it was often perceived that the actual decision-making remained largely among the economic actors. Taking sustainable development into consideration during project selection was sometimes obstructed due to difficulties in translating and enforcing a horizontal theme into the project scoring systems³³. This has meant that policy innovations in the regulatory framework were important but could often be insufficient to deliver the desired outcome for sustainable development if not properly enforced in the implementation systems.

During the 2000-2006 programming period, little use was made of gearing the monitoring and reporting systems to measure results and outcomes for sustainable development with the exception of a few front-running Member States. The use of indicators has been often limited to measuring progress towards sustainability by focusing primarily on economic measurements. Even if there were environmental and social indicators set out, they were usually treated separately and not in an integrated manner. Rarely were any alternative choices or trade-offs quantified or reported³⁴.

The use of green public procurement (GPP) was also fairly limited during the 2000-2006 with its potential to be used as part of EU funds not fully realised³⁵.

³¹ Ferry, M. Mendez, C. and Bachtler, J. 2008. From environmental sustainability to sustainable development? Making concepts tangible in Structural Funds programmes. IQ-Net Thematic Paper N22/2. European Policies Research Centre

³² ADE (2009), Ex Post evaluation of Cohesion Policy Programmes 2000-2006, co-financed by the European Fund for Regional Development (Objective 1 and 2) – Workpackage 5b: Environment and climate change

³³ GHK, PSI, IEEP, CE (2003) The thematic evaluation of the contribution of the structural funds to sustainable development, DG Regio, European Commission, Brussels.

³⁴ EPRC, METIS and University of Strathclyde Glasgow. 2009. Ex-post evaluation of Cohesion Policy programmes 2000-2006 co-financed by the ERDF (Objective 1 and 2), Work package 11: management and implementation systems for Cohesion Policy, DG Regio

³⁵ EEA. 2009. Territorial Cohesion - Analysis of environmental aspects of the EU Cohesion Policy in selected countries. EEA technical report 10/2009.

In the Strategic Report on implementation of the programmes 2007-2013, the Commission notes that one sector where there have been delays in preparing projects was rail transport. This may change the final balance of funding for road transport vs. more climate-friendly modes, with the possible consequence of a greater contribution of Cohesion Policy to the increase of GHG emissions from transport.

There is a variety of communicative, organisational and procedural instruments which have been evolving over the years to deliver sustainable development and to ensure environmental integration in EU Structural and Cohesion Fund programmes. The 2007-2013 policy framework embedded many of these in the Regulations governing the current Cohesion Policy. These are compulsory instruments which Member States and regions are obliged to apply, e.g. SEA, EIA, use of monitoring committees, etc. Meanwhile, policy innovations with regard to the integration of sustainable development and the environment into EU funded programmes and projects could be found in many regions and countries adding voluntary bottom-up initiatives to the wider set of instruments available to Cohesion Policy. Their effectiveness, and the potential to be replicated in other countries and regions, needs to be further examined. These are introduced in Section 3.3, and are assessed in more detail as to role they might play in integrating environmental sustainability into future Cohesion Policy in Section 5.

2.3 Implications of the changing context for Cohesion Policy

Section 2.1 (and Annex 1) highlighted that the policy framework within which the next Cohesion Policy programming period will operate is changing, while Section 2.2 underlined that, while Cohesion Policy has delivered some environmental benefits, it is still missing opportunities to enhance win-wins and mitigate win-losses. Consequently, the emerging EU strategic policy framework, which calls for sustainable growth and a resource efficient, low carbon and climate resilient economy, and the continuing environmental challenges argue strongly for the reform of Cohesion Policy that is better able to support sustainable growth.

This assessment, which is further supported by information in Annexes 1 and 2, as well as the evidence identified in the various supporting papers, suggests that such reform should be characterised by the recognition that Cohesion Policy should formally acknowledge the need for the full and effective integration of environmental policy objectives as part of a more strategic approach to the achievement of economic, social and territorial cohesion. As a result of our analysis, it has been possible to identify a set of overarching principles that should guide the reform of Cohesion Policy, as follows:

- Adopt the underlying principles of **Europe 2020** (smart, sustainable and inclusive growth), which do not privilege economic objectives per se, as principles to underline post-2013 Cohesion Policy, while recognising that there are wider objectives of Cohesion Policy to contribute to economic, social and territorial cohesion.
- Adopt a broad definition of the productive capacity of a region, including all four capitals, including natural capital.
- Define intervention rationales based either on **addressing market and government failures** that currently result in lower economic efficiency, or on addressing equity concerns. Define the strategic outcomes of Cohesion Policy based on these clear intervention rationales.

- Recognise the need for a **stronger territorial perspective**, e.g. through greater use of spatial planning as part of the application of territorial cohesion, as these are the most appropriate places to identify existing and potential trade-offs between different types of capital.
- **Improve investment choices**, e.g. prioritising activities that deliver win-wins, reform or phase out activities with high adverse environmental impacts.
- Make stronger efforts to secure the **cost-effectiveness** and **value for money** of interventions.
- Provide clearer understanding of the **EU added value** of interventions. For example, confirming that promoting sustainable growth requires EU level intervention through Cohesion Policy because it enables:
 - the effective integration of EU environmental objectives with regional development objectives;
 - complementarity with other existing funding and non-funding policy instruments, including LIFE+ and EAFRD, to assist in mainstreaming environmental objectives;
 - responses to trade-offs that a Member State could not afford (especially in the short-term), especially by recognising the role of natural capital in the totality of regional productive capacity;
 - integration of environmental objectives by avoiding the funding of non-sustainable project activity, based on revised eligibility criteria; and
 - responsibility sharing for sustainable growth.
- Strengthen the **appraisal and evaluation processes**, including **governance** and **instrument** use.

These principles of reform would appear to strongly enhance the capacity of Cohesion Policy to address the continuing environmental challenges within the wider emerging policy framework that recognises the need to decouple resource use from economic growth. They are developed further in Section 6.

3. DEVELOPING A TOOL TO ASSESS THE SUSTAINABILITY OF GROWTH & ITS APPLICATION

The previous section has set out why existing Cohesion Policy is missing opportunities to contribute to the delivery of smart, sustainable and inclusive growth. In order for Cohesion Policy to be able to contribute to such growth, it is important to identify what we mean by sustainable growth and how the contribution of Cohesion Policy to such growth might be assessed through the development of a tool. This is the purpose of Section 3.1, while Section 3.2 applies the tool that is developed for measuring sustainable growth to the expenditure of the 2007-13 programming period in order to assess its validity in light of the current failure to fully address environmental considerations, as discussed above. Section 3.3 then presents the range of instruments (strategic, procedural and organisational) to help integrate environmental concerns into Cohesion Policy.

3.1 Tools to Assess the Sustainability of Growth - the “Four Capitals” and Trade-offs and DPA

What is sustainable growth?

Sustainable growth can be considered to be another term for sustainable development. This concept can be understood in terms of the concept of non-declining capital stocks (per capita), i.e. sustainable growth has to maintain capital stocks over time (as recognised by Brundtland³⁶). The use of this interpretation raises the question of whether it is the total stock of capital that must be maintained, with substitution allowed between the various forms (weak sustainability) or whether, below certain stock levels (critical thresholds), particular components of capital are non-substitutable, i.e. they contribute to welfare in a unique way that cannot be replicated by another capital component, thus preventing unlimited substitution (strong(er) sustainability). Strong sustainability would require a non-declining stock of each capital over time, such that any trade-offs leading to a decline in one capital would be unsustainable unless the loss was compensated elsewhere (it is a moot point precisely where and when such compensation is required). The overall contribution of an intervention (such as Cohesion Policy funds) to sustainable development will therefore depend on the impacts on, and weights attached to, natural capital compared with other types of capital. Sustainable growth requires the use of Cohesion Policy (and also other policies) that takes full account of the synergies and trade-offs between the different capitals.

3.1.1 The Four Capitals and trade-off analysis

A broadly accepted typology that has previously been used to examine the contribution of Cohesion Policy to sustainable growth has been that of the ‘four capitals’: manufactured, natural, human and social capitals (see Box 3). This framework provides the basis for defining and distinguishing trade-offs (e.g. gains in one capital and losses in another) and win-wins between economic and environmental objectives. It can also be useful for identifying regional development paths (see Box 4) that do not result in a decline in total

³⁶ “Humanity has the ability to make development sustainable – to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits – not absolute limits but limitations imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organisation can both be managed and improved to make way for a new era of economic growth”. Our Common Future. The World Commission on Environment and Development (1987). Also known as ‘The Brundtland Report’ after the Commission’s chair, Gro Harlem Brundtland.

capital stock (or, in the terms used by Barca, development paths that do not lead to a decline in the total productive capacity of a region) or in contributions to development paths that still entail declines in capital stocks (see below). This study has adopted the four capital concept and that of development paths as not only a conceptual base for discussions on sustainability and sustainable growth, but also to measure and locate progress related to Cohesion Policy contributions.

Box 3: Four types of capital

Manufactured Capital: Manufactured (or human-made) capital is what is traditionally considered as capital: produced assets that are used to produce other goods and services. Examples include machines, tools, buildings and infrastructure. Financial capital is also often taken as part of manufactured capital.

Natural Capital: In addition to traditional natural resources, such as timber, water, and energy and mineral reserves, natural capital includes natural assets that are not easily valued monetarily, such as species diversity, endangered species and habitats and maintenance of well-functioning ecosystems and the related ecosystem services (e.g. air and water filtration). Natural capital can be considered as the components of nature that can be linked directly or indirectly with human welfare.

Human Capital: Human capital generally refers to the health, well-being and productive potential of individual people. Types of human capital include mental and physical health, education, motivation and work skills. These elements not only contribute to a happy, healthy society but also improve the opportunities for economic development through a productive workforce.

Social Capital: Social capital, like human capital, is related to human well-being, but on a societal rather than individual level. It consists of the social networks that support an efficient, cohesive society and facilitate social and intellectual interactions among its members. Social capital refers to those stocks of social trust, norms and networks that people can draw upon to solve common problems and create social cohesion. Examples of social capital include neighbourhood associations, civic organisations and cooperatives. The political and legal structures that promote political stability, democracy, government efficiency and social justice (all of which are good for productivity as well as being desirable in themselves) are also part of social capital.

Source: GHK et al. (2005³⁷) building on Ekins (1992)³⁸

The concept of the ‘four capitals’³⁹ (manufactured, natural, human and social) is derived from economics, whereby capital stocks (assets) provide a flow of goods and services, which contribute to human well-being (see Box 3 for definitions). The concept provides an operational definition of sustainable development and can indicate where a development pattern might be considered to be unsustainable, i.e. where capital stocks are declining on an absolute or per capita basis over time. In this respect, it provides a valuable evaluation framework of sustainable development from the point of view of ‘trade-offs’, i.e. those policy choices that lead to an increase in one capital stock whilst also leading to a decline in a

³⁷ GHK, IEEP, PSI et al. (2005) *SRDTOOLS Methods and tools for evaluating the impact of cohesion policies on sustainable regional development (SRD)* Contract no.: 502485 Sixth Framework Programme Priority 8.3.1 Task 11 Regio Underpinning European

³⁸ Ekins, P. (1992) *A Four-Capital Model of Wealth Creation*. In Ekins, P. and Max-Neef, M. (Eds.). *Real-Life Economics: Understanding Wealth Creation*. London/New York, Routledge: 147-155.

³⁹ Ekins, P. (1992) *A Four-Capital Model of Wealth Creation*. In Ekins, P. and Max-Neef, M. (Eds.). *Real-Life Economics: Understanding Wealth Creation*. London/New York, Routledge: 147-155.

second capital stock⁴⁰. The approach builds on the work in this study, as well as that of the subsequent DG Research 6th Framework funded project⁴¹, where programmes, investments/projects were assessed.

Essentially, the four capitals model offers an heuristic framework in which to consider the use and substitution of different capitals and the extent to which this leads overall to a change in the total stock of capital. Whether a policy intervention increases or decreases a capital stock is a matter of empirical observation. On the other hand, whether the changes represent an increase or decrease in the total stock is a matter of judgement based on the relative weight attached to the different capital stocks and the measured changes. This will need to be determined on a case by case basis. In the case of Cohesion Policy, where the investment is largely directed to increasing manufactured and human capital, the issue is whether this enhances or reduces the stock of natural capital (and subsequently the services that flow from the capital stock). Unless interventions are fully effective in decoupling economic and social development from the absolute use of natural resources, there will be some loss of natural capital; the issue is how this is recognised, managed and whether limits are imposed where the loss of natural capital is deemed to be an unacceptable loss and should be regarded as unsustainable.

The four capitals approach can be used in combination with an assessment of development paths to examine, at programme, sub-programme and project level, how synergies have been enhanced and whether trade-offs have been explicitly or implicitly recognised and taken into account. Where synergies have been enhanced, these are effectively win-wins; where trade-offs have been identified, these are effectively win-losses. The evaluation of the likely scope of synergies and trade-offs requires a judgement as to the likely economic and environmental impacts against the stock of capitals at the beginning of the period. As the prime focus of this study is on the economic and environmental aspects, the assessment focused primarily on economic and natural capital aspects, though the importance also of the social and human dimensions are recognised.

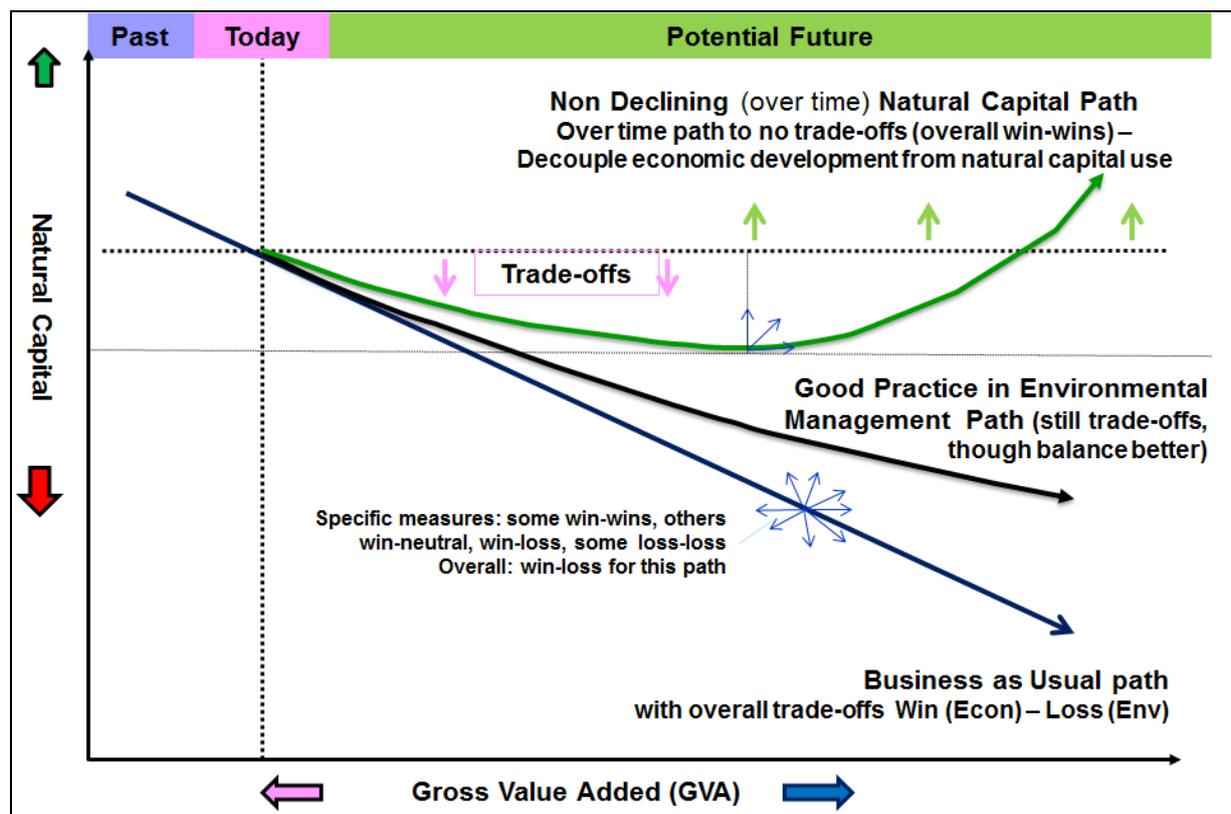
It is important to recognise that there can also be different scales of win and loss and again the choice of investment or intervention can have material effect on this. For example, using EIA properly can reduce a large environmental LOSS (the capitals indicating a large loss) into a smaller environmental loss, or in cases make it neutral or even a win. Additionally, wins or losses might be relative or absolute, as, for example, a programme activity could reduce the loss of natural capital compared to what might have occurred (i.e. a relative win), but fail to prevent an absolute loss over the programme period. An absolute win would result if there is no further loss or an increase in natural capital over the programme period.

⁴⁰ GHK, IEEP, PSI et al. (2005) *SRDTOOLS Methods and tools for evaluating the impact of cohesion policies on sustainable regional development (SRD)* Contract no.: 502485 Sixth Framework Programme Priority 8.3.1.

⁴¹ GHK, Ecolas, IEEP and CE (2006): Strategic Evaluation on Environment and Risk Prevention Under Structural and Cohesion Funds (2007-2013), No. 2005.CE.16.0.At.016, for DG Regio.

The assessment of wins and losses is not just a qualitative and conceptual one, but also one where specific indicators or performance can be attributed. For example an economic win can be measured in terms of gross value added of the intervention, or stimuli to the local economy, while an environmental loss can be measured in terms of an area of habitat loss or environmental pressures in terms of water pollution levels. The relationship is illustrated in Figure 2, which shows that over time different development paths might occur and each might embody a different rates of loss (or gain) of natural capital; distinct interventions (e.g. investment) can contribute to in different ways to the evolution of the development path over time (e.g. win-wins encouraging a move towards sustainability). This is a useful simplification for both the trade-off analysis and the development path analysis.

Figure 2: Development paths, trade-offs and natural capital



Source: own representation, study authors.

In Figure 2 the ‘Business as Usual’ path shows the historical case of economic development coming at a price of loss of natural capital; there is typically a slight improvement in environmental efficiency over time due to innovation and learning and also increased environmental legislation, but generally little if any net ‘decoupling’ given growth in demand that offsets innovation gains. Such a path typically results in a win-LOSS. The ‘Good practice’ path shows a much greater improvement in resource efficiency and some relative decoupling, but still a loss of natural capital over time, i.e. a win-loss. On the other hand, the ‘No declining natural capital’ path shows an effective decoupling in the absolute use of natural capital over time, i.e. a win-win, and beyond the turning point in the development curve the overall path becomes one of net positive investment in natural capital which is a source of regional productive capacity in itself through the range of ecosystem services it provides. This is a broad simplistic representation of different development paths and the relationship of win-wins and trade-offs. The overall development path is made of the sum

contribution of decisions, measures, investments, each with their own trade-offs or synergies across the four capitals – as discussed in more detail below.

Figure 3 illustrates the dynamic nature of the relationship between the economy and the environment. It shows that there is a range of win-win and win-loss possibilities, including different scales of win and loss.

Figure 3: Dynamic Relationships between Economic and Environmental Change from Policy Interventions

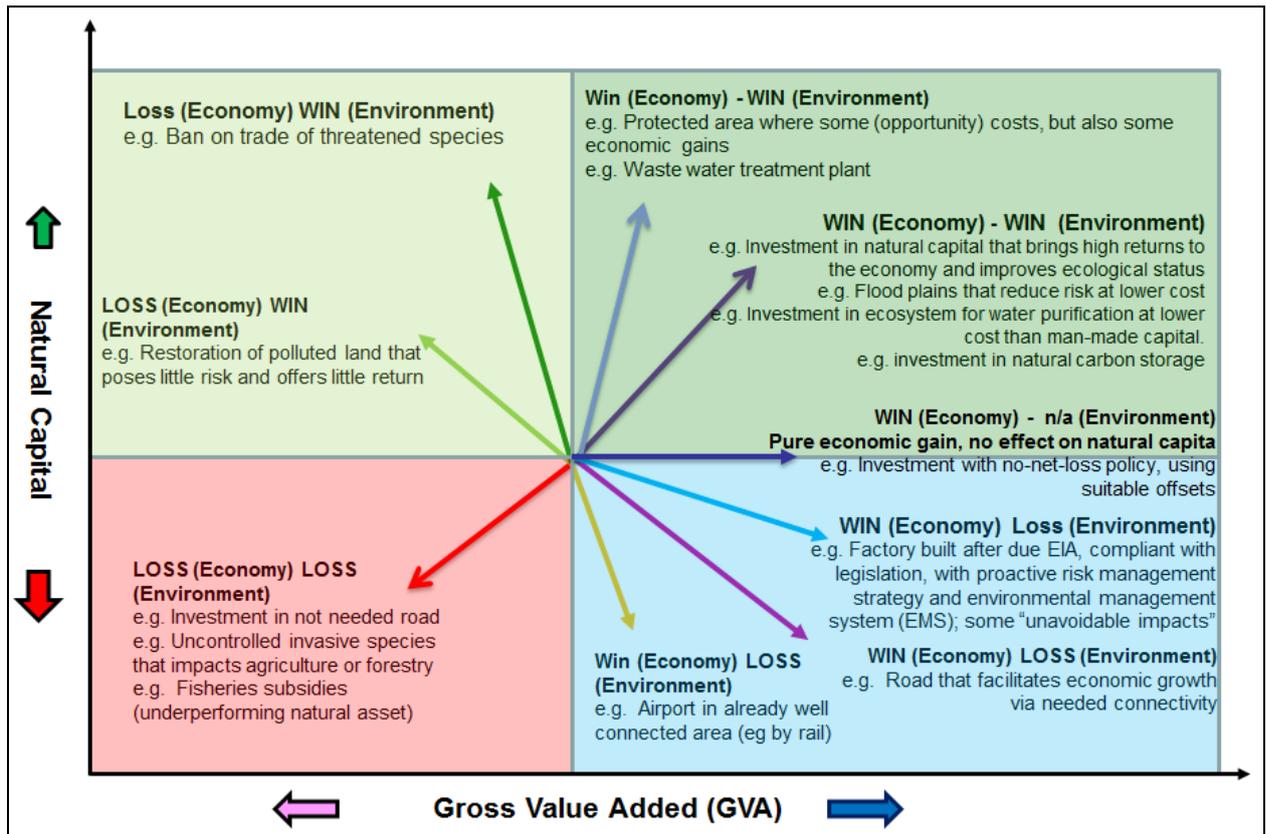


Figure 4 illustrates the point that different interventions can have different levels of value added/value lost for economic and environmental capital, while and Figure 5 makes a similar point, but in relation to investment.

Figure 4: Scale of Wins and Losses and factors influencing scale

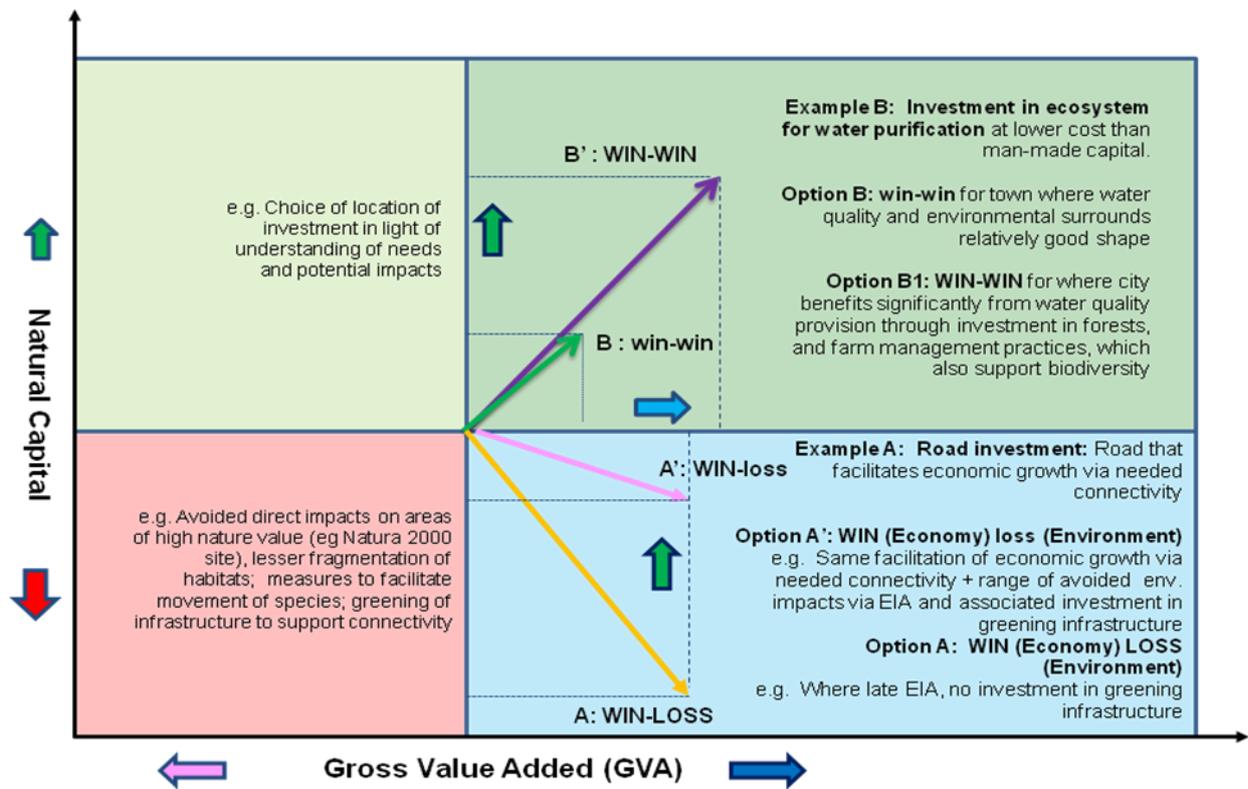
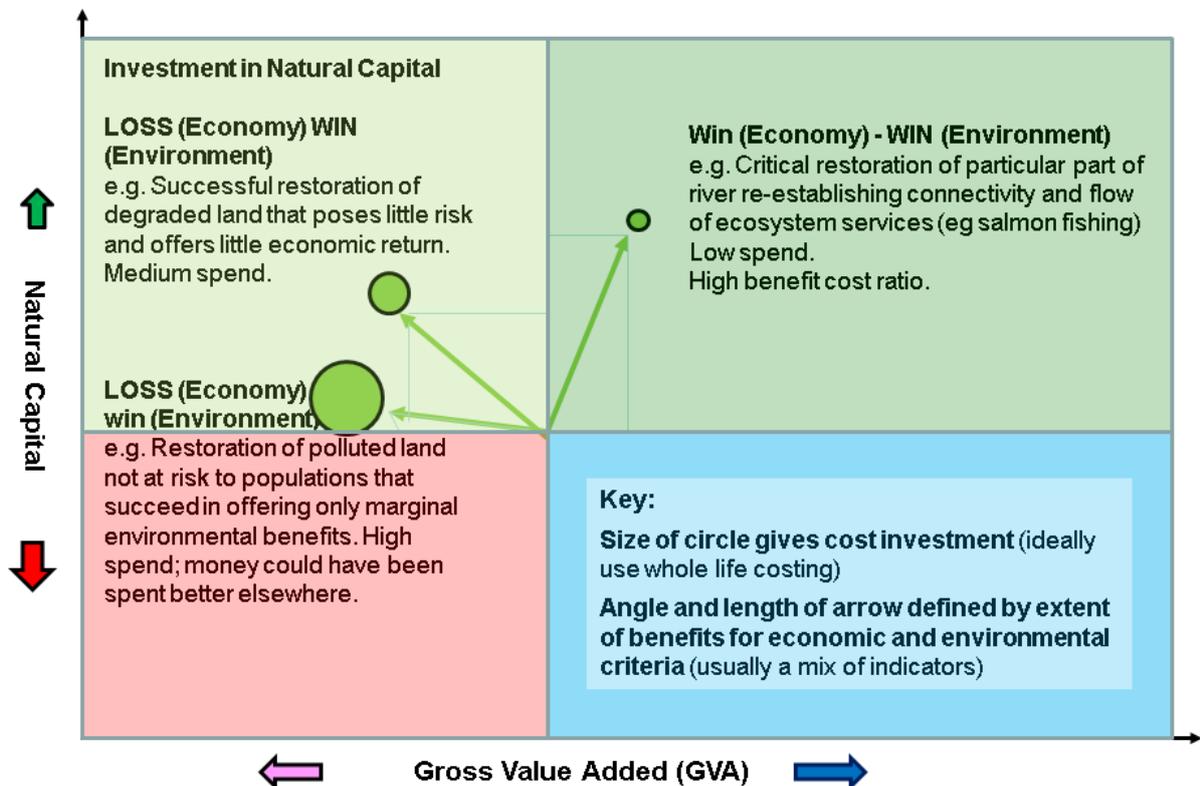


Figure 5: Scale of Wins and Losses, Level of Investment, and cost-effectiveness



Together the tools of trade-offs can provide a useful mechanism to represent the performance of different Cohesion Policy interventions and the contribution to different development paths and the transition to a resource efficient green economy. What can be said depends on the data/indicators available across the capitals.

3.1.2 Measuring sustainable growth using Development Paths

As noted above, measuring sustainable growth requires the use of indicators of the different capitals, and their application in the monitoring and evaluation of Operational Programmes (OPs). This is essentially a bottom-up approach applied to projects as well as to the OPs. As this information is not available across the EU, an alternative approach is to look at financial allocations instead of the impact of the policy. Such a method (referred to here as Development Path Analysis, or DPA) requires an ex ante judgement on the contribution of investment categories to environmental quality and economic performance. Such an approach does not use information on actual environmental impacts of investments, and therefore cannot differentiate between projects where tools have been used to mitigate environmental impact (e.g. biodiversity proofing of transport infrastructure) and where such tools have not been used. DPA is therefore a crude tool, but the only tool available which can make an assessment of expenditure under cohesion policy, given the available information (see also Annex 3a).

On the other hand, DPA can be used to conduct a more aggregate level of analysis (top-down) of sustainable growth, using programme budgets. The development paths previously identified by the Commission (see Box 4) were taken as the starting point for the DPA within this study, but were developed by the study team.

Box 4: Development paths and Development Path Analysis

DPA is a tool that enables regions (or countries) to assess their current pattern of development in order to identify whether it could be made more sustainable. It is based on the assumption that certain patterns of development, or development paths, are more sustainable than others. By identifying which development path it is currently following, a region can identify actions that will take it to more sustainable development paths.

Existing European Commission guidance identifies six development paths, as follows:

- Path A: Actions that promote activities that simply meet environmental regulations (e.g. promote changes in the construction sector to help meet building energy standards);
- Path B: Actions that clean up the damage from past activities or actions that promote physical regeneration (e.g. urban city centres, parks, brownfield site restoration);
- Path C: Actions that put in place environmental infrastructure to reduce the negative environmental impact of development activities (e.g. waste water and waste infrastructures);
- Path D: Actions that help organisations to meet increasing environmental standards (e.g. training and tools);
- Path E: Actions that improve the resource efficiency ('eco-efficiency') of existing activities; and
- Path F: Actions that support, as well as encourage, new types of activity or behaviour using fewer environmental resources, or producing less pollution, than existing activities in the area (including renewable energies and energy efficiency).

Source: CEC (2008)⁴²

This development of the DPA concept was undertaken partly because the paths in the previous guidance were essentially concerned with environmental expenditure, whereas what was needed for this study were paths that sought to capture all programme activities and also pathways to a resource efficient, equitable, green economy. Hence, the paths were revised and the range of 'paths' considered was widened in order to capture wider development potentials. The paths have also been revised to reduce ambiguity and to use definitions that make the paths mutually exclusive. We have also added a category for interventions with no obvious natural capital impacts. These revised development paths are presented in Table 2.

⁴² CEC (2008) General Guidance on the Implementation of Development Path Analysis in Northern Ireland Structural Funds Programmes 2007-2013, Guidance Note 12, 2008; see http://www.dfpni.gov.uk/guidance_note_no_12_development_path_analysis_-_1st_revision_june_10.pdf (accessed 25th February 2011)

Table 2: Revised Description of Development Paths⁴³

Strategic Approach	Development Path	Description of the types of intervention	Nature of Synergy / Trade-off with Environmental Impact	Link to Paths in Previous Guidance (Box 4)
Business as usual	No Natural Capital impacts	Interventions with no direct natural capital impact and no obvious indirect impact – e.g. pure social capital investment	Irrelevant	Not included in previous guidance
	A: Declining Sustainability	Interventions leading to obvious loss of natural capital (e.g. those that cause degradation of ecosystems and their services as a result of increased fragmentation of landscapes, conventional energy systems and pollution)	Absolute Loss	Not included in previous guidance
	B. Environmental Compliance, including man-made capital and environmental infrastructures	Interventions that help to meet environmental legislation (e.g. regulation & standards and to mitigate environmental impacts, such as environmental infrastructure, mitigation measures)	Relative Win (but Absolute Loss)	<i>Path A</i> <i>Path C</i> <i>Path D</i>
Active environmental management	C. Risk Management	Interventions to reduce hazards and manage risks, e.g. (ecosystem-based) climate change adaptation and mitigation, (ecosystem-based) mitigation of floods, droughts and wild fires, and prevention of risks related to invasive alien species	Avoidance of Relative / Absolute Loss	Not included in previous guidance
	D. Natural Capital Investment, including clean-up, restoration and conservation	Interventions to clean-up pollution and contamination from previous activities (e.g. land remediation / restoration, brownfield redevelopment), as well as conserving natural and cultural assets, including proactive investment in these assets	Absolute Win	<i>Path B</i>
Pursuing environmental sustainability	E. Eco-efficiency	Interventions to improve resource efficiency of existing activities (strong relative wins) (e.g. modal shift, energy efficiency)	Some Relative and some Absolute Wins	<i>Path E</i>
	F. Decoupling	Interventions that have the potential to decouple economic activity from pressures on the environment/natural capital (absolute wins) (e.g. new industrial activities / technologies (e.g. renewable energy), reduced consumption patterns)	Absolute Win	<i>Path F</i>

⁴³ There are naturally overlaps across categories and boundaries will change with new regulation; it is useful to see ‘environmental compliance’ as focusing primarily on the environmental and other man-made infrastructures related to investment heavy directives. Regulation that falls under eco-efficiency can usefully be seen under Path E.

The general trend historically has been for economic growth to be accompanied by a loss of natural capital. At a strategic level, Development Path A (*Declining Sustainability*; see Figure 6) essentially represents business as usual, continuing to use natural capital as in previous periods. While this can be presented as a simply ‘average’ line, the reality is of course much more complex in that some initiatives are less destructive of natural capital and others more. These are presented in the future by thin lines, which together provide different ‘contributions’ by different sectors of the economy and with interventions (such as those of Cohesion Policy) that can be aggregated into the ‘average’ trend. In practice, there is a wide range of possible interventions within and along each development path, some representing significant win-wins, others deliver gains (compared to status quo) and others represent win-losses. There is also a range of interventions that can shift from the historical trend to new development paths, depending on the nature and objective of the intervention.

The general implicit assumption is that business as usual development will be able to continue with on-going economic growth unabated even as natural capital is eroded, i.e. the simplified straight line presented in the figures. This assumption assumes that market forces, innovation and substitutability of resources and capitals will overcome any resource limits, changes in performance of natural capital, and ecosystem thresholds.

Figure 6: Development Path A: Declining Sustainability

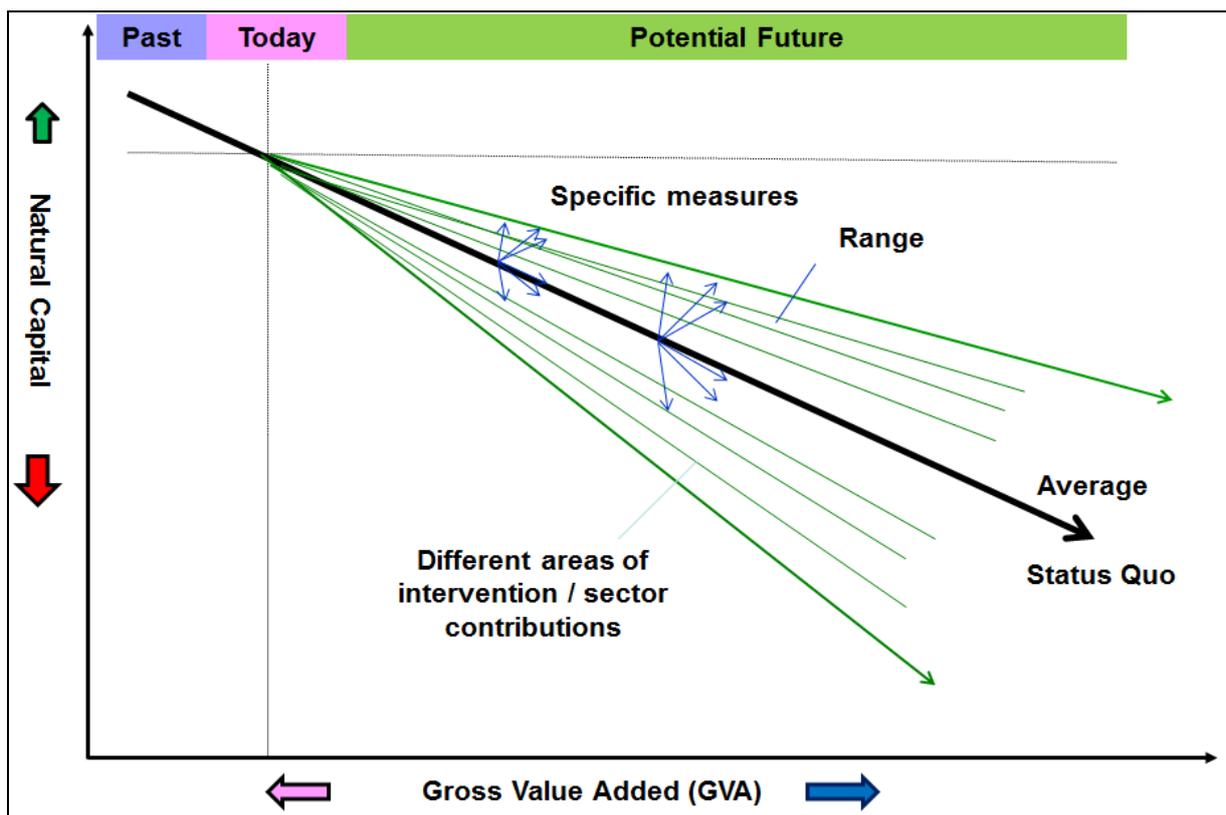
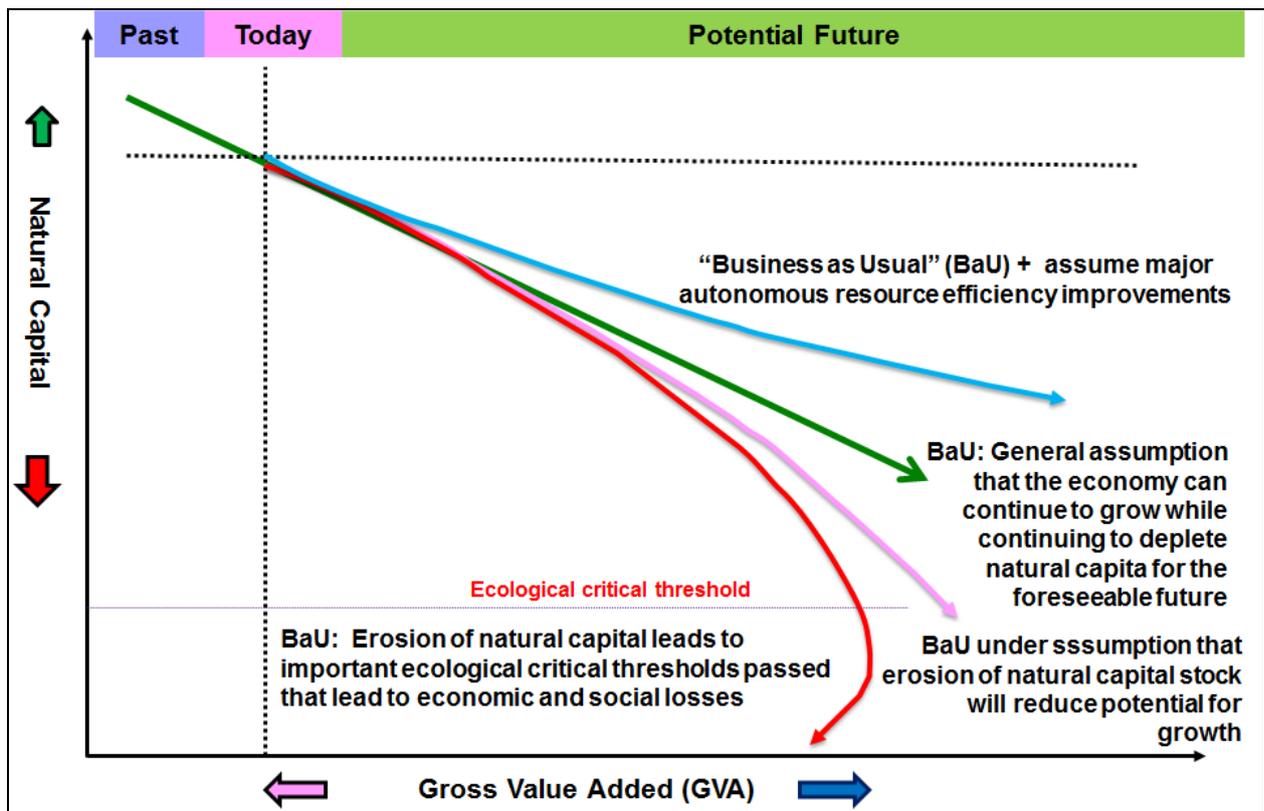


Figure 7 presents alternative Business-as-Usuals (BaUs) to illustrate alternative possible future development paths. This should be borne in mind in the wider thinking on the question of the move to a green economy. At this stage little research has been done as to the likely profile of BaU for economic growth and natural capital loss (although some work on this was

undertaken as part of the TEEB project⁴⁴). It is, however, increasingly recognised (e.g. Jackson 2009, TEEB 2011), that the de facto general assumption – that the economy can grow apace while continuing to deplete resources/natural capital and cross ecological thresholds – should be questioned. Figure 7 therefore includes variants from the generally assumed BaU. The top variant is a positive BaU where innovation helps partial decoupling; the rate of natural capital loss falls with resource efficiency gains, but demand growth outstrips the gains. Below the generally assumed BaU, there is a more pessimistic variant in which the erosion of natural capital reduces the potential for and rate of growth. Below this, there is a yet more dramatic variant in which critical ecological thresholds may lead to economic losses. For the sake of the current analysis, the general BaU assumption is taken.

Figure 7: Variants of Business as Usual



While the full set of development pathways is presented in Annex 3a, it is useful to present two in order to illustrate how the pathways work and the relationship to the four capital contributions. Figure 8 presents the *Environmental Compliance* development pathway (Path B) in which the full transposition and implementation of legislative requirements for, inter alia, environmental infrastructures and greening of grey infrastructures, leads to a gradual improvement with less of a loss of natural capital associated with economic gain. The level of the improvement will reflect both the nature of the legislation, as well as the approaches and measures for implementation and enforcement. Most of the measures focus on reducing the impacts; the figure below also presents where eventual no-net loss and net gain policies would be placed, to put the other measures into perspective. ‘Greened’ grey infrastructure (eg roads) or sewage networks can reduce the pressure or impacts on the environment, but some residual impacts (on an absolute level) will generally remain.

⁴⁴ www.teebweb.org

Figure 8: Development Pathway B: Environmental Compliance

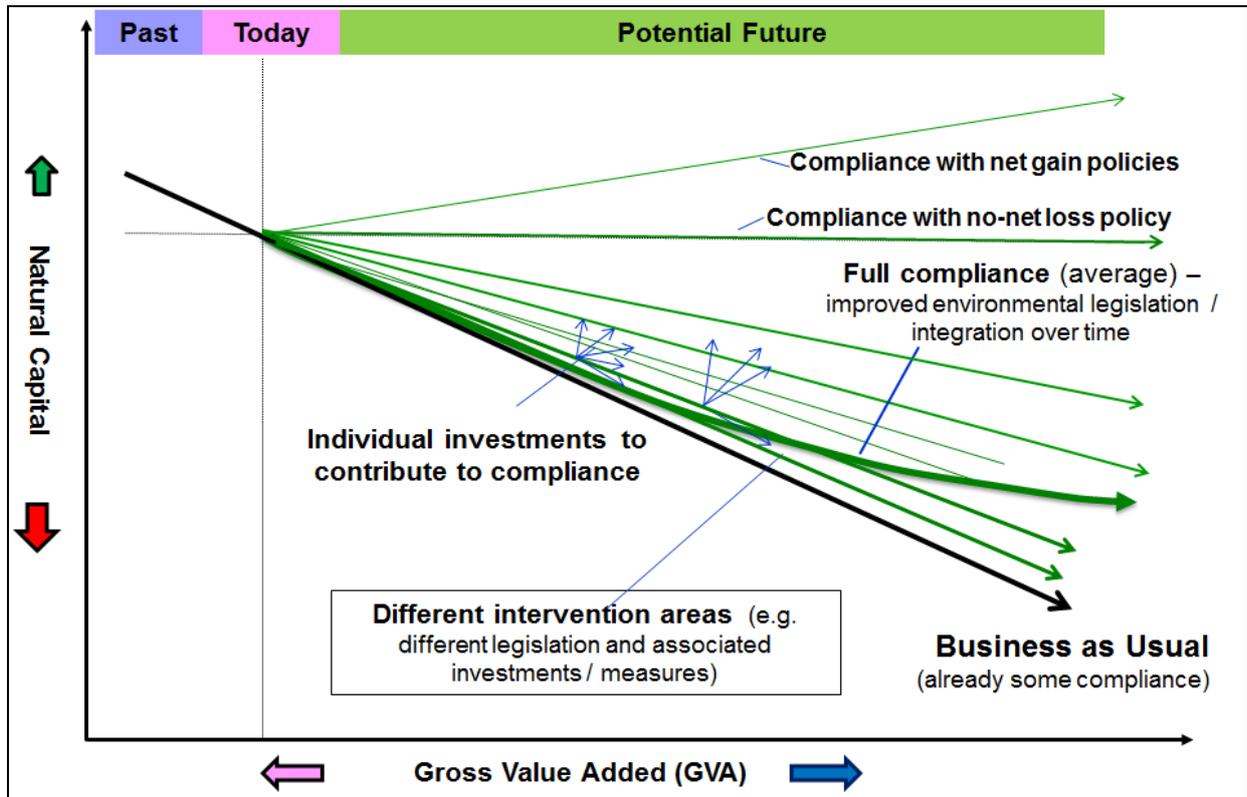
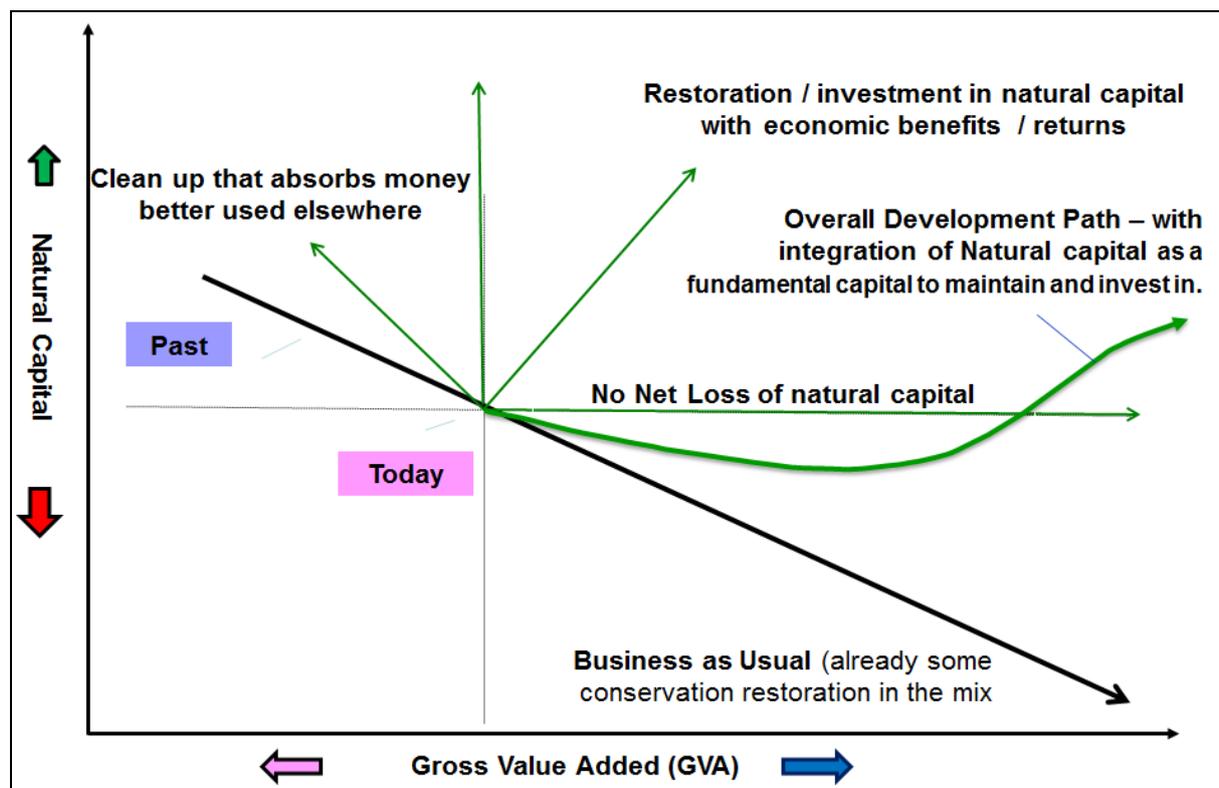


Figure 9 presents the options available to contribute to Development Path D (*Natural Capital Investment*), which relates to the new understanding of the potential economic benefits of working with natural capital. The range of options underline that the selection of where to focus efforts is critical as monies can both be well spent offering important private and social returns, and also ineffectively spent.

The overall development path is naturally a mix of contributions of policies and measures that follow the characteristics and objectives of each development path (see Annex 3a for the full list).

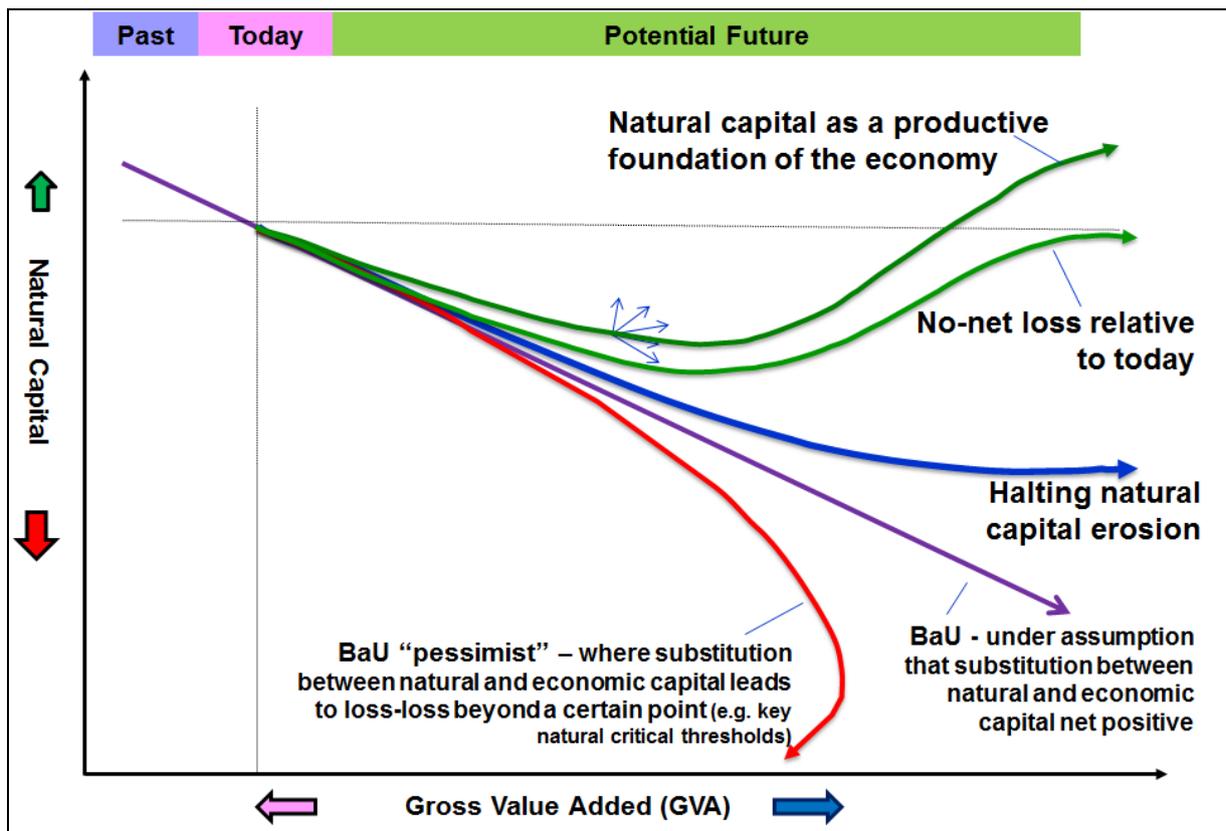
Figure 9: Options for Development Pathway D: Natural Capital Investment



Synthesis across development paths: In reality a transition to a resource efficient, equitable, green economy will involve a combination of contributions across development paths, with a transition away from, or minimising trade-offs towards, one of seeking and realising synergies and win-wins (see Figure 10). This will include a **move away from the ‘traditional’ acceptance of win-loss trade-offs**, an **increased commitment to legislative compliance** (in some places more legislation, in others better implementation), a move to a **more robust risk management approaches and culture** (to avoid accidents/losses rather than clean up afterwards), **major efforts at innovation and resource efficiency**, a **paradigm shift as regards natural capital and integration** and **new momentum towards new industries in a green economy**.

Such a green economy can be one where there ends up being no-net-loss compared to today, one where the productive capacity of natural capital is realised and the future has more natural capital than now, or one where the natural capital erosion is halted with less natural capital than today, but with still functioning productive ecosystems integrated with social and economic systems. With too little engagement, the erosion of natural capital will continue, with risks of passing ecological thresholds that could potentially lead to social thresholds (e.g. community non access to clean drinking water, health implications of agriculture output losses or fish stock collapse) and with the potential to pass economic thresholds (eg. sector collapse as per Newfoundland fishing industry following the overfishing of cod). Nothing is inevitable and the Cohesion Policy has the potential to be an important driver in the transition to a green economy (see Table 3 and discussions across chapters of this report).

Figure 10: Potential aggregate Development Pathways



Based on the above analysis it is possible to make a link between development paths, Cohesion Policy and examples of instruments that encourage transformation, as shown in Table 3.

Table 3: Development Paths, Cohesion Policy issues and associated instruments

Development Path	Cohesion policy /Green economy issues and policies <i>Examples</i>	Instruments and measures to encourage transformation – <i>examples</i>
A: Declining sustainability	<ul style="list-style-type: none"> • Trade-offs: Economic – Environment • Running down natural capital and substitution for other capitals 	<ul style="list-style-type: none"> • Clarify loss values & social impacts to appreciate the nature and scale of trade-offs: improving evidence base. • Improved use of project selection criteria and process, indicators, values and assessments, EIA & SEA
B. Environmental compliance	<ul style="list-style-type: none"> • Implementing “investment heavy” public infrastructure related directives - water, waste water, waste • Policy coherence – e.g. Water Framework Directive (WFD) • Emissions, product and environmental quality standards (EQS) standards – ecological status • Greening grey infrastructures (where legislation applies) • Assessment requirements: EIA & SEA • Spatial planning 	<ul style="list-style-type: none"> • Investment • Operation & management • Charging & full cost recovery, polluter pays principle • Better governance, rule of law • No net loss / net positive gain objectives and targets • Conditionality • Zoning, green(ing) infrastructure (requirements)
C. Risk management	<p>Understanding and managing risks</p> <ul style="list-style-type: none"> • e.g. climate change and natural hazards, water security, invasive alien species (IAS), ecological thresholds • Spatial planning and risk mapping <p>Principles: precautionary principle, polluter pays</p> <p>Engaging natural capital risk management (e.g. flood plains)</p>	<ul style="list-style-type: none"> • Indicators: resource limits & thresholds • Flood/risk maps; maps of risk to climate change (sea level rise, water stress/desertification) • Natural capital & SEEA accounts • Capacity building/co-operation • Risk and Env. Management systems (e.g. EMAS)
D. Investment in natural capital	<p>Protection/management & restoration: e.g.</p> <ul style="list-style-type: none"> • Wetlands & carbon storage; forests & aquifer recharge & water provision for cities; Flood plains & flood control <p>Setting incentives or requirements for investments</p> <ul style="list-style-type: none"> • E.g. No net loss / net positive gain objectives • Market mechanisms 	<ul style="list-style-type: none"> • Clarify value of natural capital (e.g. use of valuation; local or regional SWOT) • Investment in natural capital – protected areas & wider green infrastructure • Rewarding benefits – e.g. payments for ecosystem services (PES)
E. Eco-efficiency	<ul style="list-style-type: none"> • Products standards (sustainable production & use) • Products & innovation • Setting incentives or requirements 	<ul style="list-style-type: none"> • Market prices & market failures • GPP (green public procurement) market pull • Certification and labelling • Energy efficiency standards & targets
F. Decoupling	<ul style="list-style-type: none"> • Support transition to the New economy sectors: e.g. renewable energy and energy efficiency targets ; • Encourage prevention/avoided damage • Demand changes 	<ul style="list-style-type: none"> • Investment and incentives • Skills, capacity and training • Liability and accountability • Renewable energy targets • Information, social norms & habits (e.g. product use, labelling, consumption & responsibility)

3.2 Present Contribution of Cohesion Policy Funding to Sustainable Growth

Section 2.2 argued that Cohesion Policy is currently missing opportunities to contribute to sustainable, smart and inclusive growth, while the previous section described a set of development paths that could be used to assess the sustainability of a region's development. The aim of this section is to apply the DPA set out in the previous section to the funding allocation of the 2007-2013 programming period to date in order to identify whether such an analysis would further support the conclusion that Cohesion Policy is currently missing an opportunity to contribute to sustainable growth. The analysis presented in this section gives a high level assessment, as well as insights on the national Cohesion Policy programmes. The DPA was also used to analyse the case studies.

The approach is based on a pragmatic and arguably crude assumption that each category of Cohesion Policy expenditure (see Annex 3b for the table that links expenditure category to DPA) can be allocated to one of the six Development Paths of Table 2. Applying this assumption allows an estimate of the planned and allocated contribution by development path. Additionally, within the analysis, there is a 'no DPA' category (marked as X) where it is not possible (from a top-down perspective) to allocate expenditure to any of the development paths (A to F). The identification of the relevant development path to which to allocate the associated expenditure would require more context specific information. The inclusion of the 'X' category allows all expenditure to be captured in the figures presented below.

Of course, it is very difficult, based on an analysis of financial allocations, to be able to make propositions about the actual environmental impact of the 2007-2013 programming period. However, the analysis can give an overall picture of what the potential of the current funding portfolio is to bring Member States from Development Path A (*Declining Sustainability*) towards the other more sustainable development paths, which can then be complemented by insights from the case studies.

The analysis is based on the funds planned and allocated as it stood on 30 September 2009. It is worth noting that the **absorption** of EU funds depends on the administrative capacity and ambition of the management authorities at national and regional levels, as well as the capacity of beneficiaries to put forward project applications. The uptake of funds as of 30 September 2009, according to the Strategic report on Cohesion Policy, was 27 per cent (€93 billion) and varied significantly across countries with some Member States experiencing significant delays in the funds' absorption. The report underlines that environmental investments were 'underperforming at this stage' utilising 21% of the total amount available for such measures with Greece and the Czech Republic facing major delays, while Estonia, Spain and Hungary are making some progress. Investments in environmental infrastructure (e.g. waste water treatment) are taking place faster compared to investments in climate adaptation and risk prevention, in which the uptake of funds is 'especially weak' in countries like Spain, Greece, Poland and Romania. Spending on energy efficiency has been successful in the Czech Republic, Italy and Lithuania but close to non-existent in several other countries including the UK. Spending in wind energy is also slow, utilising only 2.9 per cent of the available EU funds for this measure (EC, 2010).

The analysis presented in the following sections is applied to:

- The total **planned** Community contribution for 2007-2013 of €344.3 billion, of which 86.9 per cent (€299.1bn) is distributed across the six Development Paths. The remainder relates to human capital and administrative expenditure which is difficult to allocate; and
- The total **allocated** Community contribution for 2007-2013 of €93.4 billion, of which 87.4 per cent (€81.6bn) is distributed across the six Development Paths.

The analysis has been conducted according to:

- Cohesion Policy objectives (i.e. convergence, regional competitiveness and European territorial cohesion);
- Old EU15, the three Cohesion countries grouped together and the newer EU12 Member States;
- Cohesion countries;
- Member States; and
- Groups used of Member States following different economic development paths, as identified by the Nordregio (2009)⁴⁵.

Note that the analysis does not include any co-finance provided by Member States.

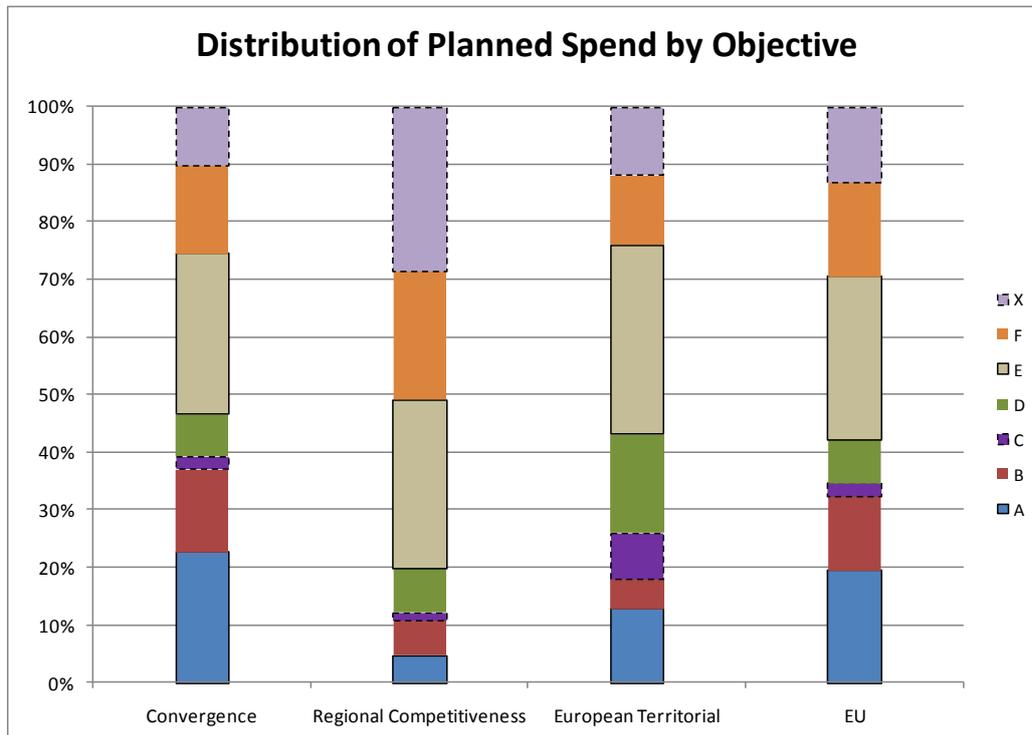
Planned and Allocated Community Contribution by Objective

The analysis of planned and allocated⁴⁶ spending by Development Path by Cohesion Policy objective is summarised in Figure 11 and Figure 12. This indicates that the share of total spending under the *Convergence* objective (of €281.3bn (planned) and €76.8bn (allocated)) is substantially more directed to Development Paths A (*Declining Sustainability*) and B (*Environmental Compliance*) (37 per cent) when compared with the *Competitiveness* and *European Territorial* objectives (11 per cent and 18 per cent respectively). This is not surprising given the investment in basic transport infrastructure associated with the *Convergence* objective. Conversely the share of total spending under the *Competitiveness* objective (of €55.2bn planned; €14.8bn allocated) is substantially higher under Development Path E (*Eco-efficiency*) and F (*Decoupling*) (51 per cent). The stronger support for sustainable development (and especially Development Path F) under the *Competitiveness* objective implied by the different distributions is to be expected, especially given the relatively greater emphasis on innovation and the potential this implies for improvements in resource efficiency that enable a degree of absolute decoupling. The distribution of the allocated spending under the *European Territorial* objective (of €7.8bn planned; €1.9bn allocated) is focused on Development Paths C (*Risk Management*), D (*Natural Capital Investment*) and E (*Eco-efficiency*) (58 per cent).

⁴⁵ Nordregio (2009), 'The Potential for Regional Policy Instruments, 2007-2013, to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development'

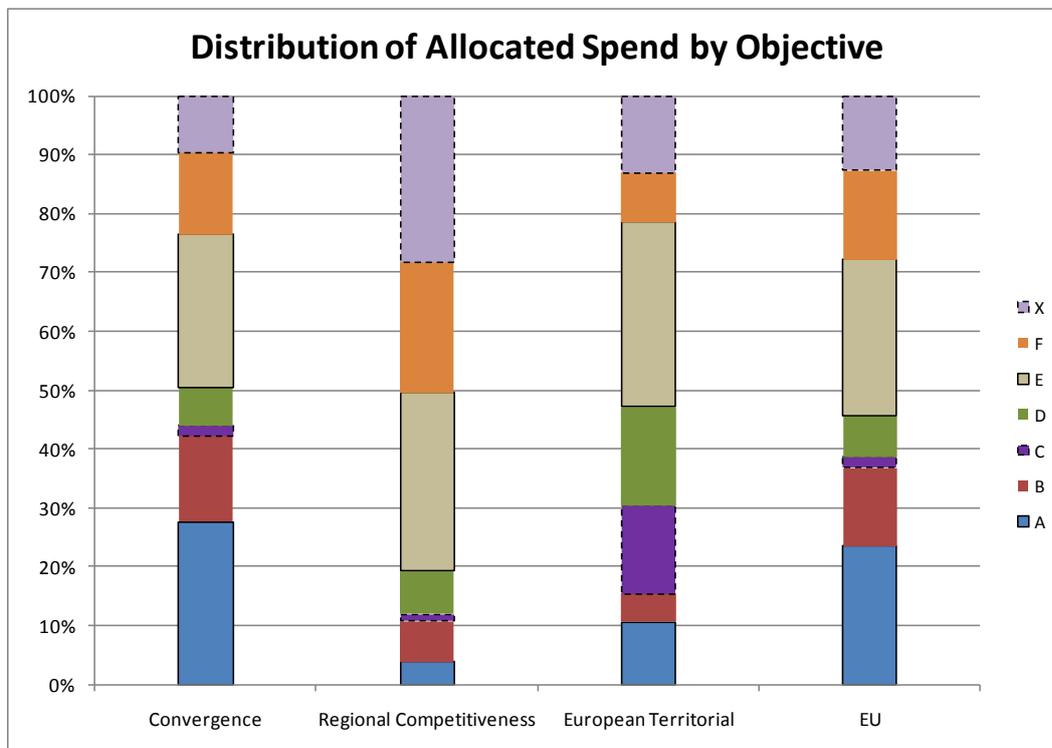
⁴⁶ Note: data on actual expenditure is not yet available

Figure 11: Distribution of Planned Community contribution by Cohesion Policy Objective



Source: Development Path assumptions applied to DG Regio data on the planned / allocated Community contribution (2007-13)

Figure 12: Distribution of Allocated Community contribution by Cohesion Policy Objective

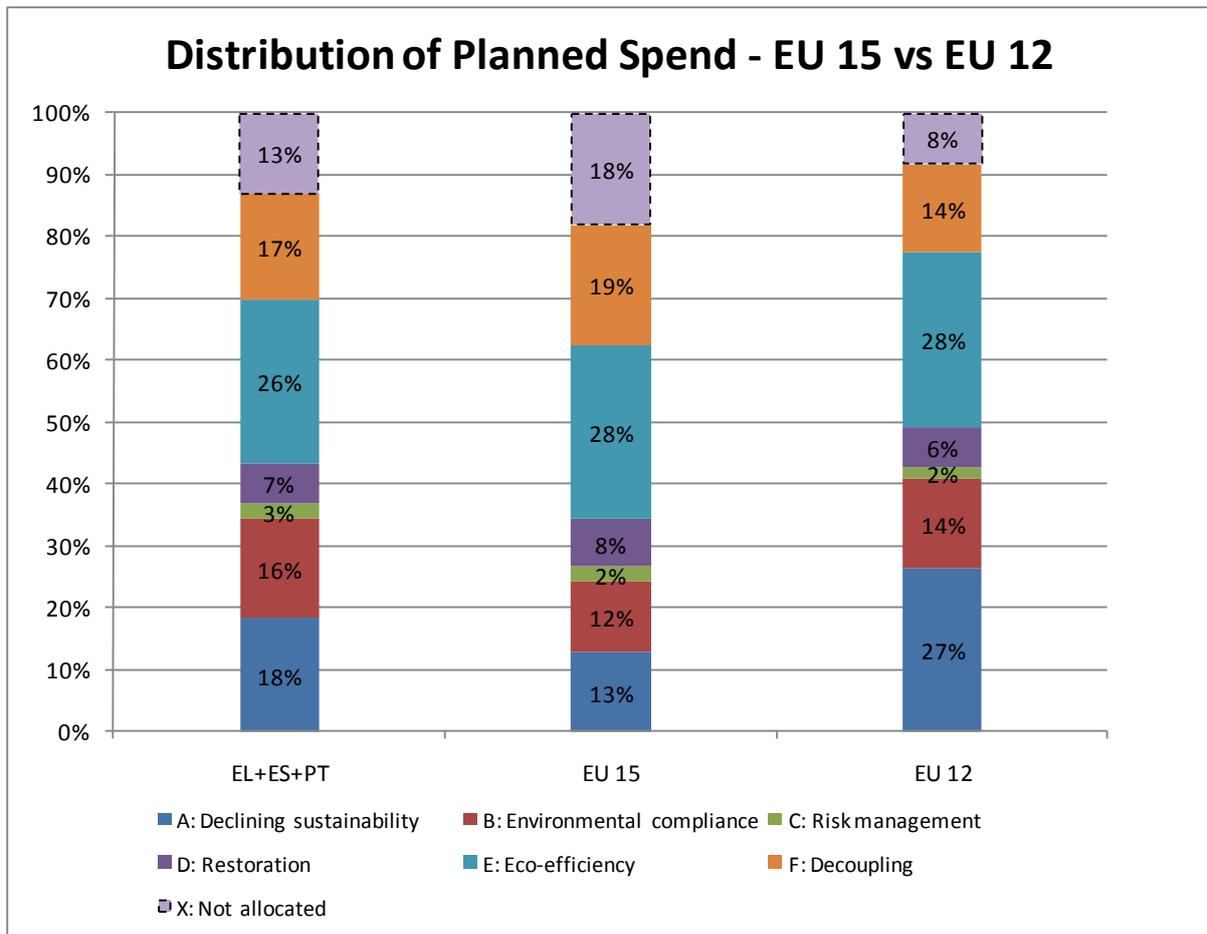


Source: Development Path assumptions applied to DG Regio data on the planned / allocated Community contribution (2007-13)

Planned and Allocated Community Contribution by Old, Cohesion and New Member States

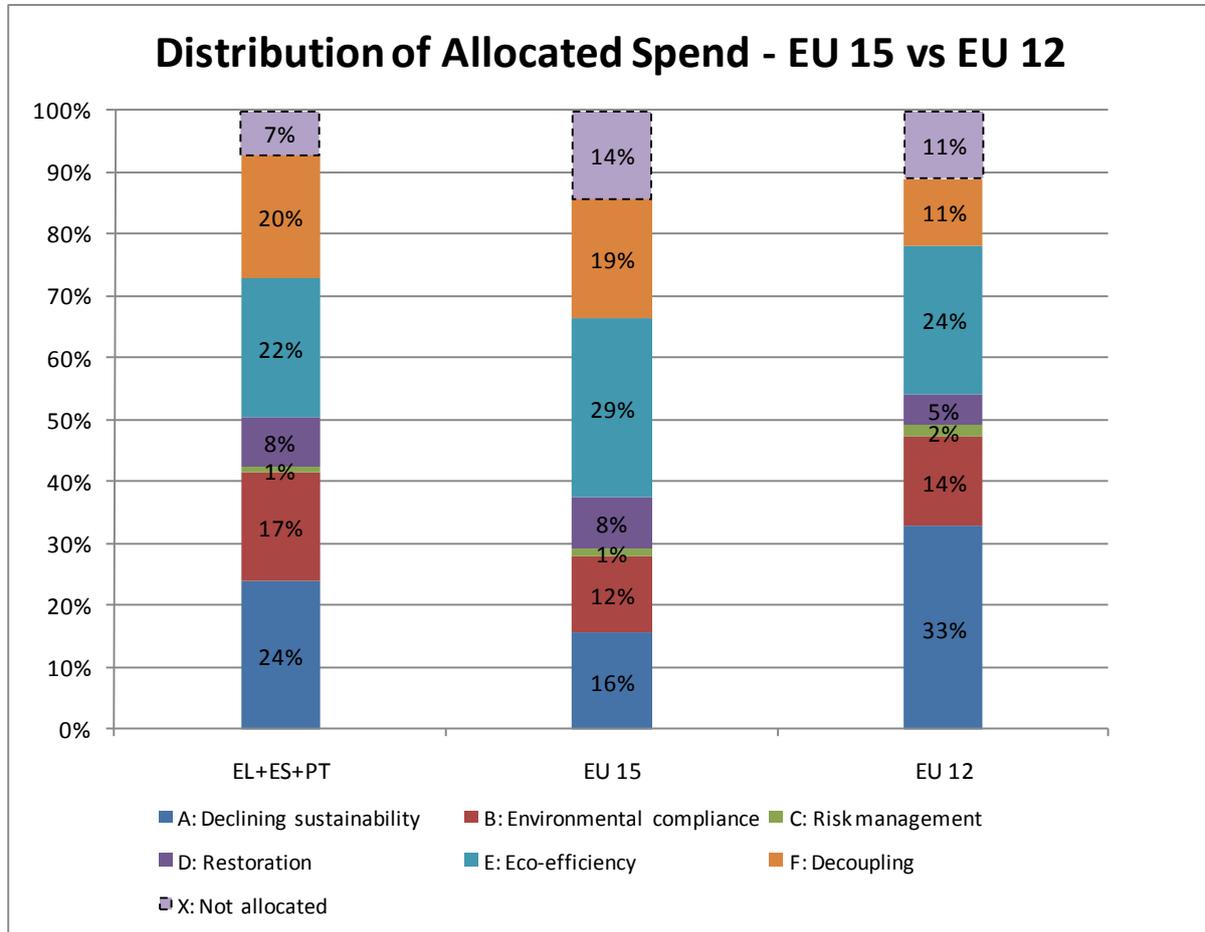
The analysis of planned and allocated spend by development path has been undertaken by Member State and aggregated to differentiate between old (i.e. EU15) and new (i.e. EU12) Member States, as well as the three Cohesion countries (Greece, Spain and Portugal). There is little difference between the distributions of planned and allocated spending for the old EU15 and the newer EU12. EU15 spending is €162.5bn (planned) and €47.5 (allocated), while the respective spending for the EU12 is €174.0bn and €44.1bn). Since the newer Member States tend to be funded under the *Convergence* objective and the older ones under the *Competitiveness* objective, the fact that there is a stronger emphasis on Development Paths D, E and F in the EU15 is not a surprise (see Figure 13 and Figure 14). Some 56 per cent of allocated expenditure in EU 15 supports Development Paths D, E and F compared with the 40 per cent in the EU12. In contrast the allocated spending in the EU12 on Development Path A (33 per cent), which is double that in the EU15 (16 per cent). For their part, taken together the three Cohesion countries have more planned and allocated spending in Development Paths A and B than then old EU15, but less than the new EU12, while their proportion of expenditure in Development Paths E and F is higher than the new EU 12, but less than the old EU15.

Figure 13: Distribution of Planned Community contribution by Old, Cohesion and New Member States



Source: Development Path assumptions applied to DG Regio data on the planned Community contribution (2007-13)

Figure 14: Distribution of Allocated Community contribution by Old, Cohesion and New Member States

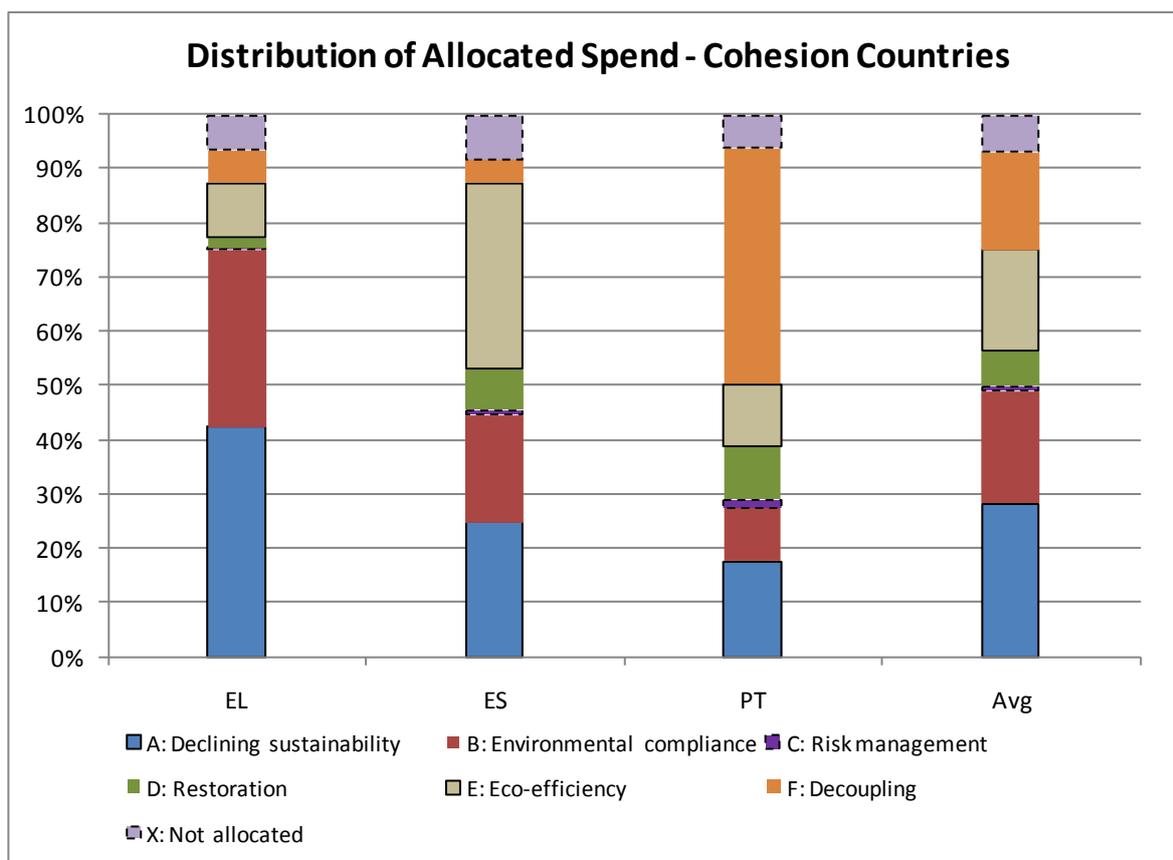


Source: Development Path assumptions applied to DG Regio data on the allocated Community contribution (2007-13)

Planned and Allocated Community Contribution by Cohesion Country

The allocated spend for the three Cohesion counties (Greece, Spain and Portugal) has been separately collated to illustrate the differences in the allocated spend (see Figure 15). Greece has roughly divided spend between Path A and Path B, with little or nothing allocated to the other Paths. In contrast Portugal has allocated only 18 per cent to Path A and 44 per cent to Path F, while over half of allocated spending in Spain is on Paths A to D, with the largest share (34 per cent) on Path E.

Figure 15: Distribution of Allocated Community contribution by Cohesion Country



Source: Development Path assumptions applied to DG Regio data on the allocated Community contribution (2007-13)

Planned and Allocated Community Contribution by Member State

The detailed analysis by Member State is presented in Figure 16 and Figure 17. There are some differences in the distribution of planned and allocated spending, but these are not major. One notable difference is that the proportion of *allocated* spend that can be considered to be Path A (*Declining Sustainability*) in some Member States, e.g. Czech Republic, Greece, Ireland, Lithuania, Latvia, Romania and Slovakia, is much higher than the proportion of *planned* spend that has been considered to be Path A. In other words, the actual spending in these Member States is more unsustainable than might be expected according to the planned spending, according to the high level DPA.

The allocated spending indicates that the Member States with highest share of allocated Community contribution to Development Path A (of over 40 per cent) are Latvia and Greece. In the case of Estonia, Greece, Latvia and Romania over half of allocated spending is on Paths A and B (*Declining Sustainability* and *Environmental Compliance* respectively). Romania has the highest share allocated to these two Paths (68 per cent). In contrast Denmark, Ireland, Luxembourg, Netherlands and Sweden have over 65 per cent of spend allocated to Paths E and F (*Eco-efficiency* and *Decoupling*).

Figure 16: Distribution of Planned Community contribution by Member State

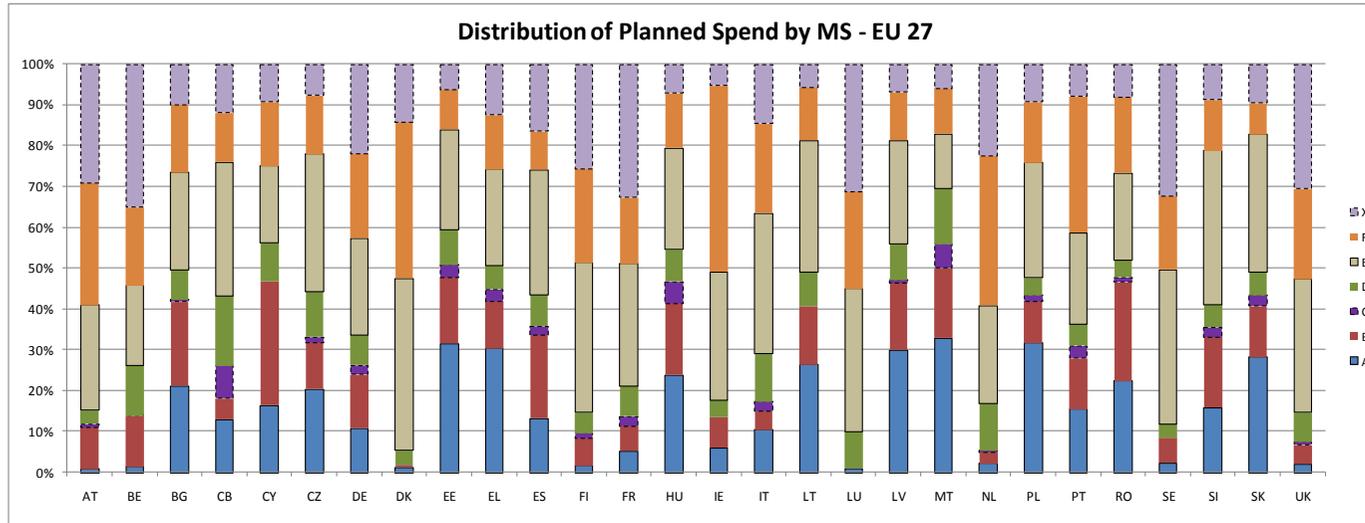
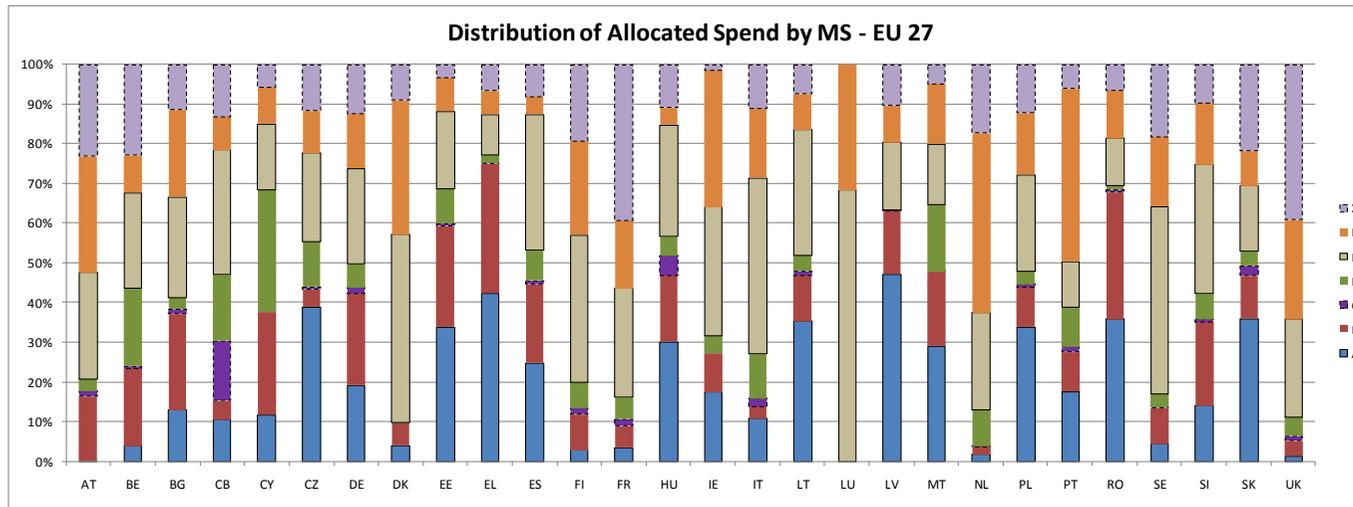


Figure 17: Distribution of Allocated Community contribution by Member State



Source: Development Path assumptions applied to DG Regio data on the allocated Community contribution (2007-13)

Planned and Allocated Community Contribution by NordRegio (2009) Groups

Nordregio (2009)⁴⁷ also grouped the Member States into one of six groups based on an examination of the strategic priorities and budgets of respective regional policy programmes (as summarised in Table 4). These provide a complementary way of looking at contributions of the programmes to development paths.

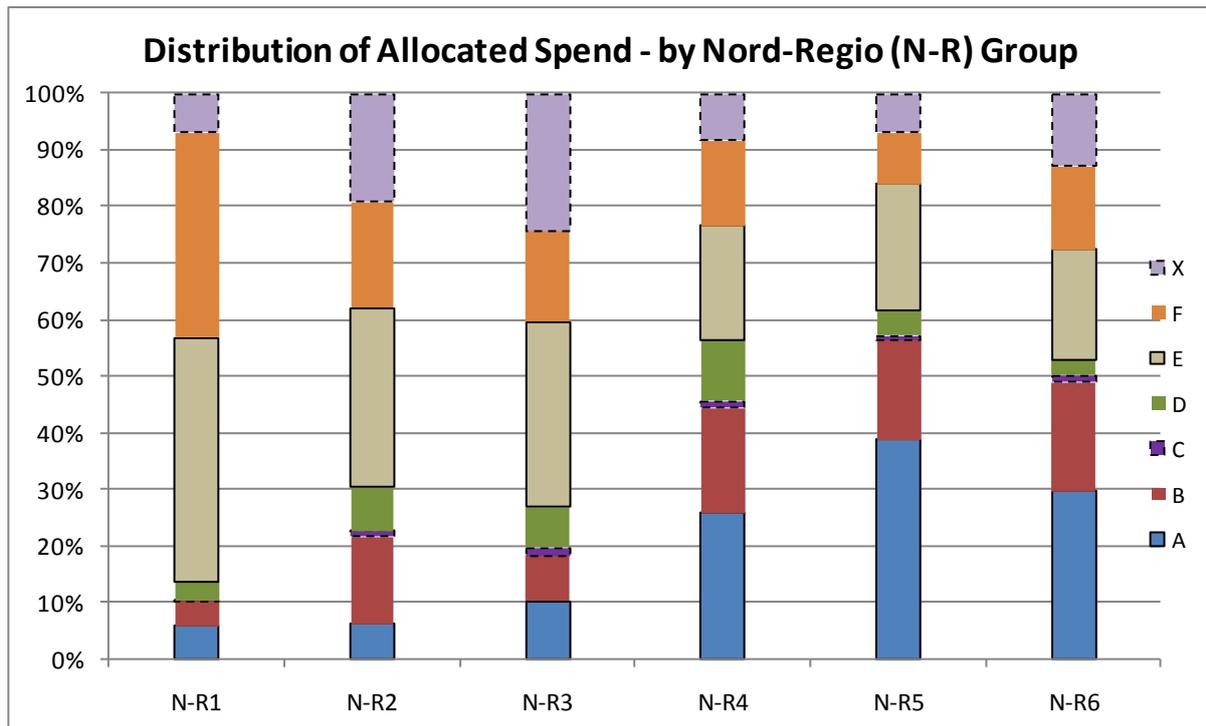
Table 4: Nordregio Country Groupings

Grouping (N-R)	Economic development path and characteristics	Member State
1	Innovation, RTD and entrepreneurship – relatively small countries with less regional disparities, significant domestic programmes and above average GDP per capita	IE, DK, LU, NL
2	Regional challenge and potential – regionally diverse countries, with large domestic programmes and above average GDP per capita	BE, SE, FI, AT, DE
3	Economic and environment synergies – larger, territorially diverse countries with large domestic programmes and around average GDP per capita	FR, UK, IT, ES,
4	Growth and jobs – well-developed cohesion countries with strong capital regions and slightly below average GDP per capita	EL, PT, HU, CZ, SL, MT, CY
5	Human and institutional capacity – small central EU-12 countries with below average GDP per capita	EE, LV, LT
6	Territorial cohesion – larger diverse, more polycentric countries with well below average GDP per capita, using infrastructure to bridge urban/rural gap	PL, RO, BG, SK

Using the allocated spending for the respective Member States, the distribution of spend in each group by development path has been calculated (see Figure 18). The greatest allocation of spend to Development Paths E (*Eco-efficiency*) and F (*Decoupling*) is for Nordregio Group 1 (*Innovation, TRD and entrepreneurship*), in which these paths account for 79 per cent of spending. The spending in these two development paths declines progressively through Groups 2 to 5. In Group 5 (the Baltic States), the expenditure on these two paths is 32 per cent, with another 39 per cent allocated to Path A (*Declining Sustainability*). The split in Group 6 is similar to that of Group 4, apart from a greater allocation to Path A and less to Path D (*Natural Capital Investment*). This distribution is mainly explained by the inclusion of older Member States in Groups 1 to 3 and the new Member States in the other Groups.

⁴⁷ Nordregio (2009), ‘The Potential for Regional Policy Instruments, 2007-2013, to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development’

Figure 18: Distribution of Allocated Community contribution by Development Path for each Nordregio Group



Source: Development Path assumptions applied to DG Regio data on the allocated Community contribution (2007-13)

The analysis of planned Community Contribution by Development Path shows a clear correlation with the grouping of Member States according to economic characteristics; with those classed as stronger economically having a more sustainable development paths than the economically weaker Member States. Even with the weaker Member States, there is some differentiation with the Baltic States that have perhaps the weakest level of economic development and the least sustainable development path.

This suggests that the investment choices are strongly reflective of the stage of economic development; and, by corollary, that the Member States have limited freedom to select more sustainable investment options. This is predicated on the perceived need to replicate the economic development models and related infrastructure endowments of the economically stronger Member States, especially in relation to transport systems. The stage of development also influences the level of income; economically weaker Member States are less able to afford potentially more expensive choices that are more environmentally beneficial (for example the choice of roads over public transport, or of carbon based energy systems over renewable systems) – even if they may be more cost effective in the long run.

It is precisely because of this correlation that Cohesion Policy can be so influential; helping Member States to afford to choose more costly, but less environmentally harmful, options (not that the more environmentally beneficial options are always more expensive); and to look more innovatively for options that can deliver the economic development but at less cost to the environment. A test of future cohesion policy is perhaps its ability to deliver a development process or trajectory that ‘short-cuts’ the time and environmental cost of the conventional development path to the achievement of the income levels currently enjoyed by the stronger Member States.

3.3 Integrating Environmental Sustainability into the Cohesion Policy Cycle

While DPA could be used in order to assess whether expenditure has the potential to deliver a more sustainable growth path, whether this is achieved in practice depends on the instruments that are used within the Cohesion Policy cycle, i.e. at the various stages of decision-making that leads to delivery of the investment on the ground. This needs a multi-level governance approach involving stakeholders from the European level, through the national and regional levels, down to the local level in many cases. Different instruments can be applied at different levels to ensure that environmental sustainability is properly integrated into Cohesion Policy funding. The aim of this section is to introduce the types of instruments that are relevant in the context of the integration of environmental sustainability into Cohesion Policy. This section discusses how the instruments introduced in this section might be amended in order to ensure that environmental sustainability is better integrated into Cohesion Policy drawing on the practical examples from the case studies, which are reviewed in Section 4.

A comprehensive strategy to improve the environmental performance of Cohesion Policy, and ultimately bring Cohesion Policy in line with sustainable development, will require a mix of strategic, procedural and organisational instruments that are applied at each stage of the Cohesion Policy cycle. It should be noted also that the different instruments have different functions and scope of application and therefore a different capacity to facilitate environmental sustainability. In this sense, these instruments are not exclusive and should be seen as complementary to one another. The optimal outcome for sustainability might entail different mixes of instruments in view of the diverse policy contexts and administrative settings; the appropriate stage of the policy cycle; and the level of governance and specific territorial features. The instruments are classified according to whether they are “strategic”, “procedural” or “organisational” in Table 5. This classification is used in order to help to frame the discussion of the instruments in later sections; there are other ways in which the instruments could be categorised. Indeed, even within the categorisation that was used, it is still possible to argue that some instruments would be better placed in different categories.

The instruments that are classified as “strategic” in Table 5 are those that apply to all administrative levels. However, their strategic nature is reflected by the fact that the statement of these principles or practices is made at the highest appropriate level, which in most cases is the respective EU-level document, and then reflected in all relevant documentation at lower administrative levels. For example, the application of the principles underlying EU environmental policy should be explicitly stated at the EU level, then repeated (in the national or regional context) in the respective national and regional documentation. In turn, these principles need to be taken into account in selecting projects, in project implementation and in the monitoring of projects. In this respect the strategic instruments help to create the framework within which Cohesion Policy investments take place.

Those instruments classified as “organisational” relate to the relationship between the various organisations, both within Cohesion Policy, but also external stakeholders. In this respect, the organisational instruments set out the relationships that are required in order to better integrate environmental considerations into Cohesion Policy. Finally, the instruments classified as “procedural” are those that organisations within Cohesion Policy can use to ensure that programmes and projects are consistent with the strategic instruments.

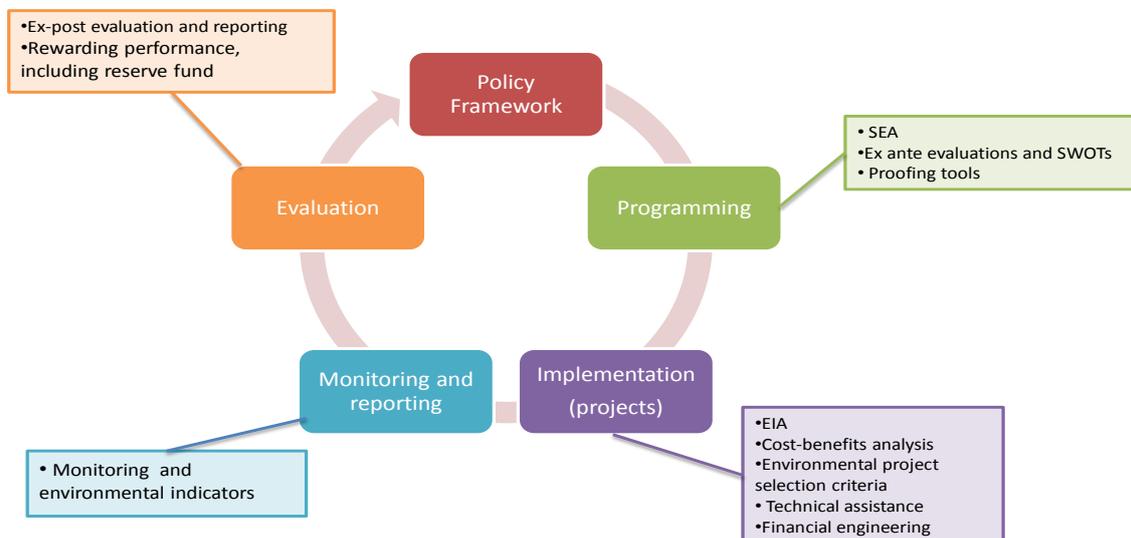
Table 5: Categorisation of integration instruments

Category	Instrument
Strategic	<ul style="list-style-type: none"> Alignment with EU strategic documents, including Europe 2020 and others relevant to Cohesion Policy Alignment with national/regional sustainable development strategies (and wider policy frameworks) Application of sustainable development as a horizontal principle Application of principles underlying EU environmental policy Principle of carbon neutrality and no net loss of biodiversity Environmental objectives and priorities Definition of eligible funding categories Gearing financial resources to environmental objectives Compliance with EU environmental <i>acquis</i> Conditionality
Procedural	<ul style="list-style-type: none"> Strategic Environmental Assessment (SEA) Ex ante evaluations and SWOTs Environmental Impact Assessment (EIA) Cost Benefit Analysis (CBA) Environmental project selection criteria Monitoring and environmental indicators Ex post evaluation and reporting Rewarding performance, including reserve fund Technical assistance Financial Engineering Proofing tools
Organisational	<ul style="list-style-type: none"> Partnership for environmental action Monitoring committees Environmental networks Public participation and consultation

Figure 19 sets out the five main stages of the Cohesion Policy cycle and indicates the procedural instruments that might be used at each stage in order to integrate environmental sustainability into Cohesion Policy. Neither strategic nor organisational instruments have been included in this figure. As noted above, strategic instruments set the framework within which actions at all stages of the policy cycle take place, and hence are effectively applied at all stages of the Cohesion Policy cycle. Organisational instruments are also relevant to different stages of the cycle.

Figure 19 clearly demonstrates the multi-level governance nature of Cohesion Policy. Within this complex multi-level governance system, each level of governance has to assume specific roles and responsibilities with regard to the deployment of the environmental integration instruments. Therefore, investing in soft measures, such as awareness-raising, training, skills and capacity building, are critical in ensuring that the institutional structures are in place to manage the policy innovations necessary to induce integration. There is yet another dimension to this discussion which requires a spatial/territorial perspective on the selection, development and application of integration instruments. Regional specific pressures, assets, opportunities and capacities should be identified and the respective responses in terms of investments and integration instruments developed accordingly.

Figure 19: EU Cohesion policy cycle and examples of procedural integration instruments



It is also important to note that there are a number of delivery mechanisms through which each of these integration instruments could be established and deployed. At the most strategic level, there are the General EU Funds Regulations that set the legal framework for Cohesion Policy investments and the formal negotiations between Member States and the Commission. According to proposals made in the conclusions of the 5th Cohesion Report on the future Cohesion Policy, there will be changes in the regulatory framework for the 2014-2020 programming period, including the development of a Common Strategic Framework for all EU funds under shared management, which will replace the existing set of Community Guidelines for the different policies. Furthermore, development and investment partnership contracts are to be negotiated between the Commission and Member States that will set out investment priorities, their respective funding allocations, as well as agreed conditionalities and targets in line with the countries' National Reform Programmes. The Operational Programmes are to be retained from the 2007-2013 programming period as a key delivery mechanism and will be the main management tool at the national and regional levels⁴⁸. The discussion of the potential environmental integration instruments in Section 5 takes into account these new proposals. Conditionality, a menu of thematic priorities, potential obligatory priorities, capacity building and technical assistance, better monitoring and evaluation also mentioned in 5th Cohesion Report.

⁴⁸ European Commission 2010. Conclusions of the fifth report on economic, social and territorial cohesion: the future of cohesion policy, (COM(2010)642), 9/11/2010, Brussels, http://ec.europa.eu/regional_policy/sources/docoffic/official/reports/cohesion5/pdf/conclu_5cr_part1_en.pdf

4. PRACTICAL EXPERIENCE OF ENVIRONMENTAL INTEGRATION FROM THE 2007-13 PROGRAMMING PERIOD – CASE STUDIES

As part of this study we selected 26 case studies with interesting practices that offer insights into strengths and weaknesses of integrating the environment into Cohesion Policy 2007-2013. So rather than provide a representative overview of Cohesion Policy across the EU, the case studies investigate a set of approaches from which positive lessons and solutions could be drawn. In this sense, they focus both on good practice and innovative approaches that could contribute to the shift to the green economy and on cases where Cohesion Policy has failed to ensure sustainable development.

As the focus of this study is on the current funding period, the actual outputs and outcomes of these case studies are still evolving and hence the assumptions on what are win-wins and win-losses are to a degree hypothetical and implementation issues can shift the anticipated assumptions from those made here. The subject, main issues explored and the type of the case studies are listed in **Table 6**.

Table 6: List of case studies

Case studies	Subject of the Case Studies	Main Issues Explored	Type
Bulgaria	4 major OPs focusing on infrastructure and horizontal EE/RES measures	-	National
Southern Finland	Use of SEA and project selection criteria	- Inclusion of sustainable development - Weighting criteria - Procedural Assessment - Governance Structures	National
Poland	Win-loss scenarios in Cohesion Policy	- Inclusion of sustainable development - Procedural Assessments - Governance Structures	National
Denmark	The organisational structure of regional development authorities	- Governance Structures - Partnerships - Consultation	National
France	Adaptation of an infrastructure to climate impacts in coastal areas, France	- Inclusion of sustainable development - Procedural Assessments - Governance Structures	National
UK	N Ireland use of DPA	- Inclusion of sustainable development - Consistency - Procedural Assessments - Reporting and Evaluation	Regional
France	Carbon neutrality in OPs	- Inclusion of sustainable development - Proofing tools	Regional

Case studies	Subject of the Case Studies	Main Issues Explored	Type
		- Governance structures	
Spain	The Green Public Procurement action plan of the Basque Country, Spain	- Weighting criteria - Financial Resources - Proofing Tools - Governance Structures	Regional
SW England	Sustainability appraisal of programme and comprehensive inclusion of environmental impacts, including Bristol	- Procedural Assessments - Reporting and Evaluation - Proofing Tools - Governance Structures	Regional
Italy	Role of sustainable development as a horizontal issue in Piedmont Region	- Inclusion of sustainable development - Assessments - Reporting and Evaluation - Governance Structures	Regional
Finland	Natureship	- Inclusion of Sustainable Development - Financial Resources - Procedural Assessment - Partnerships	Interreg
UK, BE, NL, DE, SE	SURF (Sustainable Urban Fringes), North Sea Region	- Consistency - Procedural Assessments - Governance Structures	Interreg
DE, UK, NL, BE	TIDE, Integrated management of estuaries	- Inclusion of sustainable development - Consistency - Procedural Assessments - Governance Structures - Partnerships - Consultation	Interreg
Germany	Recovering from economic downturn with renewables: Bremerhaven, Germany	- Inclusion of sustainable development - Procedural Assessments - Governance Structures	City
Spain	Building on the Covenant of Mayors approach in Barcelona	- Financial Resources - Governance Structures - Partnerships	City
Poland	Urban transport projects in Krakow	- Inclusion of sustainable development - Governance Structure	City
Portugal	'Intercommunal system for distribution and cleaning of the waters of Alto Zêzere e Côa'	- Inclusion of sustainable development - Consistency - Financial Resources	Major Project
Malta	ERDF Innovation Actions	- Procedural Assessments	Major project

Case studies	Subject of the Case Studies	Main Issues Explored	Type
	Grant Scheme (Environment)	<ul style="list-style-type: none"> - Reporting and Evaluation - Governance Structures - Partnerships - Consultation 	
Hungary	Flood management along the Tisza River in Hungary	<ul style="list-style-type: none"> - Consistency - Procedural Assessments - Governance Structures - Consultation 	Major project
Greece	Lake Karla	<ul style="list-style-type: none"> - Consistency - Governance Structures 	Major project
Austria	Eco Innovation Support through Clusters in Lower Austria	<ul style="list-style-type: none"> - Inclusion of sustainable development - Procedural Assessments - Governance Structures 	Major project
Romania	Cost recovery and affordability issues in waste water treatment projects in Romania	<ul style="list-style-type: none"> - Financial Resources - Governance Structure 	Major Project
Lithuania	Energy efficiency schemes	<ul style="list-style-type: none"> - Financial Resources - Governance Structures 	Major project
Czech Republic	Investments in the waste sector in Czech Republic	<ul style="list-style-type: none"> - Consistency - Weighting Criteria - Procedural Assessments - Consultation 	Major Project
Poland	Via Baltica (S8) expressway in North-Eastern Poland	<ul style="list-style-type: none"> - Procedural Assessments - Governance Structures - Consultation 	Major Project
Poland	Warsaw-Lodz railway upgrade	<ul style="list-style-type: none"> - Procedural Assessments - Consultation 	Major Project

Some examples of the most relevant win-wins and win-losses identified in the case studies are presented per theme below.

4.1 Environmental Impact of Case Studies

4.1.1 Water and waste

In funding waste water treatment projects it is important to ensure that the right policy framework is in place to move projects towards win-wins, as found in the case study of *Inter-communal system for the distribution and cleaning of waters in Alto Zezere e Coa (Portugal)*. The project is financed under the Portuguese OP Territorial Enhancement and aims to satisfy the water needs of the population in the region by increasing the level of waste water treatment. It is expected to supply water to approximately 149,000 inhabitants and treat water for 111,500 inhabitants. The project recognises the socio-economic issues in relation to water quality, such as quality of life and equal access to services. However, the current charging policy does not seem to be adequate to ensure full cost recovery and to reduce water consumption in the long-run. Hence, the investment is likely to lead to an

increase in water demand, unless an appropriate water pricing scheme is in place to ensure full cost recovery, as envisaged by the Water Framework Directive. Otherwise inefficient water use would entail risks of substantial negative impacts in a region such as Alto Zezere e Coa, which is characterised by water scarcity and desertification risk.

In **Romania** a policy framework has been put in place as part of the investment *in urban wastewater and water supply infrastructures* for the programming period 2007 – 2013 under Sectoral Operational Programme (SOP) Environment, which is likely to move the impacts of these infrastructures towards win-wins in the long run. The Romanian government has produced ‘Guidelines for cost-benefit analysis of water and wastewater projects to be supported by the Cohesion Fund and the European Regional Development Fund in 2007 – 2013’. These promote the introduction of charging policies that apply the full cost recovery principle and give instructions on how to ensure the affordability of tariffs. The correct implementation of the guidelines would ensure that Cohesion Fund allocations in Romania lead to an improvement in the socio-economic situation of the population, by supplying clean water to the population (socio-economic win), while controlling the level of water consumption (relative environmental win). Hence, the right policy framework is needed, in order to prevent negative impacts on the environment and realise win-wins.

The wider relevance of water pricing is demonstrated by the Lake Karla case study. The project for *the re-creation of Lake Karla (Greece)* is part of the Greek Operational Programme on ‘Environmental and Sustainable Development’. The project is designed to improve biodiversity and lead to more efficient water management in the sub-region. In order to do so, it addresses the environmental challenges of the energy-intensive use of boreholes, the overuse of underground waters and the destruction of the biodiversity of the area. In the period, 2007-2013 the project aims to:

- a) complete the reconstitution of lake Karla and of its eco-system;
- b) support the environmental upgrade of the region;
- c) improve flood-prevention;
- d) re-establish the water table and groundwater reserves, at the same time guaranteeing the supply of surface water for irrigation; and
- e) discover sufficient quantities of water from boreholes for the water supply of the nearby city of Volos.

The project is financed under priority axis 9 on ‘Nature Protection and biodiversity’; the total cost of the project is €50 million and the Cohesion Policy co-financing is €38 million. The actions supported in the Lake Karla area clearly contribute to biodiversity and environmental sustainability and will bring environmental and social benefits. At the same time, agricultural activity is expected to be maintained, and the water supply needs of nearby city of Volos⁴⁹ to be met, which will continue to put pressure on water resources. Therefore without water pricing, which will ensure sustainable use of water resources, there is no guarantee that the water reserves of Lake Karla will not once again be depleted. Although such a framework cannot be excluded, it is not clear how the current system will ensure that prices are set at the appropriate level.

Having an appropriate policy framework in place is hence important, but in some cases Cohesion Policy investments can actually contribute to future policy frameworks in Member

⁴⁹ 142,000 inhabitants

States. A negative example of this is technological lock-in, where investments that in the short term appear appealing become less beneficial in the long run, as they contribute to a future policy framework that encourages non-optimal behaviour. A potential example of this can be found in Czech Republic, which has financed numerous projects for the introduction of alternative waste management solutions, under the Operational Programme 'Environment' (financing period 2007-2013). It covers, for instance, the construction of an incinerator as a potential major project in the Moravian-Silesian Region. The incinerator is equipped with best available techniques (BAT) for energy recovery of municipal solid waste (MSW) and has a capacity of 190,000 t/year. However, there is a danger that these types of treatment facilities do not take into account the potential for waste prevention and do not attempt in any way to tackle and reduce waste production. Therefore, the project might lead to a relative environmental loss in the long term. According to a study commissioned by the EC⁵⁰, if recycling targets are to be reached, it is necessary to develop efficient collection systems before investing in treatment facilities. For those countries that just began to implement the EU strategies and legislation in the field of waste it is necessary to ensure that treatment options are sufficiently flexible to allow the further development of separate collection without compromising the value of capital investments (such as incinerators, anaerobic digestion or MBT plants). In other words, constructing incinerators or other installations which are dependent of large capacities may lead to technological lock-in as the incentive to reduce the amount of municipal waste which is not recycled may be reduced or disappear if the incinerator or other installation needs to be steadily supplied with a certain amount of mixed waste for the next 20-30 years. In this view, Cohesion Policy investments in waste management could prioritise projects within the field of waste management which avert the production of waste, and support separate collection, reuse and recycling of waste.

Even if the intention/design of an investment is that of a win-win it might be that the actual outcome does not meet these ambitions. For instance projects that strategically pursue win-wins can fail to achieve them due to obstacles during the project implementation or cross-sector coordination. An example where this could happen is the project for *flood management system along the Tisza River in Hungary*, which includes the constructions of six big flood reservoirs in Upstream and Middle Tisza, built as part of the new Vásárhelyi Plan. The EU has earmarked 1.2 billion Euro in the period of 2007-2013 for flood management measures. Four of the six reservoirs foreseen for Tisza valley in the new Vásárhelyi Plan were and will be funded under EU Cohesion Policy. This land use change would have positive impacts on the water balance as well as on the habitat diversity and biodiversity of this large area. At the same time, once in place, the infrastructure will help to minimise human and economic losses during severe floods in the future and, if the diversity of the approach is maintained (e.g. concepts of floodplain management and rural development will be attached to the traditional flood protection measures), it would also help improve the local socio-economic situation. The success of the project in achieving a win-win outcome depends on the wider policy coordination and implementation of the project. For instance failure to complement infrastructure investments with an effectively working agricultural subsidies framework for floodplain areas could prevent the effective implementation of the entire programme. In other words, the policy framework outside Cohesion Policy (in this case agricultural subsidies) is crucial for the comprehensiveness of the programme, which could be lost if the implementation is limited to individual EU-funded projects, which concentrate only on classical flood protection measures. For these reasons,

⁵⁰ Final report to Directorate General Environment, European Commission, report produced by Eunomia Research & Consulting Cost of Municipal Waste Management in the EU, p. 23

due to the policy framework outside Cohesion Policy, this project can move from a potential win-win to a potential win-loss.

As shown, the economic and environmental sustainability of investments in water supply and waste water management infrastructures critically depends on the charging policy. The managing authority must ensure that the full cost recovery principle is applied and ideally also resource pricing if resources are limited. If the charging policy is not adequate, the investment in this type of infrastructures is likely to lead to higher water consumption that would be case with full cost recovery and lead to environmental losses.

4.1.2 Transport

The *city of Cherbourg*, which is one of the main urban and economic centres of Basse-Normandie (France), has the objective to develop its maritime activity through port infrastructure and to become a European hub. Hence this case study involves a trade-off between direct positive economic impacts (increase of employment, development of competitiveness, stimulation of the sector and the related activities, etc.), and negative environmental impacts (harm to biodiversity, increased use of natural areas, increased water and air pollution from port activities, marine litter etc.). However, in order to reduce the negative environmental impacts of the development, measures have been planned to offset and reduce these. The project for the expansion of the harbour envisages the development of off-shore wind-farms, which could partially offset the negative impacts on GHG emissions generated by the construction of new infrastructure. At the same time, targets for the preservation or restoration of biodiversity are being planned but have not been developed yet.

Another example of off-setting impacts of large transport projects is the 10 year project to develop the *Newquay airport in South West England* with clear adverse effects on the environment. The delivery of this £7 million ERDF investment is very carbon intensive in nature and therefore makes it difficult for the region to meet the targets it has pledged to reach in terms of carbon emissions. Although a low carbon emphasis when commissioning projects helps to ensure that impacts are minimised, there continues to be a need to re-orientate the OP and in many ways go further than the current state of the art and think about new ways to attain a real low carbon environment. The Grants for Business Investment (GBI) programme implemented in the South West tries to reflect this thinking by providing financial support to businesses that introduce changes that aim to reduce carbon emissions. There is also exploratory work around developing a low carbon grants programme for businesses which would follow a similar model to the GBI Solutions for Business product, but instead of focusing on productivity and employment gain it would seek to deliver economic resilience through carbon savings.

The major project for the *construction of S8 expressway*, Bialystok – Lithuanian border section in north-eastern Poland, is part of the Operational Programme Infrastructure & Environment with a total project cost of €457 million. The project in its original shape would have harmed biodiversity in North-Eastern Poland. It would have been an example of a serious win-loss, where the loss relates to natural habitats and species protected under EU legislation (Natura 2000). Environmental NGOs (e.g. WWF, Birdlife, Bankwatch etc.) monitored the project closely and from a very early stage the implementation of the Via Baltica transport investments, and in particular the planned Bialystok – Lithuania Border section of the S8 expressway. They have communicated on this subject with the Bern

Convention Secretariat⁵¹ since 2002 and with the European Commission and European Parliament since 2003. In 2003, the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, part of the Council of Europe) recommended Poland should carry out a full Strategic Environmental Assessment (SEA), in line with EU procedures. As a consequence of this, an SEA examining the most appropriate route was commissioned by the Polish Road Agency in 2005 and as many as 40 variants of the 'Via Baltica' route were considered. The SEA process was finalised in 2009. However, decisions failed to consider alternative routes and disregarded the on-going SEA process. Thus, the major project S8 expressway Białystok – Lithuanian border was placed on the indicative list of major projects in the Polish Operational Programme "Infrastructure and Environment" (2007-13). The project was finally halted after Poland was referred to the ECJ (case C-193/07) in March 2007 and in response to this the Polish administrative court concluded that the routing of the expressway was not optimal. The road construction was diverted from Natura 2000 sites and the negative impacts on the environment were prevented. An adequate SEA and consideration of its results would have prevented this, but the timing of the process was flawed, with project implementation already on-going before the SEA for the transport corridor was completed. The case study highlights the importance of conducting and considering findings from mandatory assessment tools appropriately.

There can also be other circumstances that can hamper good intentions in mitigating impacts of transport projects, such as in the case of Lido de Sète'. The 'Lido de Sète' project for the *coastline rehabilitation* between the cities of Sète and Marseille in France (the zone is called 'Lido') is the biggest of eight projects dealing with coastal erosion and the impacts caused by human activities on natural sites of this region. In this case Cost and Benefit Analysis proved that shifting the road next to the coastline would be cheaper than having to repair it on a frequent basis due to erosion. However, the implementation of the road shifting led to the accidental destruction of rare plant species and thus had substantial negative impacts on biodiversity. Hence, there is a need to integrate environmental considerations throughout the programming and project planning, implementation and monitoring process, as poor implementation can hinder the achievement of environmentally sustainable goals.

The environmental losses (rare plant species and intricate reeds providing shelter for animal species) could have been avoided by better anticipating the damages the major infrastructure works could entail. This could have been done through different means at different levels of the Cohesion Policy process, for example by:

- Ensuring that protection of biodiversity and ecosystems is sufficiently stressed in the dedicated section of the OP;
- Putting biodiversity and ecosystem preservation as a conditionality measure (based on a mapping of the zone);
- Funding trainings for construction companies working in environmentally sensitive areas etc.;
- Requiring, at the project selection level, a certificate assessing that the construction company is able to work in sensitive areas; and

⁵¹Secretariat of the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats) provides administrative support for the convention's governing body, the Standing Committee. The Standing Committee monitors implementation of the Convention and provides guidance and recommendations to improve its effectiveness.

- Ensuring that project evaluations include relevant indicators capable of measuring whether biodiversity has been successfully protected during the project.

In common with all transport OPs, assessed as part of the case studies, is an **emphasis towards road construction compared to rail**. For instance in **Bulgaria the Transport OP** has the largest budget of €2 billion with support for road construction being allocated 54 per cent of the total budget of the OP, which is twice the amount allocated for railways. Funding transport infrastructure has also been defined as one of the key priorities of Cohesion Policy interventions in Poland in the 2007-2013 programming period. Out of the total €25 billion EU fund of assistance to the transport sector, more than 60 per cent is allocated to roads, while only 22 per cent is allocated to rail infrastructure (the remaining 18 per cent is allocated to urban transportation and other transport priorities).

In the case of Poland the concentration of funds on road building projects is at least in part due to the application of the **funding gap analysis**. The funding gap analysis is an instrument applied to allocate funds in consideration of the revenues generated by the investment. In particular, on the basis of the funding gap analysis, allocated EU contributions are inversely proportional to the revenues generated by the investment. Since rail infrastructures in Poland generate higher revenue than road infrastructure, road transportation is eligible for greater co-financing. The result of the application of this principle is higher EU contribution towards the development of road infrastructures than towards railway infrastructures and thus a possible negative impact on modal split. Hence, in the absence of a holistic view of the transport sector, specific tools used in the context of Cohesion Policy might actually lead to the concentration of financial resources on projects and investments that are likely to result in negative impacts on the environment. This approach indicates that the OP is not designed to provide incentives for changes in modal split, but rather it reinforces the current situation. In conclusion, the funding gap analysis in the transport sector in Poland might strengthen win-losses, rather than reconciling them, with clear negative consequences for the environment.

4.1.3 Climate change and Energy

A relatively large number of win-wins focus on the ‘**climate change and energy**’ theme. Operational Programmes and projects, particularly in EU-15, seem to have focused on improving the profitability of enterprises by promoting projects that support research and innovation and increase their energy efficiency, minimise waste and ensure more efficient use of raw materials.

The initiative ‘**Energy and Environment**’, a cross cutting priority of the **Danish ERDF Programme**, focuses on biomass, wind energy, solar energy, district heating, heat pumps, buildings, transportation (electricity and hydrogen) and environmental and energy technology development in SMEs. The regional energy and environment sectors are perceived as important drivers for economic growth and social development in the region. This perception is based on recent developments, where the sectors have experienced an 8 per cent increase in employment and a 36 per cent increase in turnover between 1999 and 2004⁵². Hence, eco-innovation is a core element of the regional business development strategy. At the same time, the initiative has direct positive environmental impacts, for example, through the increased production and the improved utilisation of renewable energy.

⁵² Region Midtjylland (2008): Region Midtjylland som Energi- og miljøteknologisk foregangsregion. Visioner og mål for en fælles regional indsats.

Investments in **off-shore wind energy in Germany (Bremerhaven)** combine the promotion of renewable energies with job creation and economic growth in the long term. In 2003, the Bremen Senate decided to transform Bremerhaven into a centre for renewable energies, in order to generate employment and tackle the economic downturn. Job creation is the overall objective for which Land Bremen wants to use ERDF and EU funds. The aim is to address the most pressing economic issues, by investing in the environment where this has the strongest synergies with economic development. For this reason, the city has developed the 'on and offshore wind energy strategy for Bremen and Bremerhaven', which sets the direction for activities in the fields of R&D, business support activities and qualification measures. The ERDF support has been a vital incentive for the offshore wind energy industry, the development of regional innovation systems and the introduction of co-operative research and development projects between research institutes and companies. The multiannual nature of the ERDF support has also ensured continuity and stability and according to an independent evaluator, national funds do not offer the same advantages for strengthening a regional innovation system as the ERDF, which targets regional specificities⁵³.

Under the Convergence Programme, **Cornwall, UK** has embraced the competitive advantage that an environmental focus building on local natural assets can have in the development of '**Wave Hub**'. Wave Hub is a 'socket' sitting on the seabed for wave energy converters to be plugged into as part of developing marine energy technology whilst leading to jobs, innovation and increasing competitiveness. It will make the area a sector leader in marine energy opportunities. The UK government has invested £9.5m in the £42m wave hub and the project will also receive £20m of European funding. The Regional Development Agency (RDA) also provided £12.5m to the sea-powered electricity generator. The funding is part of government plans to make the South West of England a world centre for tidal energy. The Programme aims to deliver economic and environmental benefits through a mixture of low carbon investments and R&D which will aid the region in the ambition to become a leader in the low carbon economy. Furthermore low carbon investments have the potential to increase economic competitiveness through increasing long-term profits.

In **Lithuania**, the investments into **energy efficiency in buildings** contribute to reduced use of natural resources and the reduction in greenhouse gas emissions. At the same time, the decrease in energy intensity will improve Lithuanian's competitiveness in a global context and create more job opportunities. The closure of the Ignalina nuclear plant, the need to import electricity and the process of liberalisation has led to an increase in the electricity price in Lithuania. It has been predicted that the increased price of energy will reduce Lithuania's GDP by one percentage point and will increase inflation by one percentage point. These predictions put pressure on the Government to reduce energy consumption. For this reason, energy efficiency has become a priority for the Lithuanian government.

4.1.4 Ecosystem services

Ecosystems and the resources and services they provide (i.e. our natural capital) underpin our socio-economic welfare⁵⁴. Therefore, supporting the protection and sustainable management

⁵³ See note 14

⁵⁴ As noted in The Economics of Ecosystems and Biodiversity (TEEB) books - see TEEB (2011) The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London. – and reports – see www.teebweb.org

of biodiversity and ecosystems can also bring benefits to broader sustainable socio-economic development and support the goals of Cohesion Policy.

For example, protected areas such as Natura 2000 sites can play an important role in creating tourism, maintaining food security, supporting physical and mental health and protecting cultural heritage values as well as sources of knowledge. This type of win-wins has been identified in numerous case studies, both in new and old Member States. Three of the case studies have incorporated ecosystem services as part of the projects and are described below.

The emphasis of the **Natureship project** (which includes Finland, Sweden, Estonia and Latvia) of Central Baltic Interreg IVA Programme is a novel approach on planning and management of traditional rural landscapes and selected coastlines. The aim of the project is to create and restore an optimal ecosystem service network based on integrated sustainable coastal planning. The project will also assess how to achieve cost-effective planning and management of traditional rural biotopes of city areas in order to enhance public and biodiversity values. Overall the funded projects of the Central Baltic Programme are win-wins, reflecting the holistic and proactive objectives that can be funded under Priority 1 (safe and healthy environment). This priority has a spatial planning component and could be used as a model of the type of objectives that can be used for integrating the environment into land use planning from a territorial cohesion point of view, as defined in the fifth Cohesion Report. It would also correspond in a meaningful way to any approaches to macro regions, such as that of the Baltic Sea or the Danube regions. It is also worth noting that the environmentally focused Priority 1 has already absorbed half of the allocated resources, whereas the normally popular Priority 2 of economic competitiveness and innovation has a much lower absorption rate. This is especially interesting as the type of objectives covered by Priority 1 are not typical environmental objectives (such as eco-efficiency etc.) but are more focused on the strategic and innovative parts of environmental policy, such as ecosystem services.

The **SURF project** (which includes UK, Netherlands, Sweden, Germany and Belgium) financed under the North Sea Regional Programme, anticipates delivering economic and environmental benefits by developing a range of tools and recommendations to improve the competitiveness of urban fringes, while at the same time recognising the value of, and maintaining and developing, green spaces. The respective partner projects demonstrate a consideration of economic, environmental and social considerations. For example, the partner project in Aberdeen focuses on improving the environment along the River Don, which runs through the north of the city. The project aims to investigate opportunities for green tourism and to improve access for the local people, by empowering local communities. The overall aim of the projects to overcome talk about conflicts and trade-offs between the economy and the environment and move towards a situation where there is a common perception of the problems that takes account of the range of relevant environmental and economic benefits and impacts. In this respect, tools that assist with the economic quantification of ecosystem services, for example, are potentially important, as the lack of quantification of ecosystem services has been a barrier to the inclusion of such services in the decision-making process. However, there are no specific attempts to evaluate ecosystem services within the SURF project.

TIDE (Tidal River Development) is an Interreg project which covers the estuaries of the Rivers Elbe (Germany), Humber (England), Scheldt (Belgium and the Netherlands) and Weser (Germany) and brings together experts, scientists, policy-makers and managers representing economic, social and environmental interests in the four estuaries. The aims of TIDE are to identify knowledge gaps in hydrology, morphology and ecology, and integrate planning in local policy whilst ensuring that Natura 2000 and Water Framework Directive requirements are met. The project covers the key themes of nature, transport and water. A budget of €3.7 million is available, 50 per cent of which is derived from the European Regional Development Fund, financed through the Interreg IV B North Sea Programme, and 50% is paid by the partners. The TIDE approach will link ecosystem services to economic values by aiming to achieve a win-win. The **ecosystem services approach** has been cited by stakeholders as particularly important in gaining win-win outcomes. In practice, the ecosystem services approach works by defining the most important ecosystem services in each estuary and then relating this to benefits. By this method one is able to compare measures and enhance ecosystem services. The estuary ecosystems for sustainable provision of services allows for the continued development of ports whilst preserving natural assets.

4.1.5 Innovation

The Eco-Innovation cluster programme in **Lower Austria** contributes to investment in sustainable innovation and finances research and development in SMEs. The programme aims at improving the competitiveness of SMEs in the region, while it also pursues environmental objectives (e.g. cutting GHG, increase percentage of renewable energy in energy production and reducing energy consumption). The total budget for the cluster programme is €20.6 million; of this, €5.6 million comes from Community funding, which corresponds to 3.9 per cent of the entire OP allocation. The cluster programme provides support to groups of SMEs for the promotion of environmentally-friendly products and production processes and for investments in R&D and innovation. Each of the six clusters allocates resources to SMEs and group of companies that will re-invest the money in R&D activities, which are expected to lead to economic growth and which aim in particular to create permanent jobs. At the same time, the analysis has proved that these measures could lead to environmental gains.

In the **Piemonte region** (Italy) ‘extra environmental funds’ (maggiorazione ambientale) are available for SMEs in cases where the financial assistance improves environmental outcomes. The managing authority and the environmental authority stressed that win-wins could be achieved in particular through the measures in Axis 1. The objective of the interventions under this Axis is strengthening the competitiveness of the region by promoting research and innovation, particularly in SMEs. Under Operational Objective 1.2 in particular, interventions promote innovation towards more sustainable and ‘green’ production. This could lead to economic growth coupled with energy efficiency. According to the Managing Authority, in particular during this economic crisis, enterprises have realised that shifting towards more ‘green’ production does not represent a cost but a saving mechanism and they are increasingly relying on these tools.

4.1.6 Win-wins and win-losses and the role of implementation

Looking at the evidence from the case studies, it appears that a large number of **win-wins** are generated from investments in **eco-innovation and eco-efficiency**, in particular in old Member States. This has facilitated the achievement of synergies between different sectors of the economy and the environment. Community funding have been directed towards R&D

activities and innovation that have sponsored investments in environment-friendly technologies. These innovations have ultimately led to the creation or expansion of niche sectors that promote growth, employment and competitiveness, while protecting the environment. This is the case, only to mention some, of the ‘wave hub’ in South West UK, off shore wind energy in Bremer (Germany), eco-innovation in Lower Austria and the initiative ‘Energy and Environment’ in Denmark. It is clear that this type of win-wins can be achieved primarily in old Member States, where resources can be concentrated on innovation, rather than on the development of basic infrastructures. In this sense, Lithuania might represent the ‘exception to the rule’ as the national OP concentrates a large share of investments into energy efficiency in buildings.

As far as new Member States are concerned, evidence suggests that a large share of resources is allocated to interventions to ensure environmental compliance, build infrastructures and environmental infrastructures, and manage risk. These investments often lead to **trade-offs between environmental and economic goals**, which are usually justified by the argument that new Member States need to undertake the necessary investments related to basic infrastructure, notably using EU funding. At the same time, it seems from the case studies that, in some instances, new Member States have been able to contain the negative impacts on the environment by putting in place effective and innovative governance systems. It appears that often comprehensive and well-structured governance systems are the discriminatory factor between win-wins and win-losses in new Member States. The role of specific factors in determining whether projects would lead to win-wins or win-losses is discussed below.

Table 7 summarises some⁵⁵ of the likely outcomes (win-wins and win-losses) presented in the previous paragraphs. In particular, it focuses on those situations, analysed as part of the case studies, in which the current situation or the likely results could differ substantially from the initial planned objectives. In most of the cases, these differences in outcomes is due to the introduction of, or the lack of, specific policy instruments that could change the outcome of the projects and, for this reason, might influence trade-offs between the economic and environmental dimension. In an attempt to capture this, each of the rows in Table presents:

- Case study or project.
- The initial planned outcome of the project, as envisaged in the Operational Programme and as designed by the responsible authorities.
- The current situation and how it differs from the initial planned outcomes.
- The factors that have determined a shift from the initial planned outcomes to the current situation and that might have influenced the existing trade-offs.
- The likely outcomes predicted by the analysis carried out as part of the case studies, which consider the extent to which the determinant factors have been put in place.

From the table it is possible to note that the most interesting case studies in this sense are those in the ‘water and waste water management’ theme and in the ‘transport’ theme. In the cases the absence of determinant factors might turn win-wins into win-losses or the introduction of determinant factors might turn win-losses into win-wins.

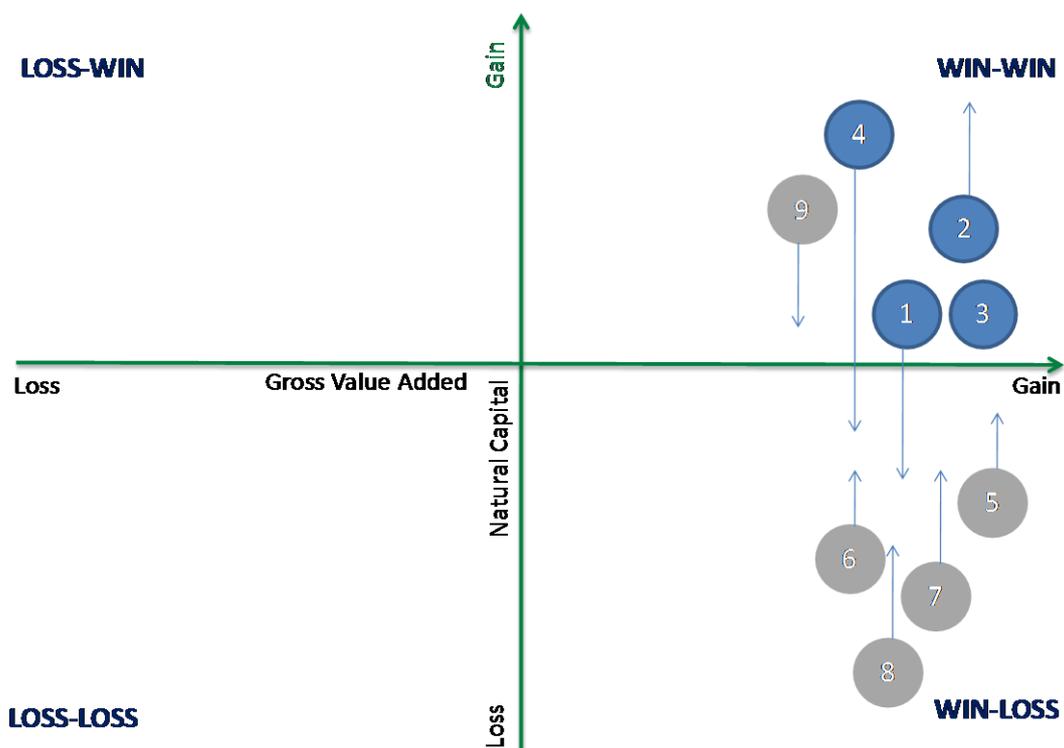
⁵⁵ Note that this assessment is mostly based on the project specific case studies as the other case studies are too broad and multifaceted to be presented here.

Table 7: Factors influencing win-wins and win-losses

		Case Study	Initial planned outcomes	Current situation	Determinant Factors	Likely outcomes
Water and waste water management	1.	Inter-communal system for the distribution and cleaning of waters in Alto Zezere e Coa (Portugal).	Win-win: Satisfy the water needs of the population in the region, in quantitative and qualitative terms by increasing the level of waste water treatment	The current charging policy does not seem to be adequate to ensure full cost recovery and to reduce water consumption in the long-run.	Water charging policy	Win-Loss
	2.	Urban wastewater and water supply infrastructures (Romania)	Win-(relative) win: Improve the socio-economic situation of the population, by supplying clean water (socio-economic win), while controlling the level of water consumption (relative environmental win)	The Romanian government has produced Guidelines that promote the introduction of charging policies for full-cost recovery	Water charging policy	Win-Win
	3.	The re-creation of Lake Karla (Greece)	Win-win: Improve biodiversity and lead to more efficient water management in the sub-region	It is not clear how the current system will ensure that prices are set at the appropriate level	Water charging policy	Unclear
	4.	Flood management system along the Tisza River (Hungary)	Win-win: Positive impacts on the water balance as well as on the habitat diversity and biodiversity of this large area	Failure to complement infrastructure investments with an effectively working agricultural subsidies framework for floodplain areas could prevent the effective implementation of the entire programme	Policy framework outside CP.	Unclear
Transport	5.	City of Cherbourg (Basse Normandie, France)	Win-loss: Develop its maritime activity by positioning its port infrastructures as a European hub	The project for the expansion of the harbour envisages also the development of off-shore wind-farms, which could partially offset the negative impacts on GHG emissions generated by the construction of new infrastructure	Policy off-setting negative impact on environment	Win-(relative) loss
	6.	Newquay Airport in South West England (UK)	Win-loss: Carbon intensive project that does not contribute meeting the targets in terms of carbon emission of the region.	The Grants for Business Investment (GBI) programme provides financial support to businesses that introduce changes that aim to reduce carbon emissions.	Policy off-setting negative impact on environment	Win-(relative) loss
	7.	Construction of S8 express-way (Poland)	Strong Win-loss: The project in its original shape would have probably seriously harmed biodiversity in North-Eastern Poland.	The project was halted after the EC referred Poland in front of the ECJ and the road construction was diverted after an appropriate SEA was carried out	Appropriate SEA	Win-(relative) loss
	8.	Transport Infrastructures in Poland	Win-loss:	Higher user charging are applied to the transport mode with lower externalities	Funding Gap Analysis	Win-(relative) loss
	9.	Coastline rehabilitation (Sete Marseille, France)	Win-win: 'exemplary operations' dealing with coastal erosion and the impacts caused by human activities on natural sites of this region	Implementation of the road shifting led to the accidental destruction of rare plant species and thus had substantial negative impacts on biodiversity	Integration of environmental considerations	Win-loss

Figure 20 summarises the content of the table. Each of the circles represents one of the case studies listed in Table 7; the position of the circle in the spectrum is determined by the initial planned outcomes. Hence, if, for instance, the project was expected to lead to a win-win, the correspondent circle is located in the top-right quadrant. The arrows instead represent the possible effects of the determinant factors on the initial situations. Hence, in the case of project 1, for instance, the absence of an adequate water charging policy might lead to a shift from a possible win-win to a possible win-loss. (The direction of the arrows assumes that there is no impact on gross value added of changes to natural capital. In practice, changes to natural capital would impact on gross value added, but such considerations have been ignored for the purposes of simplicity.)

Figure 20 Win-wins and win-losses (economic-environmental)



The table and figure above suggest that, especially when it comes to specific investment themes, the outcome of the project might be easily influenced by the introduction of, or the lack of, specific policy instruments. These specific policies/factors might affect trade-offs between economic and environmental dimensions, which result from the implementation of projects.

In the case of investment in water and waste water management, the case studies suggest that they could easily lead to trade-offs between the economic and the environmental dimension, if appropriate water charging policies are not put in place. This would imply that projects that might lead to win-wins are likely to ultimately lead to win-losses if the appropriate policy is not in place.

In the case of investment in transport infrastructures, the case studies suggest that the introduction of specific policies and the delivery of adequate SEA and EIA could reduce the negative impacts of these projects on the environment.

This analysis suggests that the governance structures and the policy instruments surrounding the implementation of Cohesion Policy interventions are ultimately crucial in determining the success of the Operational Programmes and of specific projects and in avoiding trade-offs between the economic and environmental dimension. How these policy instruments have been used will be discussed in more detail in the next section.

4.2 Case Studies and Environmental Integration

The review of experiences with the application of integration tools follows the same structure of strategic, procedural and organisational instruments as explained in Section 3.3. From the national and regional experiences we will be able to distil some innovative instruments based on locally tailored approaches. Examples of case studies where there is further room for improvement are also mentioned.

4.2.1 Experiences with strategic instruments

In a number of case studies the **national or regional sustainable development strategies** have been underlined as important instruments that have aligned the Operational Programmes with sustainable development objectives, principles and targets. This is encouraging for translating into the Operational Programmes the targets and objectives of Europe 2020, as suggested by the Fifth Report of Cohesion Policy. At the same time it is important to acknowledge that Cohesion Policy should not be restricted solely to the aims of Europe 2020, as it is broader than that, as defined in the Treaty. For instance, the strategic alignment of the OP of the Catalonia region was underpinned by its Sustainable Development Strategy. This strategy establishes a roadmap of key objectives and orientations to guarantee Catalonia's transition towards a safe, eco-efficient low-carbon economy. The correspondence between the objectives identified in the Strategy for Sustainable Development and those identified in the Operational Programme suggests that there is a strategic alignment between the two. In addition, the 2026 Strategy provides long-term inter-departmental guidance to ensure collaboration across different departments and government agencies ('comprehensive approach') and between the government and citizens. It sets the ground for collaboration across the teams involved in the implementation of Cohesion Policy measures.

A number Member States and regions have framed **sustainable development as a horizontal principle** (See Supporting Paper 4: Case Studies). The integration of horizontal issues, however, has been challenged during the implementation of programmes (particularly in terms of translating it into the system of generating, appraising and selecting projects for financing). However, **new Member States have struggled to operationalize the complexity of sustainable development into what it should concretely mean for project development**. In Hungary, for instance, it has been reported that horizontal objectives are seen merely as an administrative obligation. The Hungarian National Development Agency argues that that this approach should be reviewed, for instance, by setting minimum conditionalities⁵⁶. In other cases, such as in Malta, environmental considerations and sustainability are not discussed as a horizontal priority, but are pursued separately.

⁵⁶ Gyene Gyöngyvér, National Development Agency Hungary, Environmental Requirements in the Implementation of the Operational Programs, Presentation at ENEA meeting, 26/05/2010, Warsaw

The Fifth Cohesion Report states that the strengthening of strategic programming will be achieved through the Common Strategic Framework, which will set the targets and objectives under shared management, covering the Structural Fund, the Cohesion Fund, the European Agricultural Fund and for Rural Development and the European Fisheries Fund. In relation to this the Bremerhaven off-shore wind case study is a good example of coordination with other EU funds under **shared management**. Funding is received from the European Fisheries Fund (EFF), the European Agricultural Fund for Rural Development (EAFRD) and by the ERDF under the “European Territorial Co-operation” instrument. While all these funds are directed towards the achievement of the same overarching objectives, they target different aspects of the wide strategy and thus avoid double-funding of the same measures. At Land level, a number of programmes have been initiated to complement these activities. This case study is also relevant in being a good example of **increasing thematic concentration** as required by the Fifth Cohesion Report as the off-shore wind energy strategy for Bremerhaven formed the basis for policy planning and programming in all departments and, according to public sector stakeholders, achieved a **wide commitment among all relevant decision makers** at Länder level.

An example of effective coordination with EU funds not under shared management can be found in the **cluster programme of the Lower Austria** region. The programme provides pre-competitive support for mainly small and medium enterprises, in order to strengthen their eco-innovation capacity in six main areas (Green Building, plastics, food, automotive, mechatronics and logistics). The total budget for the cluster programme is € 20,600,00, a third of which comes from ERDF.

In other cases, in order to ensure coordination between national and EU funds, EU investment is made conditional on the national government taking specific action. This has been the case in **Lake Karla (Greece)**, where EU investments in the rehabilitation of the lake were conditional on national government action. A project, supported by Cohesion Fund co-financing, was started in 1999 to work for the reconstitution of part of what was previously Lake Karla. The investments made were aiming to re-create approximately 38,000 acres of the lake out of the pre-existing 130,000 acres that was the surface of the lake before it was drained in the 1960s. This EU co-funded investment was conditional on the national government investing in an agricultural irrigation system to provide an alternative source of surface water for local farmers. Hence, a separate nationally funded project providing an agricultural irrigation system, alongside the re-creation of Lake Karla, also supports the plan since it will enable farmers to use surface water instead of the underground water reserves of the area. The separately funded interventions designed to provide irrigation from surface waters to agricultural lands near Lake Karla, are being created during the 2007-2013 period. However, this has not yet been completed and it is therefore difficult to calculate the savings the investment will give rise to.

All case studies have identified that specific environmental or environmentally-related objectives have been developed for the Operational Programmes. Most often these objectives are linked to the **implementation of the EU environmental acquis** and therefore entail the construction of basic environmental infrastructure in the field of waste water, water supply, waste management and the establishment of Natura 2000 network. This is the case in most of the new Member States case studies and ‘cohesion’ countries. In Bulgaria, the entire OP Environment (the second biggest OP in the country with total budget of €1.8 billion) is intended to accommodate investment needs linked to the implementation of EU

environmental *acquis* and therefore its key objectives and subsequent priority axes are set with regard to water management, waste treatment and biodiversity protection. The compliance with EU waste water treatment legislation appears as a key priority in Romania as well. However, the establishment of environmental objectives is also often complemented through well-established **national/regional policy frameworks**. In Piemonte for instance, the NUVAL (Evaluation authority of the region) and the Environmental Authority identified, through two different but complementary analyses, environmental objectives that establish a reference framework for the programming phase of EU Funds. The positive environmental orientation of the Piemonte OP appears to have been pre-conditioned by the existence of such general environmental reference framework.

In setting environmental objectives it is important to set **quantified environmental targets** to improve the evaluation, performance and results of Cohesion Policy, as required by the fifth report on Cohesion Policy. A good example of this approach can be found in the development of the Basque Country OP. Here the development of environmental objectives is accompanied by the establishment of quantified environmental targets by 2013. The explicit targets bind the OP to the achievement of concrete outcomes from environmental perspective and set out a reference for monitoring. The specific Basque Country objectives set for risk prevention and GHG emissions are shown in Box 5.

Box 5: Setting quantified Environmental Objectives; an example from Basque Country OP

The quantified environmental objectives in the Basque Country OP are:

- Stabilizing GHG emissions: taking 1990 levels as a reference (100) the objective is to stay below the level of 132 in 2013, only slightly increasing from 130 in 2006⁵⁷ (consistent with the national target, but slightly less stringent);
- Reach 33.88 hectares of rehabilitated priority areas. This will be achieved through the implementation of:
 - 9 action plans for the restoration and the protection of the environment
 - 2 data centres for the promotion of knowledge on the environment

The specific objectives set for the 2013 horizon regarding transport and energy resources are:

- 185,240 travellers per year regularly using urban transport. This will be achieved through the implementation of:
 - the implementation of 1 action plan to promote the use of public transport
 - the construction of 6.44 kilometres of cycle lane
 - the promotion of 10 green public transport vehicles (bus, trains, etc.)
- Reach a rate of 5.2 per cent of total energy production coming from renewable energy sources and the implementation of 15 action plans for the improvement of energy efficiency.

The Communication on sustainable growth requires a transition towards a low-carbon economy and here the **principle of carbon neutrality** is of importance to steer the projects funded by Cohesion Policy in the right direction. Although not a legally binding requirement, it has been introduced to a few OPs. In compliance with this principle of carbon neutrality, projects which emit GHG emissions have to **offset** these by other investments, such as efforts on energy control, supply of alternatives to road transport, development of renewable energies and promotion of energy efficiency. This principle of carbon neutrality has been

⁵⁷ According to the OP, the index was 131.06 in 2010.

applied effectively in the French regional OP through the NECATER tool (Box 6) and will also be applied in South-West England by the Carbon Compass tool. In this approach, GHG emissions generated by investments in economic development (and to a lesser extent in housing and transport) are compensated in the short-term by reductions in GHG emissions thanks to investments in energy control, renewable energies and the environment. The impact of the investments in terms of GHG emissions tend to be neutral for all the categories in the long run (>30 years, as this is the lifetime of the investment). At the aggregate level, the cumulated impact is estimated at approximately 700 teqCO₂ saved. In Austria, the principle is also applied to ensure that all activities are at least neutral in their environmental impacts. This is done by a *plausibility test* on the basis of an environmental questionnaire, which the tenderer has to submit.

Box 6: Necater: a carbon proofing tool designed for regional investment programmes

Necater was designed to assess the overall neutrality of a set of projects in various sectors in terms of GHG emissions. Its results illustrate the importance of specific sectors in the overall CO₂ balance of the investments and helps prioritizing investments according to the CO₂ emissions target that has been set at national and regional level.

Unlike the CPER⁵⁸, in which investments in areas such as infrastructures and traditional industrial activities remain significant and, as a result, generate significant net GHG emissions, all the French OPs comply with the principle of carbon neutrality. As specified by national officers, the unofficial objective is now to go beyond the principle of carbon neutrality and present programmes characterized by significant net negative emissions.

According to a first evaluation in 2008 for a sample of 10 OPs, the results range from +16 tCO₂eq to -300 tCO₂eq, totalling 730 tCO₂eq saved. Carbon neutrality of programmes will be achieved by actions in favour of energy control, renewable energies and waste which compensate emissions of industrial activities, road freight and home/work commuting induced by urban developments, for example. Carbon emissions evaluated by Necater are only industrial and energy related emissions and do not include emissions generated by land-use changes, for example. Necater does not have any ambitions at the moment regarding the integration of natural capital in the assessments.

Governance – How and by whom is Necater used

Necater has been developed at national level by the administration in charge of regional planning (DATAR)⁵⁹. The evaluations are generally performed by the *prefectures*, which are the representatives of the national authorities at regional level. The specific unit actually carrying out the evaluations in each *prefecture de region* is the secretariat for regional affairs (*SGAR*). Regional authorities (*Conseils régionaux*) are not currently directly involved in the evaluation phase but there are no legal barriers to their implication: as the tool is simplified and gets more user-friendly, regional authorities will get more and more involved in this process.

Training and knowledge sharing on Necater for the users has been limited up to now. In addition, the first versions being not very user-friendly and users have experienced difficulties in using the tool. The DATAR, which is in charge of Necater, will organize regular training sessions and improve the communication and information on this tool in order to facilitate and generalize its use.

⁵⁸ CPER (Contrats de projet État-région) constitute an agreement between national and regional authorities regarding the financing of important projects, such as infrastructure projects or investments in research and development. In addition to national and regional authorities, local and municipal authorities can also be involved in the definition of priority axes and in the financing of the projects. CPERs are made for a period of seven years.

⁵⁹ Délégation interministérielle de l'Aménagement du Territoire et de l'Action Régionale

Necater in practice

Necater is addressed to non-technical users. The tool transforms investment amounts in the different sectors concerned by the programme into GHG emissions, by applying a set of regional ratios. These ratios, such as the share of a given sector in the region's value added, or its carbon intensity, for example, are based on region specific data which is provided by regional data centres (INSEE's⁶⁰ regional offices, for example). Users can also change some key parameters of the model where they have more accurate information, such as modal shift, which can differ significantly across regions, according to the available and projected transport infrastructures, etc. A complementary tool will even be created by Basse-Normandie in order to fully integrate the regional specificities in the modelling.

Transferability of this tool to other Member States

The potential for transferability of this tool, with limited adaptations, depends on three decisive factors:

- The nature of the OPs: this tool has been developed for regional OPs and could not be used as such to evaluate sectoral OPs. However, it could be relatively easily adapted to estimate exclusively sector or sub-sector specific emissions, provided the appropriate economic and technical data are available. As it is currently used at regional level to evaluate the overall balance in terms of GHG emissions generated by regional investments, a "sectoral" NECATER could help identify, within a given sector, the potential offsetting investments required in order to achieve an overall target of no net emissions (for example, in the transport sector, identifying the amount of investment required in rail to offset emissions related to road construction projects).
- The existence of socio-economic and technical data (such as region and industry specific emission factors) at the appropriate level of detail at regional level, reliable and precise enough to construct the regional ratios necessary to translate the sectoral investment amounts into GHG emissions. Developed regional information systems do not exist in all of the Member States, especially, but not only, in the new Member States.
- Finally, given the current level of accuracy of NECATER, the investment amounts have to be different enough for the model to provide reliable and interpretable results: if there are only a few sectors concerned by the investments and if the amounts allocated do not differ significantly, the results will not be clearly interpretable.

Similarly, innovative policy instruments have been explored also in the South West of England. For example **carbon accounting** is being developed by the Regional Development Agency (RDA) as an innovative instrument that could be more widely used within the programme. The RDA has worked with an independent research institute to develop an approach for assessing the carbon impact of investments and achieving the net zero carbon ambition. The RDA is now beginning to implement this approach, known as the *Carbon Compass*, across their investment portfolio for any project with a total financial value in excess of £1 million and for all projects that significantly generate or save carbon⁶¹. Denmark is also experimenting with carbon-accounting at the regional and local level, using an input-output framework. This work is likely to provide interesting insights on the use of carbon calculators in impact assessments.

⁶⁰ French national statistical institute

⁶¹ http://www.southwestrda.org.uk/working_for_the_region/working_for_the_environment/low_carbon_economy.aspx

4.2.2 Experiences with procedural instruments

The EU Funds Regulations do not require the deployment of green public procurement (GPP) or other voluntary instruments such as EMAS or ecolabels as cross-cutting conditionalities in the Operational Programmes. However, there is growing practice in the application of such instruments in the assessed case studies. For instance the Basque country is aiming to achieve 40 per cent GPP of the total public procurement by setting in its OP 20 actions aiming at promoting an environmentally sustainable consumption of resources in public buildings and undertaking 25 exemplary actions by the administration. The strong commitment towards such objectives and targets is underpinned by a strong locally-driven aspiration towards the promotion of sustainable consumption and production.

The establishment of **explicit environmental criteria** and assigning sufficient weight to them could be seen as the most straightforward way to stimulate environmentally sound projects. Some countries have established environmental criteria, granting up to 20 per cent weight to them in the project selection process, such as Bulgaria, Malta and Finland. Sometimes the identification of environmental criteria was a result of a successful application of the SEA which highlighted important environmental issues and recommended the development of specific criteria to provide the right signal to beneficiaries and favour more environmentally sound projects. For instance, the Polish authorities introduced energy efficiency as a horizontal principle in all OPs and this was subsequently reflected in the project selection criteria.⁶² In the Southern Finland OP the higher weighting of environmental criteria of the Southern Finland OP has also led to a higher percentage of environmentally positive projects compared to the other Finnish OPs, as shown in Box 7.

In setting environmental project selection criteria it is important to set clear standards for these in order to avoid a situation where meeting these criteria is more or less automatic and does not reward projects that go beyond them. For instance in the Maltese OP, up to this point, a large majority of applicants have been given full marks on sustainability and carbon impact concerns. This could indicate that requirements to gain full marks are too low and that there is no real incentive in the system to implement more expensive but environmentally friendly solutions and applications. Hence, there is the possibility that more environmentally friendly projects will lose out because their proposals will have a higher cost.

⁶² DG Regional Policy. Poland: results of the negotiations for Cohesion Policy strategies and programmes 2007-2013, http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/negotiation/country_pl_en.pdf

Box 7: Weighting of environmental criteria and environmental projects funded: an example from Finnish Operational Programmes

The table below shows that the Southern Finland OP has the highest weighting for environmental criteria of the Finnish OPs. In the table Priority 1 is ‘Promotion of business activity’, Priority 2 is ‘Promotion of innovation activity and networking, and reinforcing knowledge structures’, Priority 3 is ‘Improving regional accessibility and operational environments’, Priority 4 is ‘Development of larger urban areas’ and Priority 5 is ‘Thematic development at regional level’.

Programme	Priority 1	Priority 2	Priority 3	Priorities 4 and 5	Weight
Southern Finland	1/6	1/6	1/6	1/6	17 %
Western Finland	1/10	2/12	3/8	0/10	7 %
Eastern Finland	0/9	0/7	1/5	-	2 %
Northern Finland	0/8	0/11	0/5	-	0 %

In order to get an indication of the potential influence these have on project selection in practice we assessed the type of projects that had been funded. The table below shows the percentage and number of environmentally positive projects (in brackets) funded by the end of 2009 based on the annual implementation report.

Programme	Priority 1	Priority 2	Priority 3	Priority 4 and 5
Southern Finland	11 % (26)	29 % (14)	46 % (46)	43 % (18)
Western Finland	9 % (60)	14 % (29)	45 % (56)	24 % (2)
Eastern Finland	3 % (37)	8 % (35)	33 % (64)	
Northern Finland	4 % (45)	11 % (35)	42 % (87)	

As we can see from the table the number of environmentally positive projects funded is much higher in Southern Finland compared to the other regions and this suggests that the higher weighting for environmental criteria in the Southern Finland OP has had an impact on the proportion of environmentally positive projects funded. The small difference between the regions for Priority 3 can be explained by the priorities environmental focus and hence the role of environmental selection criteria is less relevant.

There are also interesting examples where the selection of projects, based on environmental criteria, is enhanced through the establishment of appropriate institutional structures or coordination mechanisms where environmental expertise could aid the selection process. In Denmark for instance, the spectrum of actors involved in the project application process was broadened to include professionals from the regional administration and expert groups, etc. In this way, professionals and the expert groups could contribute with their skills in areas such as environmental protection, green energy and environment technology. In Basse-Normandie a dedicated governance structure, so called environmental commissions (composed of regional council officers), was created to participate in the process of project selection. After a project has been submitted by a client/project manager, two commissions - a sectoral commission and a sustainable development commission - proceed with the evaluation of the project on a sequential basis. The projects are selected mainly based on environmental criteria specified in OP and in other programmes, at regional or national level.

In the project selection process there is not only a case for a better integration of the environment but also to improve the economic potential of environmental projects. Here the approach taken by the application selection process in the Midtjylland Region in Denmark is

of interest. The regional authorities guide the applicants in the **development of the business case for their environmental projects**, providing feedback and assistance during the drafting of the preliminary project outline documents. This approach not only promotes environmental projects that would not otherwise comply with the criteria of Cohesion Policy (because they lack economic justification), but it also promotes the development and commercialisation of environmental technologies and services.

The research within the 26 case studies explored a wide range of experiences with the application of Strategic Environmental Assessments (SEA) at programme level and, Environmental Impact Assessment (EIA) at major project level in the context of the 2007-2013 EU Funds programmes. SEA and EIAs are widely considered two of the most well established instruments for environmental integration⁶³ of EU Funds programmes and projects. Still, the experiences across Member States and regions vary significantly in terms of the scope, timeliness, methodology, effectiveness and impact on programme/project innovation. In several countries, such as Northern Ireland, Bulgaria and Denmark, there is a **general uncertainty whether OPs which do not foresee big infrastructure investments with unlikely negative impacts on the environment, should be subject to an SEA**. This uncertainty resulted in some delay of the procedure, which meant that the SEA came relatively late in the planning process, provided relatively limited opportunities for public participation or had insignificant impact on the OP priorities and objectives.

The case studies also outlined instances in which the quality of the SEA has been rather poor or it has not been effectively implemented. In *Poland*, for instance, despite some improvements in recent years the role of SEA in the political decision making process is rather negligible. Public authorities are aware of the obligations resulting from SEA legislation but there is a **lack of understanding why this tool is important**. Also in some cases the **SEAs are conducted by the project promoters** (e.g. the SEA for the road development programme was conducted by the General Road and Motorway Directorate). Moreover, the methodology for conducting SEAs is still not well developed. One of the concerns expressed by SEA experts is that its conclusions are of little use in decision making processes in Poland. Most frequently political decisions with regard to interventions subject to SEA are taken much before the strategic assessment (see also the Via Baltica case study in Section 4.1.2). SEA is not considered as a tool for presenting alternative scenarios for interventions in question. Usually changes in programming documents resulting from SEA relate to diagnostic chapters rather than practical formulation of the policy tools. Moreover, SEA conclusions are often of general character rather than specific recommendations regarding changes in the measures and allocations. For instance the SEA for the OP Infrastructure and Environment stated that: ‘the programme implementation will foster decoupling of energy use from economic growth’. This general statement may be valid for some selected measures of the programme, but is unlikely to be valid for the overall effects of the entire programme. In the opinion of decision makers, linking programming process with sustainable development is an important issue but there is a limited understanding of how to do this practically.

In other cases, **the lack of experience and of methodological guidance** appears to be the main reason for the poor quality of SEAs. In *Bulgaria*, SEA proved to be an important tool

⁶³ European Commission 2010. Conclusions of the fifth report on economic, social and territorial cohesion: the future of cohesion policy. COM(2010)642, Brussels

for environmental integration but the lack of experience and methodological guidance resulted in varying quality of assessments and different degree of effectiveness for greening OPs. There was no practical experience with applying SEA to Operational Programmes for EU Structural and Cohesion Funds when the programming period started; hence many difficulties and drawbacks could be observed – short timeframes, methodological dilemmas, limited capacity of the evaluation teams and relatively poor public participation. Even though there is growing comprehension that the SEA is an important tool for environmental integration in EU funds programmes, it is often perceived as a burdensome procedure, a formality required by the EU Regulations on EU funds and national legislation on SEA. The benefits that this planning instrument can offer decision makers are still rather undervalued. The environmental assessment was mostly ‘added’ to the socio-economic analysis and rarely considered any alternative measures or discussed trade-offs. Due to lack of expertise and guidance, climate impacts and adaptation measures were not considered in the SEA. Interviewees stated on several occasions that more guidance from the European Commission is necessary in this regard.

Overall, the case studies provide a **number of positive developments and innovative applications of SEA**. The SEA for the OP Infrastructure and Environment in Poland resulted in adding some indicators related to the modal share of ‘environmentally friendly’ transport and in Bulgaria into the establishment of environmental criteria for project selection within a number of OPs.

The case studies include also some complementary examples of the **SEA application as an integration instrument** in Cohesion Policy programmes. One such example is the **in-house ongoing SEA** applied to the OP on rural development in Piemonte⁶⁴. Here the SEA ensures broader participation and better coordination in the evaluation of the environmental dimension of the programme. In this framework, the SEA is not only carried out exclusively before the programming phase, but it is also carried out during the implementation period. In this way, the **ongoing SEA ensures the existence of a feedback mechanism into the implementation of the OP and it influences the implementation phase of the programming**. Moreover, it guarantees the involvement of evaluators with a better understanding of the context and overcomes the lack of necessary technical and environmental expertise. It would also support the plans for making on-going evaluations obligatory, as stated in the Fifth Cohesion Report.

The South West of England pioneered in another area of the application of SEA linking to the **improvement of monitoring and evaluation systems**. An SEA monitoring strategy developed by the Regional Development Agency (RDA) set out some ideas for improvement in the monitoring system and a review or a bi-annual update to the SEA. However, additional work was required to fully develop the strategy. Essentially, it is likely that monitoring and evaluation in relationship to SEA will become increasingly prominent in the mid-term of the EU Funds programmes. Stakeholders in the South West of England have emphasised the benefits of a robust and continuing monitoring system as follows:

⁶⁴ This practice has been put forward by the Regional Agriculture Authority, with the collaboration of the Politecnico di Torino and with the coordination of NUVAL. It is funded by EAFRD, under a priority axis similar to Priority Axis 4 in the ERDF OP (Technical Assistance), and was included in this study because of its innovative approach, even if not part of the 2007-13 Cohesion Policy funds. When asked why the practice has not been implemented also for the monitoring and evaluation of the ERDF OP, stakeholders argued that it is still in a testing phase.

- recommendations can be incorporated in alterations to the programme, heightening efficiency and ensuring continuous improvement;
- in-house and external expertise will be drawn upon which will ensure continuing engagement with relevant actors; and
- there will be broader participation and better coordination in the evaluation of the programme.

In order to **improve the evaluation of projects and link it better to the SEA of OPs**, an innovative approach has been undertaken in the Southern Finland OP. The SEA identifies critical environmental issues which are then reflected in project selection criteria. **The SEA and its impact categories therefore have a continuous role to play as they are also used in the assessment of projects.** The main part of the SEA is a table where possible impacts are assessed for each priority. These impact categories addressed in the SEA have been also adapted to better suit the relevant issues in the OP as well as the aims of the SDS. However, this SEA is also supported by an assessment of the environmental impacts of project proposals, which is gathered during the project application stage. The applicant is required to assess the environmental impacts of the project proposal by filling in a table and indicate whether a project is environmentally neutral, environmentally beneficial or environmentally harmful. The categories assessed cover broadly those of the SEA with some exemptions/additions. However, the project may also have indirect environmental impacts, such as an increase in traffic, and hence the funding authority has to also consider the SEA and its categories in the assessment of project proposals. Therefore, the SEA and its impact categories have a continuous role to play as they are also used in the assessment of projects. This approach would also correspond well and support a better functioning monitoring and evaluation system in moving towards a more strategic and results oriented approach to Cohesion Policy as stated in the fifth report on Cohesion Policy.

The SEA of the Central Baltic Interreg IVA Programme **includes a detailed table on how mitigation measures have or have not been incorporated.** The SEA recognises that due to the general character of the programme the potential environmental impacts could only be described very generally and how environmental considerations were integrated in the programme will become relevant mainly during the phase when projects will be approved and monitored. To reflect this, the SEA comes up with guidelines on project selection criteria and the abovementioned table provides information on how these will be taken into consideration.

Instruments, such as the SEA and DPA, can also be successfully used to ‘inform’ the selection panels when they award funding. In **Northern Ireland**, where it is clear that the DPA⁶⁵ approach is used relatively consistently, the actual outcomes or benefits of the approach are less clear. The stakeholders consulted offered mixed views as to how much of an effect the development path allocation has on project selection, which suggests that the assignment of development paths is not systematically integrated into the project selection criteria across the OP’s priorities. A stakeholder responsible for a number of projects funded noted that the main role of the approach is to ensure that the projects can at least be assigned a specific path (i.e. they are not directly damaging to the environment), with the actual development path playing a lesser role in selection of project applications. Two other stakeholders however argued that the path assigned to the project has a bearing on the final

⁶⁵ Note that the DPA categorisation differs from that developed under this study

score a project receives. The interviewee that found the approach of least benefit was responsible for projects with a relatively clear environmental element and found the DPA approach to be of little additional value, given that sustainable development principles were already a key consideration in project selection.

In other cases, the Managing Authorities have introduced instruments that support the applicants when formulating the proposal. In **Malta**, for instance, **information sessions** are provided to participants to encourage them to include measures such as renewable energy and to facilitate the inclusion of sustainability and carbon impact considerations. These are intended to provide prospective applicants with information on energy efficiency and to encourage prospective applicants to include measures such as photovoltaic, solar water heaters or water reservoirs in the project design. To do this, relevant organisations with expertise on environmental sustainability are invited to attend the information sessions. These sessions might raise awareness of environmental and sustainability concerns and may encourage prospective applicants to engage in more integrated project approaches. This mechanism can potentially work if applicants are public institutions, as some possibilities exist to grant additional funding to measures to reduce overall CO₂ emissions from projects. But the mechanism is contestable as there are no clear criteria for when additional funding can be granted. Moreover providing extra information might not have substantial impacts, as it is dependent on the project selection process. This is supported by the fact that the number of projects that have incorporated elements like photovoltaics, solar water heaters, etc. are low and it is not clear to what extent the measures taken were caused by the information sessions.

A particular challenge for the application of both SEA and EIA are the lists of indicative major projects, which form part of the Operational Programmes, but do not fall under the scope of SEA. This is particularly the case in new Member States, where these major projects are to a large extent a result of political ambitions and there is often strong pressure for their implementation. They are subject to obligatory EIAs but only after their inclusion in the list of indicative major projects, while the inclusion itself is an indication of a preference for certain projects despite their likely environmental impacts. Therefore, as it appears from the Polish transport case studies there is a **need for the SEA to include in its scope the list of indicative major projects and consider alternative projects and mitigation measures already at a planning stage.**

However, the Polish transport case studies also display some positive developments with regard to EIAs of major projects. Importantly, the implementation of Cohesion Policy investments in Poland, particularly in the field of transport, led to **institutional reforms enabling smoother and higher quality EIA procedures.** In 2008, the General Directorate for Environmental Protection was established, together with 16 Regional Directorates. One of the primary tasks of these institutions is to carry out EIA procedures and the management of Natura 2000 sites. **The creation of these new, independent institutions ensured extra capacities to deal with EIAs for transport projects.** In fact one of the aims of the institutional reform was to facilitate implementation of transport investments funded by the EU, which before had been delayed due to problems with environmental procedures. In view of this, the quality of EIAs and Appropriate Assessments, according to Article 6 of the Habitats Directive, have improved. Moreover, it also appears that public participation in the transport infrastructure development field has also improved. This applies especially to major transport projects designed to be co-financed by the EU.

A significant characteristic of the Danish OP is the requirement of a **compulsory Environmental Impact Assessment** for every project application⁶⁶. However, this EIA does not necessarily follow the requirements of the EIA Directive. The EIA is done by the project applicants themselves and are only formally controlled in the sense that beneficiaries will have to deliver the EIA to be eligible for funding. Through the application of this type of EIA, **the integration of environmental considerations as a cross-cutting theme at project level is enhanced.**

Another interesting aspect is the application of EIA in the Southern Finland OP, as it establishes a governance mechanism to ensure quality control of the EIAs for project proposals that are provisionally approved by the funding authority. **The EIA panel assesses the quality of the environmental impact assessment done by the applicant and where there are any inconsistencies/concerns about the quality, will inform the funding authority accordingly.**

There could also be scope for a **better integration of SWOTs** as a complementary instrument for engagement and identification of problems/solutions. In the SURF INTERREG project SWOTs were used as a relatively **simple and straightforward tool to engage stakeholders** in the definition of problems and potential solutions. It was used to ensure that the project considers the wider opinion and that it meets its overall objectives. In this respect, the **SWOT had a corrective function**, which could lead to changes in emphasis within the project. The SWOT is also considered to have helped develop a mutual understanding of the issues and solutions.

The Fifth Report on Cohesion Policy calls for a result oriented approach through setting ex-ante clear and measurable outcome indicators. The data from the case studies suggests that **environmental indicators** have been used on various occasions and some of them have been deployed in quite innovative ways. Climate change and energy indicators are predominant in the examined case studies while fewer examples of biodiversity or resource use indicators could be found. Also, the case studies indicate richer experience with the deployment of environmental indicators among EU15 compared to EU12 Member States.

Several regions request that project developers/ applicants provide **information concerning CO₂ emissions** that their project is likely to generate. The extent to which this may ultimately be a determining criterion in the allocation of funds is difficult to assess. In the case of the Basse-Normandie Region (France) an objective for carbon neutrality of the overall Programme might result in this becoming a more stringent conditionality for applicants. It can also provide an incentive for applicants whose project proposals are carbon neutral or carbon saving, thus offering an opportunity to off-set other project's CO₂ emissions. A commitment to monitoring CO₂ emissions throughout the project and occasional ex-post auditing of the projects taking into account CO₂ emissions seem, however, crucial to ensure that applicants who have been granted funding have indeed taken the measures to reduce CO₂ emissions as outlined in their applications for funding.

Other indicators related more to the pressures and drivers resulting in CO₂ (e.g. energy consumption of households, CO₂ emissions from transport, etc.). This is in particular the case when an Operational Programme promotes investments in technologies to reduce energy consumption in order to achieve a specified target. This is the case in the Basque Country,

⁶⁶ DK OP 2007: 62

which aims at reducing overall energy consumption of households and the Covenant of Mayors approach in the Barcelona case study, which includes a specific axis to promote inter-modality in the transport sector. Other programmes are designed to achieve targets with regard to the region's share in consumption of renewable energy, often also linked to targets to increase the share of renewable energy produced in the region. When such targets are made, the priority of the programme may effectively contribute to achieving progress towards meeting these targets at regional level. Hence, OP headline target indicators can generally be expected to be used at the monitoring and evaluation stages.

Ecosystem indicators have only been found to be used in a limited number of cases. This might be explained by the fact that ecosystem indicators might still be less developed and are considered less robust than other types of environmental indicators. The projects which have taken ecosystem service indicators into account generally involved investments into projects having an obvious positive impact on the natural environment and the provision of ecosystem services. This is the case of both the TIDE Interreg and the Greek Lake Karla projects. In both cases the optimised provision of a specified ecosystem service has been identified as one of the objectives of the projects and the indicators are used to monitor that projects deliver the benefits which should accrue. Hence, indicators were used both at the stage of application for funding, to present the expected benefits resulting from the project, and at the stage of implementation and reporting.

Indicators reported to be used in the case studies in the field of **waste management and natural resources concentrate on pressure indicators**, in particular in the areas of waste reduction, recycling and recovery indicators and waste water treatment (e.g. number of waste water treatment plants built or number of people connected to the sewage network and served by a public system of waste management). These indicators, rather than measuring the predicted or observed environmental impacts of specific projects or programmes, are a core element of the projects themselves as far as they are clearly linked to the project's objectives and targets. Thus, in the case of the OP Improving Accessibility and Protecting and Enhancing the Environment (Northern Ireland), the indicator was used both to define the OP's spending priorities and to monitor its implementation. **The inclusion of a number of impact indicators could have allowed a better assessment of the achievement of the programme's environmental targets and further encouraged applicants to take a more creative approach to the design of projects to achieve stated environmental objectives.**

Indicators reported to be used in the field of **sustainable consumption and production** were of two kinds: Green Public Procurement (GPP) progress indicators and number of R&D projects financed through the regional OP. The GPP indicator used by the Basque Country is used to monitor the region's progress towards the target set for the share of GPP in total public procurement. The monitoring of the progress towards a target in the area of GPP at regional level, although not directly used as a criterion for allocating funds to applicants, might still encourage regions to design OPs that advance their capacity to produce goods that could be purchased in conjunction with GPP criteria. This in turn supports regional development as it allows regions to purchase goods which meet GPP targets in the region.

The Operational Programme of the region Piemonte suggests how a more explicit link between GPP and innovation can be established through the development of a specific indicator. The indicator used in this OP is rather simple, though, as it accounts for the number of R&D projects financed through the regional OP in order to develop innovative processes to improve the environmental sustainability of production. Also, the way this indicator is

deployed in practice is rather weak as it is primarily used for monitoring purposes but not linked to a specific target set out in the OP.

The Fifth Report on Cohesion Policy suggests that a performance reserve could be established for rewarding Member States and regions, whose programmes have contributed to the Europe 2020 targets and objectives. In relation to this **performance rewards** have been used in the *Piemonte* Region, which assigns extra funds to SMEs that can demonstrate that the innovation projects for which they require financing has a positive environmental impact. Funds are allocated only on the basis of very specific and demanding environmental indicators, which will also be used in the monitoring phase. The role of the environmental authority and its involvement in the evaluation of applications is crucial. Positive results have already been attained: 40 per cent of the SMEs that applied for funding under that priority axis have obtained extra funding and they are thus likely to implement measures that benefit the environment. More detail on this financial tool is provided in Box 8.

Box 8: Dedicated investment in the Piemonte Region, Italy

Under the so-called '*maggiorazione ambientale*' (*extra environmental funding*) in the Piemonte Region, extra funding can be assigned to SMEs that demonstrate that the innovation project for which they require financing (under Priority Axis 1 in the OP) has a positive environmental impact. More precisely, the region awards extra funding to the projects that entail:

- an improvement in the environmental performance of the production system through:
- a reduction of atmospheric emissions of at least 50 per cent (with respect to the pre-existing situation) and to levels that are lower than those required by existing legislation, or
- a reduction of emissions in water to levels that are lower than those required by existing legislation and that can be proved through an analytic mass analysis, or
- an improvement of the waste cycle, or
- a rationalisation of water consumption, or
- environmental analysis of the enterprise, to verify its environmental sustainability and plan interventions to improve its environmental performance
- an improvement in the energy efficiency of the production cycle (energy saving of or above 1.5 kWh, for each 1€ invested and benchmarked to the pre-existing production capacity).

Both the Environment Authority and the Managing Authority have stressed that the targets and the indicators used to assign extra environmental funds to these projects are more demanding than those applied to direct environmental investments listed in the OP. 40 per cent of the enterprises that applied for funding proved, through detailed indicators (which will be used in the monitoring phase), that their project would have a positive environmental impact and thus they have obtained extra funding.

The Fifth Report on Cohesion Policy calls for an extension of both the scope and scale of financial engineering instruments. However, within the selected case studies and their corresponding OPs, **Financial engineering instruments are not widely used to support Cohesion Policy interventions**. Among our case studies financial engineering instruments are used in Lithuania (JESSICA) and technical assistance (ELENA) is used in City of Barcelona. In the first case, Cohesion Funds have been allocated to support the introduction and implementation of these instruments. In the City of Barcelona, the ERDF has not yet been used to support the implementation of the Strategic Energy Action Plans, via ELENA⁶⁷. More details on the use of JESSICA in Lithuania are provided in Box 9.

⁶⁷In the City of Barcelona, the European Investment Bank and DG ENERGY in the EC finance ELENA

Box 9: The use of financial engineering in Lithuania

JESSICA (Joint European Support for Sustainable Investment in City Areas) is an initiative of the European Commission, the European Investment Bank (EIB) and the Council of Europe Development Bank (CEB), aimed at using financial engineering mechanisms to support investments in sustainable urban development as a component of integrated regeneration. As a financial engineering instrument, the JESSICA initiative allows a combination of subsidies, loans, guarantees and other financial products.

In 2010 a JESSICA holding fund was created to support energy efficiency investments in multi-family houses. The holding fund has currently € 227 million, contributed by European Regional Development Fund (€ 127 million) and Lithuanian Government (€ 100 million). Capital will be added by 3 selected commercial banks as a revolving fund. The JESSICA holding fund is used for long-term loans (maximum 20 years) with a fixed interest rate of 3 per cent for the improvement of energy efficiency in multi-family houses. It is expected that with assistance of JESSICA, approximately 1000 houses will be refurbished. 21 projects had been approved for JESSICA funding as of September 2010.

The success of the mechanism is yet to be evaluated as it is in an early implementation stage. Some reluctance to use the loans can be observed among beneficiaries who were used to governmental grants for refurbishment of housing, which had however been phased out due to the financial crisis. The new financial engineering setup requires time for housing associations to adapt and accept the conditions of financing refurbishment investments.

4.2.3 Experiences with organisational instruments

The involvement of environmental authorities through coordination and communication of governance mechanisms has played a crucial role in the integration of environmental sustainability during the programming and implementation of programmes and projects. The creation of the **Environmental Sustainability Manager** as an integral part of the Regional Development Agency staff in South West England is particularly interesting in this sense (see Box 10).

The South West region has also established a ***Cross Programme Environmental Advisory Group*** consisting of membership from environmental partners across the region including the Environment Agency, Energy Saving Trust, universities and Natural England. The Group advises the Programme board as to whether its environmental priorities and focus are fulfilling the objectives of the Operational Programme.

Box 10: Environmental Sustainability Manager (South West England)

The South West region in England has introduced a very interesting new governance role to ensure the integration of sustainable development in Cohesion Policy, in particular in the programming and project selection phase. The Environmental Sustainability Manager for the EU Programmes and Policy Team has critical responsibilities in integrating environmental concerns including:

- Working with beneficiaries in the pre-approval stage to raise their environmental awareness;
- Assessing applications to determine if projects have taken adequate account of environmental impacts;
- Championing new projects with an environmental focus such as the low carbon grant programme for businesses, the domestic energy efficiency scheme and the deep geothermal scheme. This has collectively resulted in a pipeline of activity that if achieved will result in £40-50million worth of investment;
- Liaising across programmes to ensure synergy and complementarity; and
- Ensuring that different advisory groups such and the Programme Monitoring Committee are up to date on progress and new developments.

Although the success of this role is largely due to the dedication and commitment of the individual, creating a focused role with an individual with a relevant background such as this can be cited as good practice for other programmes. The environmental sustainability manager is viewed as a vital position by stakeholders in the region who feel that the role should be continued to ensure that environmental issues remain high on the agenda.

The environmental challenges we face are immense and we are not yet addressing them sufficiently enough, therefore the position of environmental sustainability manager remains vital'
Environmental Sustainability Manager, EU Programmes and Policy Team, SWRDA

The case study on Denmark has also put a significant focus on institutional structure for environmental integration as a number of interesting practices can be observed there. The so called **Growth Forums**, for example, are a novel approach of institutionalised partnership at regional and local level, which bring stakeholders together both in the planning and in the implementation phase. Growth Forums are standing committees parallel to the regional councils with members being representatives of regional and local authorities, businesses, research and higher education as well as social partners. This constitutes a body responsible for the planning of programmes as well as in the evaluation of the applications. This ensures the inclusion of a broad range of stakeholders, e.g. stakeholders from industry, research and public authorities, which ensures access to local knowledge and participation of important stakeholders already at a strategic level.

At project level, some Growth Forums take a very active role in engaging important regional stakeholders such as private businesses and research institutions. In this way, they define a detailed thematic scope for the project application and they engage actively in developing the content of the projects. These authorities often have extensive in-house technical expertise (including expert councils), which can help develop the content of the projects. More detailed information about the case study can be found in Box 11.

Box 11: Institutional and procedural mechanism for the promotion of environmental projects in Denmark, Region Midtjylland

The regional authority has taken a proactive top-down approach towards the project development process. First, the regional authority is taking an active role in encouraging area actors to engage in the development of new projects. Officials are professionals specialised in the relevant sectors and they proactively dialog with the regional actors about potential future projects.

Second, if the project application is submitted under the regional initiative ‘Energy and Environment’ or (in some cases), if the application is considered to have an environmental dimension, the *Division for Environment, Technology and Infrastructure*, which is part of the *Department for Regional Development*, takes an active role in the application process. This procedural approach is not formally compulsory, however, it has been applied to all project applications under the current funding cycle. A central practicality underlying this procedure is that project applicants are asked not to deliver complete applications but a project outline of a maximum of five pages.

The *Division for Environment, Technology and Infrastructure* have a range of professionals specialised in the energy and environmental sectors, who can then supervise the project applicants. In addition, to support the project development process, the regional business development authority has appointed – among others – an external, highly professional advisory committee on energy and environmental issues. Thus, the institutional setup around the managing authority at the regional level provides a pool of professional expertise in environmental management, environmental technology, agriculture, technology development and innovation supporting the development of new projects.

At the initial stage, the five page project outline is discussed with the advisory committee, and the applicant is given feedback by the committee. The committee also assesses if the project outline has the potential to be developed into a full proposal. Furthermore, regional officials contribute to the project development process with their own expertise.

According to the regional business development authority, this setup not only facilitates the integration of environmental consideration at the project level, it also – and perhaps more importantly – facilitates the integration of economic considerations into environmental projects. This is an important aspect with a significant effect. Regional enterprises, research institutions and universities already have the knowledge to design, plan and execute an environmental projects, however, they sometimes don’t have the expertise or they need feedback on how to add a business dimension to their environmental projects.

One example of this is the *Miljøpilprojekter*⁶⁸, which began as an environmental project and for which a business model developed in cooperation with the regional authority. Today, the project can be described as having a short-term positive environmental effect and a long-term economic effect. This is quite an achievement because the institutional and procedural setup not only promotes environmental projects, which would otherwise have not complied with the criteria for Cohesion Policy funding, but it also promotes the development and commercialisation of environmental technologies and services.

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<http://www.rm.dk/regional+udvikling/v%C3%A6kstforum/indsatsomr%C3%A5der/energi+og+milj%C3%B8/projekter+og+aktiviteter/biomasse/produktion+af+energi+og+milj%C3%B8+ved+dyrkning+af+pil?>

Monitoring Committees have been established in all case studies as required under the General Regulation 1083/2006/EC, however, the practical implications of their functioning show very **mixed results** across Member States.

Some of the early experiences in new Member States, for example, suggest that they often tend to be a pro forma mechanism to legitimise decisions already made by the managing authorities. In these cases the Monitoring Committees tend to be dominated in numbers by members of the central administration with usually only one representative of the Ministry of Environment. Environmental NGOs are often part of the Monitoring Committee but they do not have voting power and act as observers. In the case of Bulgaria for example, the lack of voting power coupled often with relatively **limited capacity of the environmental NGOs themselves to constructively engage** in a number of economic topics, have discouraged active participation of these organisations in the Monitoring Committee.

Yet, there are also examples where Monitoring Committees have played a more substantial role for environmental integration. For example, in Bremen, a Monitoring Committee (Begleitausschuss)⁶⁹ was set up by the Land to accompany the implementation of the 2007 – 2013 Cohesion Policy programmes. It checks whether the selection criteria are fulfilled, assesses the project progress and the achievement of the objectives, and approves the annual reports. The **composition of the Monitoring Committee ensures that environmental objectives are reasonably considered**, with environmental players from the government and non-governmental sector involved.

As part of the SEA of the Interreg Programme in Finland (Natureship), each country and the region of Åland nominated an **environmental contact person**, which acted as a link for consultation in their respective country/region. In the first stage of the SEA procedure, the draft Scoping Report was prepared by the evaluator and sent out for consultation to national environmental authorities via the environmental contact persons. At the second stage of the environmental consultations, the draft Environmental Report was subject to a three week public consultation. This system appears to be better structured than in most other Member States and regions of the case studies.

The **Lower Austria** region has created **Ecoplus, a publicly funded business agency** that manages the implementation of its eco-innovation cluster programme. This agency contributes to the effective integration of eco-innovation measures and the implementation of projects. It bridges the gap between SMEs and regional, national and supranational policy makers, primarily by facilitating the understanding of policy initiatives and channelling financial incentives and funds. It also coordinates interactions between the companies and research institutes, to make sure that they cooperate in the development and submission of high quality project proposals. It often also acts as project manager of complicated and large investments that involve both companies and research institutions. Ecoplus bridges the gap between policy makers and research institutes to assist them in the development of technological specialisation and in the applications for funds.

The eco-communities (**Basque Country**) case study is another good example of the collaboration between research centres and social stakeholders. The Basque Country developed measures aiming to consolidate different thematic communities of innovation, called ECommunities. It is a concept similar to the “Knowledge and Innovation

⁶⁹ <http://www.efre-bremen.de/sixcms/detail.php?gsid=bremen59.c.2930.de>

Communities” that the European Commission has designed through the European Institute of Innovation and Technology. ECommunities are formed by the collaboration between research centres and the institutional and social stakeholders. The objective of these communities is to guide regional economic and social systems and help them exploit new opportunities and synergies through innovation in order to improve sustainability and secure long-term economic and social benefits. For each environmental theme, an ECommunity has been created, and amongst each one of them, a series of alliances for action has been provided by the region. The ECommunities in the Basque Country are: Climate Change, Energy, Transport and Mobility, Urban Planning and Building, Eco-design, Enviro-clean and Ecosystem Services ECommunities. The objective of these communities is to guide eco-innovation of regional economic and social systems and to help them exploit new opportunities and synergies to improve sustainability and secure long-term economic and social benefits. They generate important knowledge and information spill-overs, which ensure eco-innovation across a wide range of projects.

The engagement of local actors is important because finding a balance between multiple interests is usually crucial to the success of the project and it might enable a solution which is potentially good for the environment, but also for all stakeholders over the long term. This has been the case in the *Greek Lake Karla project*. Stakeholders in the project have suggested that, so far, the governance structures and co-ordination around the project of the recreation of Lake Karla has been efficient. The engagement of local actors since the beginning of the intervention is seen as a key success factor for the project. Currently, some objections are being voiced by local farmers who own wells and who do not want to relinquish existing irrigation methods through the use of boreholes. However, the managing authorities are confident that these objections will be overcome once the farmers see the bigger picture and understand that they will have access to cheaper and more abundant water for irrigation once the works on the reconstitution of Lake Karla are completed. The participation of local actors and stakeholders has ensured the development and implementation of a comprehensive project that successfully addresses multiple issues and manages to promote sustainable development.

However, often *partnerships* fail to provide the expected contribution to the drafting and implementation of sustainable projects, mainly because of flaws in the governance structure. In *Bulgaria*, for instance, environmental partners were only consulted on purely environmental interventions. The partnership principle as set out in article 11 of the General EU funds Regulation is considered a key principle in the programming and implementation of the Operational Programmes and related measures. In Bulgaria, the most common ‘partners’ in the programming of EU funds programmes are often considered professional organisations which represent the business or professional community in the area of a respective intervention. Social partners are also seen as key ‘partners’ as far as interventions in the social sphere are concerned. Environmental groups are in theory also recognised as ‘partners’ however usually in relationship to purely environmental interventions. As far as sectoral OPs and respective interventions are concerned, environmental groups are seen as less relevant partners. It should be noted, however, that one reason for this is related to the fact that environmental groups themselves often lack expertise to engage in the planning of non-environmental OPs (e.g. regional development and competitiveness). As a consequence of this, environmental groups lack capacity to participate in the OP planning stage in a meaningful way.

The 26 case studies have provided very rich practical experiences in problems and innovative approaches in relation to environmental integration. While the case studies are not formally or statistically representative of the whole Cohesion Policy, they do offer important insights into the performance of Cohesion Policy, the need for further integrating environmental sustainability into the Cohesion Policy and what has already proven to work. The evidence from these case studies will hence be further elaborated in the next section in relation to how to improve the environmental integration into Cohesion Policy as a driver in the transition to a green economy.

5. INTEGRATING ENVIRONMENTAL SUSTAINABILITY BETTER INTO THE COHESION POLICY CYCLE

Section 3.3 introduced the instruments that could be applied within Cohesion Policy in order to better integrate environmental considerations into programmes and projects. The aim of this section is to identify how best to apply these instruments in order to enable Cohesion Policy to maximise its potential in delivering sustainable development in the EU. The environmental integration instruments are discussed in more detail in *Supporting Paper 5: Tools for Sustainable Development*, covering those integration instruments that are currently obligatory in Cohesion Policy as well as innovative integration instruments identified as part of the case studies.

The instruments that are listed in Table 5 are discussed in turn along with the implications for relevant governance levels and delivery mechanisms. The aim is to discuss either how existing instruments might be amended or, in some cases, propose that additional instruments be applied. Particularly in the latter cases, there might be an increase in administrative burden, and therefore costs, in the short-term. However, these increased short-term costs are likely to be outweighed by the long-term benefits in terms of both environmental sustainability, but also from the perspective of economic costs. There is evidence of positive spillovers on wider management systems of Member States, as a result of requirements that have been put in place as a result of Cohesion Policy⁷⁰. It is likely that similar positive spillovers would occur in terms of environmental knowledge and capacity in public administrations, as a result of being required to apply the instruments discussed below. It is important that the proposed instruments are designed to be workable and useful tools for the relevant level of governance involved, particularly the managing authorities, so that those using the instruments develop ownership of these.

Securing environmental integration: The need for Multi-level Governance and the Use of Shared Management

Attempts to secure improved levels of environmental integration in EU policy operate in a complex multi-level governance context – not only vertically, involving different levels of governance (EU, national, regional and local) but also horizontally, involving a diverse range of policy actors and their vested interests at each level⁷¹⁻⁷². Moreover, it has been argued that integration can only be achieved if explored and addressed properly at all governance levels within the EU polity⁷³.

A consensus has emerged that combating current environmental and climate change challenges will only be possible with action at all territorial scales, from the global to the local. The need for action at the local and regional level depends on several factors, including the geographic scale of both the source and the impact of the environmental problem, as well

⁷⁰ GHK, PSI, IEEP, CE & National Evaluators (2002) The thematic evaluation on the contribution of the structural funds to sustainable development. Volume1: synthesis report, Final report to the European Commission DG Regional Policy, December 2002.

⁷¹ Jordan, A and Schout, A (2005) *Coordinated European Governance: Self-Organizing or Centrally Steered?* Public Administration 83(1)201-220.

⁷² Nikvist, B (2008) EPI in Multi-Level Governance- A Literature Review. EPIGOV Papers 30. Stockholm Environment Institute, Stockholm.

⁷³ Lenschow, A and Jordan, A (2000) 'Greening' the European Union: What can be Learned from the 'Leaders' of the EU Environmental Policy? European Environment 10, 109-120.

as the jurisdiction of local and regional authorities. EU Cohesion Policy operates in this multi-level governance system involving EU, national and regional/local levels. The case for involving local authorities from the municipality to the region in actions to address territory specific problems has increasingly been made. General Regulations and strategic orientations of Cohesion Policy are set out at EU level, but the responsibility of setting policy objectives and creating administrative structures often occurs at lower levels of the governance system. However, it has been argued that this decentralisation has posed a serious challenge for the Commission to ensure effective integration at programme and project level⁷⁴, and requires the provision of operational guidance provided by the EU and the active involvement of civil society.

The operational level is crucial given that the capacity to innovate, which gives opportunities for integration, environmental improvement as well as to manage negative environmental effects, is specific to places and depends on the capacity of local actors to pool their knowledge and reach agreement on their preferences. The effectiveness or the feasibility of interventions that seek to integrate environmental objectives also requires trans-European territorial cooperation, as for example with coastal defences or for protection from river flooding⁷⁵.

5.1 Strategic Instruments

5.1.1 Alignment with EU strategic documents, including Europe 2020 and others relevant to Cohesion Policy

As was set out in Section 2.1, there is an emerging strategic framework at the European level which links economic success to environmental protection. The 2007-2013 Community Strategic Guidelines called for strengthening the synergies between environmental protection and economic development establishing the relationship between environmental investments and ensuring long-term sustainability of economic growth, decreasing external environmental costs to the economy (e.g. health costs, clean-up costs or damage recovery) and stimulating innovation and job creation.⁷⁶ In this sense, it has been recommended that particular priority in funding allocation should be given to the provision of environmental services and the protection from environmental risks (for example, desertification, droughts, fires and floods). Special attention is also paid to giving priority to the development of cleaner and more efficient energy systems. Importantly, the principle of tackling pollution at its source and respecting the hierarchy of waste is highlighted in relation to investments in waste project in order to ensure optimal economic co-benefits and job creation potential.

Research, however, has showed that NSRF and OPs have been more strongly aligned to the Lisbon Strategy for growth and jobs and less to the EU Sustainable Development Strategy, which led to only one-third of OPs setting out a three-pillar vision with majority of programmes giving a de facto priority to purely economic objectives (especially in

⁷⁴ Wilkinson, D (2007) Environmental Policy Integration at EU Level – State-of-the-Art Report. EPIGOV Papers 4. IEEP, London.

⁷⁵ Barca F. (2009), An Agenda for a Reformed Cohesion Policy, A place-based approach to meeting European Union challenges and expectation, Independent report prepared at the request of Danuta Hübner, commissioner for regional Policy.

⁷⁶European Commission. 2006. Community Strategic Guidelines on Cohesion. http://ec.europa.eu/regional_policy/sources/docoffic/2007/osc/1_29120061021en00110032.pdf

Convergence regions)⁷⁷. Furthermore, it is also argued that there has often been insufficient knowledge about and limited experience with capitalising on the economic opportunities offered by, for example, climate-related projects which means that there is a need for more guidance, capacity building and close cooperation between managing and environmental authorities in this regard.⁷⁸

An important instrument for environmental integration is therefore the alignment of the future EU Cohesion Policy to an overarching strategic framework that provides a clear objective for pursuing sustainable development and fosters the promotion of win-wins interventions. It could also facilitate an understanding of the future Cohesion Policy closely linked to the issue of resource use in the context of the 4 capitals (natural, man-made, social and human) and guarantee a balanced investment portfolio. A good example of this could be found during the changes undertaken of Cohesion Policy in contribution to the European Economic Recovery Plan, when the link between environmental and particularly climate change interventions and greener and smarter sources of growth was underlined (see Annex 1.1). Swift changes in the regulatory basis of Cohesion Policy coupled with intense work with managing authorities led to the reallocation of funds in 2009 in 14 Member States towards enhancing support for energy efficiency in housing.⁷⁹

With respect to Cohesion Policy, the Commission will need to ensure that the emerging Europe 2020 agenda, with its three-objective approach for smart, sustainable and inclusive growth, is reflected in the new EU funds Regulations covering the post-2013 programming period, as well as in the accompanying new Common Strategic Guidelines. The Regulations and Guidelines in particular should clearly stipulate that Cohesion Policy investments should contribute to the aims of Europe 2020 and its Flagship Initiatives, particularly the resource efficiency Flagship Initiative but also ensure that they are not incoherent with each other meaning that the attainment of one objective does not come at the cost of others. Early engagement with Member States and the European Parliament will also be important to ensure that there is buy-in for framework provided by the Regulation.

Such alignment of Cohesion Policy interventions should be brought forward in the respective Special development and investment partnership contracts, as these will provide a framework for the Operational Programmes, in which the objectives, priorities and conditionality also need to be determined. The new partnership contracts will also provide the Commission with an opportunity to ensure that environmental objectives and priorities are given sufficient weight. In this way, a consistent strategic framework is created, which should align the various delivery instruments with the aim of the Europe 2020 Strategy, and other relevant EU strategic documents.

⁷⁷ Nordregio, European Policies Research Centre, Austrian Institute for Spatial Planning (ÖIR) and SWECO (2009) *The potential of regional development instruments 2007-2013 to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development*. Final report for the European Commission.

⁷⁸ REC-ENEA (2009) *Improving the Climate Resilience of Cohesion Policy Funding Programmes: An overview of member states' measures and tools for climate proofing Cohesion Policy funds*. ENEA Working Group on Climate Change and Cohesion Policy. November 2009.

⁷⁹ European Commission. Staff working document, Cohesion Policy helping economic recovery, http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/economic_crisis_sec20101291.pdf

5.1.2 Alignment with national/regional sustainable development strategies (and wider policy frameworks)

National/regional strategies can be seen as important strategic frameworks which set out the long-term development orientations in terms of sustainable development and environmental integration. They also establish more long-term objectives and targets for development to which EU funds programmes should be contextualised and justified as ‘additional’. National or regional sustainable development strategies, for example, provide a definition of sustainable development and the means to operationalise it in practice. Therefore, as shown by previous research, the availability of such strategies could be a critical factor for improving the national/regional planning process for EU funds by ensuring more effective environmental integration and policy coherence.⁸⁰ Similarly, in the case of sectoral developments, the lack of long-term sectoral management plans could also be considered as a common impediment for investment planning and prioritisation. For example, the Commission introduced a new rule, as a pre-condition for funding, which says that major water and waste projects are part of respective national water/waste strategies/plans. The existence of such strategies/plans can also help to avoid issues of over-scaling infrastructure projects by identifying projects that correspond to the specific situation in the country.⁸¹ In a number of case studies (see Section 4.2.1) the national or regional sustainable development strategies have been underlined as important instruments that have aligned the Operational Programmes with sustainable development objectives, principles and targets.

In order to strengthen the consistency between Cohesion Policy investments and other national and regional strategies, the partnership contracts and OPs should be designed so that they are informed by the already existing national and regional sustainable development strategies and respective long-term sectoral management plans. This would ensure that the OPs are consistent with domestic strategic frameworks, respond to region-specific needs and priorities and ensure a coherent and consistent approach to investment planning. The requirement that Partnership contracts and OPs need to be consistent with the respective strategies, including those relating to sustainable development, needs to be set out in the new post-2013 EU Funds Regulations while the specific implications and way of doing this should be prescribed in the new version of the Community Strategic Guidelines..

The condition that major water and waste projects should be part of already developed national strategies or plans, otherwise they would not be eligible for Cohesion Policy funds, could be extended to all major projects specifically transport. For example, road and rail projects would only be eligible for Cohesion Policy funding if they are included in national transport plans or strategies. It is to be hoped that such an approach would ensure that transport investments that are sought would be as appropriate to national priorities and needs as European ones, thus rebalancing the situation at the moment where the TEN-T framework tends to divert limited national transport funds to projects of European importance at the expense of local and regional infrastructure (e.g. as this is demonstrated by the Bulgarian case study). A general requirement that major projects need to be included in respective national strategies or plans should be explicitly stated within the revised Regulations.

⁸⁰ GHK, PSI, IEEP, CE & National Evaluators (2002) The thematic evaluation on the contribution of the structural funds to sustainable development. Volume1: synthesis report, Final report to the European Commission DG Regional Policy, December 2002.

⁸¹ Fiedler, J. and Artim, E. (2006) *Environmental projects financed by the EU funds: Selected experiences and challenges*. Working paper. June 2006

5.1.3 Application of sustainable development as a horizontal principle

The current Cohesion Policy Regulation sets out explicit aims for the funds in relation to the incorporation of sustainable development priorities (see Annex 1.2). However, the operationalisation of sustainable development has proved to be challenging, with the concept often being interpreted to cover its environmental pillar only. Research has shown that in some cases the early involvement of sustainable development experts or organisations has led to improving the understanding of the sustainable development agenda early in the planning process. This resulted in a shift towards a more integrated approach to taking sustainable development into planning⁸². Nevertheless, many programmes still interpreted sustainable development by its environmental dimension echoing the findings of past evaluations of previous programming cycles. This meant that these aspects of EU Funds programmes were delegated to environmental authorities instead of addressing them in an integrated manner.

There is a need to clarify how managing authorities should deal and address cross-cutting issues such as sustainable development. The Europe 2020 and flagship initiatives introduce new concepts such as ‘green’ investments, sustainable growth, resource efficiency, etc. which could appear equally ambiguous to many managing authorities and stakeholders especially at lower levels of governance and therefore there is a need to better define what they mean and imply in terms of investments and even provide concrete practical examples and instructions. The same holds for terms such as green infrastructure, natural capital, ecosystem services and ecosystem based adaptation⁸³ also critically important terms for the move to a resource efficient green economy. The experience suggests that more guidance and capacity-building is needed to Member States and regions on how to operationalise the concept of sustainable development.

EU guidance should be more detailed and it should specify how these strategic, broader and cross-cutting concepts can be operationalised in terms of translating them into concrete objectives, priorities and measures. This will help in getting environmental objectives right and on par with economic and social ones. Furthermore, the guidelines should establish what these concepts mean in terms of integrating the environment, what tools can be applied, who should assume responsibility and leadership into making these horizontal issues operationa.; It should be made clear that integrating the environment is a way to ensure green economy and sustainable growth.

An explicit link should be established in the partnership contracts to national sustainable development strategies where a political commitment to sustainable development is conveyed and a definition of it is provided. If this link is reinforced, EU funds programmes can be better informed by nationally developed strategies for sustainable development, which enjoy stronger ownership and provide clarity to the issues.⁸⁴

⁸² EPRC. From environmental sustainability to sustainable development? Making concepts tangible in structural funds programmes. IQ-net Thematic paper N. 22(2)

⁸³ TEEB (2011) The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London.

⁸⁴ Gyene Gyöngyvér, National Development Agency Hungary, Environmental Requirements in the Implementation of the Operational Programs, Presentation at ENEA meeting, 26/05/2010, Warsaw

5.1.4 Application of principles underlying EU environmental policy

Article 191(2) of TFEU states that EU environmental protection policy shall be based on the following principles:

- Precautionary principle – e.g. hazards/risk management: flooding, landslides, climate, sea level rise, coastal erosion, desertification, loss of ecosystem services;
- Principle that preventative action should be taken – e.g. emissions reductions, risk minimisation, training – for the above by, for example, investment in resilience of ecosystem and training, information and controls for invasive alien species;
- Environmental damage should be rectified at source – e.g. emissions and product standards;
- Polluter should pay – e.g. charges for waste, waste water, liability for damage, resource charging for resource use such as water.

Nordregio's study⁸⁵ found that half of the OPs refer explicitly to the polluter pays principle as a guiding principle underpinning the policy framework of the programmes. This says little about how the principle is taken forward in practice. For instance, the principle is operationalised more explicitly in the cost-benefit analysis of major projects. DG Regio has published a common guide to CBA, which explicitly stipulates that the 'economic analysis' should take into account externalities and give them monetary value. Externalities in this case could include social costs associated with adverse environmental impacts of the planned project. CBA also includes an analysis of options for the realisation of project, which usually assess different locations of the project but could also consider the implementation of energy efficiency measures instead of the construction of energy production plants.⁸⁶ Even though the application of the polluter pays principle (and associate user pays principle, e.g. for water resources) can ensure the internalization of external environmental costs (and resource provisioning cost) and facilitates sound financial sustainability of project, there might be certain trade-offs concerning social affordability if the utilization of a new service is associated with increased user charging. Note that some trade-offs can be addressed through due instrument design.

Given the way in which funds have been applied for the purpose of environmental protection, it is evident that there needs to be clearer environmental principles underlying the allocation and use of Cohesion Policy funds. In this respect, there is an argument for making the precautionary principle, the principle of preventative action and the polluter pays principle guiding principles underlying Cohesion Policy funding, in order to ensure that the environmental principles that underlie EU environmental policy also underlie Cohesion Policy funding, which is one of the most significant ways in which EU policy affects the environment.

In this respect, these principles should be explicitly stated as guiding principles at the EU level within the EU Funds General Regulation, the Single Strategic Guidelines and the Partnership Contracts. It would be beneficial to produce guidance for Member States and regional delivery authorities on how to operationalise these principles in practice, as this is an

⁸⁵ Nordregio (2009), 'The Potential for Regional Policy Instruments, 2007-2013, to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development'

⁸⁶ http://ec.europa.eu/regional_policy/sources/docgener/guides/cost/guide2008_en.pdf

area that has proved to be problematic in terms of the implementation of these principles. This could be undertaken in the same guidance document that sets out how to operationalise sustainable development.

The Polluter Pays Principle is already operationalised in the guidelines for CBAs, however, there is little research examining how it has been applied. One study has found that in cases when the polluter-pays principle was effectively enforced, it led to an increase in tariffs which in turn resulted in decreased use of the service (according to them, this was a particular issue linked to oversized and expensive infrastructural developments)⁸⁷. Similar guidelines could be developed to further operationalise the other important principles of preventive action, addressing pollution at source and precautionary principle.

In Member States' partnership contracts and in the respective OPs, these principles should be re-stated and translated into the respective national and regional contexts. The parameters within which the national and regional circumstances can alter the operationalisation of the principles should be set out within the Guidelines, or at least within the associated guidance. The assumption should be in favour of the implementation of the principles, while any deviation from these would need to be justified either by the Member State in its partnership contracts, or by the region in the respective OP.

5.1.5 Principles of carbon neutrality and no net loss of biodiversity

Given the environmental challenges faced by the EU and the increasing recognition that addressing these are important in the context of achieving sustainable growth, e.g. in the resource efficiency Flagship Initiative supporting the Europe 2020 Strategy (see Section 2.1), the application of principles such as carbon neutrality and biodiversity no net loss are arguably even more important in the post-2013 programming period (see Box 12). Given the importance of Cohesion Policy in developing infrastructure, which has the potential to lock-in patterns of behaviour that lead to emissions of greenhouse gases, it is clearly important for Cohesion Policy to be consistent with the aims of the 20/20/20 strategy.

The principle of carbon neutrality is being applied in some OPs in the 2007-2013 programming period, even though it is not embedded within the regulatory framework, i.e. either the Regulation or the Community Strategic Guidelines. Instead, the principle was introduced in the course of the approval of national/regional OPs and has been taken up in some countries (see the case studies mentioned in Section 4.2.1). The principle of carbon transparency and carbon neutrality could usefully be encouraged and where possible made into explicit objectives.

Cohesion Policy funding should be allocated where the highest EU value added can be exploited, to actions which can contribute to achieving EU's strategic objectives and targets, including those related to carbon reduction. Additionally, it is important to ensure that Cohesion Policy investment does not result in an environmentally harmful subsidy, a risk particularly in the old Member States. Old Member States should be allowed to use EU funds only for actions that realise carbon savings and support exemplary/pioneering projects and projects of 'excellence' in terms of environmental achievements. In such cases, investment should not lead to win-losses, i.e. to environmentally damaging subsidies. New Member States need to catch up with building infrastructure but in their EU funds programmes there

⁸⁷ Fiedler, J. and Artim, E. (2006) *Environmental projects financed by the EU funds: Selected experiences and challenges*. Working paper. June 2006.

should be a requirement for overall carbon neutrality as EU funds programmes should set an example and drive the direction for other investments. This carbon neutrality requirement potentially mitigates the risk that such investment in the new Member States could be an environmentally harmful subsidy. Additionally, if new Member States are supported to invest in carbon intensive infrastructures now, they might be running the risk of getting into a technological lock-in and consequently carbon high path dependency. In the long run, post 2020, new Member States should also use EU funds only for projects ensuring emission reductions and their Operational Programmes should be carbon saving.

As noted in Section 2.1, the resource efficiency Flagship Initiative also notes the need to halt the loss and restore biodiversity and ecosystem services. Furthermore, the recently published EU Biodiversity Strategy for 2020 (COM2011/244) introduces no net loss as a dedicated action for the future (see Box 12). Consequently, applying a principle of biodiversity no net loss to OPs should be consistent both with achieving the aims of the resource efficiency flagship and also supporting the implementation of the EU Biodiversity Strategy. This would require some specific requirements to ensuring no net loss when planning interventions and projects with are likely to have significant impacts on land use; this will require both greening of infrastructure (reducing damage, ensuring biodiversity measures linked to road and rail) and investing in green infrastructure. While the EIA procedure can ensure that such negative impacts are identified and mitigated the principle of no net loss would imply that developments with potential to disrupt natural ecosystems should not receive a go head through support by EU funds.

Box 12: Biodiversity no net loss

The EU Biodiversity Strategy for 2020 (COM2011/244) introduces no net loss as one of the integral elements of the future biodiversity policy:

Action 7. Ensure no net loss of biodiversity and ecosystem services

7a) In collaboration with the Member States, the Commission will develop a methodology for assessing the impact of EU funded projects, plans and programmes on biodiversity by 2014.

7b) The Commission will carry out further work with a view to proposing by 2015 an initiative to ensure there is no net loss of ecosystems and their services (e.g. through compensation or offsetting schemes).

5.1.6 Environmental objectives and priorities

The case studies identify that specific environmental or environmentally-related objectives have been developed for a majority of Operational Programmes. Most often these objectives particularly in new Member States are linked to the implementation of EU environmental *acquis* and therefore entail the construction of basic environmental infrastructure in the field of waste water, water supply, waste management and the establishment of the Natura 2000 network. In old Member States objectives are usually linked to developing low carbon projects and solutions or the boosting of eco-innovation and technologies, as discussed in Section 4.2.1 and in more detail in *Supporting Paper 4: Case Studies*.

The existing Community Strategic Guidelines on Cohesion call for a strengthening of the synergies between growth and environmental protection (see Annex 1.2). However, in practice, environmental investment has gone on the implementation of the more costly environmental Directives, e.g. those relating to water and waste management, rather than on other, more innovative environmental investments (e.g. measures on ecosystem-based

adaptation to and mitigation of climate change). Given this mismatch, there is clearly the need to reconsider the framework for environmental protection within Cohesion Policy.

Setting out environmental objectives is critical in the OPs as they become an important point of reference for future investments. While sustainable development as a cross-cutting principle is aimed to ensure horizontal integration across the different Programmes, concrete environmental objectives are necessary to ensure that the environment is given sufficient weight vertically within the Partnership Contracts and the Operational Programmes. These should mirror the strategic orientations provided at EU level by the respective overarching strategies, such as the Europe 2020 and also should be in line with the environmental objectives as set out in the national/regional sustainable development or environmental strategies. Hence, in order to better integrate environmental objectives to OPs, is to set quantified environmental targets that bind the OP to the achievement of concrete outcomes from environmental perspective and set out reference for monitoring, such as in the Basque Country OP. Here the development of environmental objectives is accompanied by the establishment of quantified environmental targets by 2013. The explicit targets bind the OP to the achievement of concrete outcomes from environmental perspective and set out reference for monitoring (see the case studies reviewed in Section 4.2.1).

5.1.7 Definition of Eligible Funding Categories

In addition to the objectives of funding, the categories that are eligible for funding are also important. The current list of these is presented in Annex 3b. As part of the work undertaken in *Supporting Paper 5: Tools for Sustainable Development*, an assessment of the existing categories of Cohesion Policy investment was undertaken in order to determine whether this was consistent with a more sustainable approach to Cohesion Policy investments. A key consideration in this was the potential for crowding out taking place in relation to each funding category, i.e. whether support from Cohesion Policy funds has crowded out potential investment from the private sector. A second important consideration was whether there are any categories that are currently excluded, or at least not implicitly included, in the existing list of eligible funding categories, the inclusion of which would contribute to improving the environmental performance of Cohesion Policy investment. The results of these assessments are presented below: first by an assessment of whether crowding out might have occurred, and therefore whether there should be any resulting changes in investment categories; then, there is an assessment of which additional categories of funding could be added to the existing list (more detail can be found in *Supporting Paper 5: Tools for Sustainable Development*).

Changes to eligible funding categories based on the potential for crowding out

For **SCP** it can be argued that a potential short-term crowding-out of private investments may exist in regard to investments to promote the uptake or implementation of Ecolabel, EMAS, etc., as private firms could have an incentive to invest in these measures. However, figures show that the uptake of EMAS and Ecolabel has been very low in new Member States, indicating that there has not been significant private investment in the uptake of the EMAS scheme there. In Malta, Lithuania and Bulgaria, for example, there are no registered

organisations with EMAS.⁸⁸ Similarly, the statistics for the Ecolabel uptake are also low for new member states.⁸⁹

GPP is, when established properly, an effective and efficient instrument for achieving more sustainable patterns of consumption by public organisations. GPP is not an activity under Cohesion Policy, but a framework for purchasing and developing calls for tenders by public organisations. Hence, to foster a more sustainable use of Cohesion Policy funding by public organisations it is important to pursue a higher application of GPP. Cohesion Policy could promote the uptake by making the application of GPP a conditionality requirement for funding, as well as by providing financial assistance for projects to establish GPP schemes. Hence, there is a need for more investment in such measures. A specific spending category for institutional development and capacity building for GPP could be defined to foster this. In relation to GPP, a report by the OECD in 2003⁹⁰ warns of the potential problem of crowding out green consumption in the private sector. If the public sector introduces GPP yet suppliers are not quick enough to meet the new demand, the private sector, who might have previously bought green, will be forced to purchase the non-green option. However, as long as GPP is introduced gradually, with warnings to suppliers, this is unlikely to be a problem⁹¹.

For **clean energy and climate change** the potential for crowding out regarding public investments in the field of renewable energies is significant. In order to minimise the risk of crowding out and to optimise the overall effectiveness of the policies, OP have to be designed to create positive synergies with national/regional schemes and regulations regarding renewable energies and especially feed-in-tariffs. This concerns both the scope of the investments and their level, the latter depending on MS level market characteristics and forecasts.

The extent to which it is possible to use private finance depends on a range of economic (e.g. market conditions and characteristics), social (ability of low income consumers to pay, reduction in social benefits if payment is required) political, legislative, ownership (e.g. energy grid ownership) and attitudinal factors that will vary by country. However, regarding adaptation to climate change, the situation is quite different, as no or very little private investors seem to be interested in these interventions. Private investment in adaptation is limited because of the low level of private return compared to investments in other areas (even if the absolute level of private return is positive), such as renewable energies, sustainable transport, etc. It is also limited because of the lack of a policy framework which is needed to provide information on the economic benefits of investing in adaptation to climate change. As economic benefits are likely to appear on the medium to long-term, a policy framework is also needed to identify and introduce the necessary incentives to drive private investment towards these types of actions.

As with other types of investment, for **transport** the extent to which it is possible to use private finance depends on a range of economic, social, political, legislative, ownership and attitudinal factors that will vary between different countries. Hence, the potential to attract

⁸⁸ Correct as of 30 June 2010 http://ec.europa.eu/environment/emas/pictures/Stats/2010-04_EMAS_Quarterly_Graph.jpg; <http://ec.europa.eu/environment/ecolabel/about ecolabel/facts and figures en.htm>

⁸⁹ <http://ec.europa.eu/environment/ecolabel/about ecolabel/facts and figures en.htm>

⁹⁰ OECD, (2003), The Environmental Performance of Public Procurement: Issues of Policy Coherence

⁹¹ Commission Staff Working Document (2007), Options to improve the Uptake of Green public procurement in the EU: Impact Assessment

private investment to fund transport infrastructure does not necessarily imply that crowding out of private investment has resulted from Cohesion Policy investment in transport infrastructure. On the other hand, given the increasing amount of private money being attracted to fund transport infrastructure, there is clearly the possibility that Cohesion Policy funds have been relied upon where private investment could have been sought.

For **water** crowding out is unlikely to have occurred, particularly when it is considered that those Member States that receive significant Cohesion Policy funding (new and southern Member States) are some of the least deregulated. Evidence shows that even where private sector interests had originally been expressed, that the highly regulated nature of the market for water services has meant rates of return that make such investments unattractive to the private sector.

In the case of **biodiversity**, it is not considered that existing investment under Cohesion Policy is at present leading to the crowding out of potential private investment. The lack of private investment in biodiversity is rather linked with the limited awareness in biodiversity related socio-economic benefits and ‘win-wins’ as well as public goods or public benefits nature of many biodiversity investments.

Additional eligible funding categories to improve Cohesion Policy’s environmental performance

There are measures relating to **climate change and clean energy** that are currently outside of the Cohesion Policy that could be included within its scope. These could be, for instance, investments in ecosystem-based mitigation and the development of natural carbon sinks. Ecosystems are also an important regulator of climate change⁹². Each of the main ecosystem types has the potential to affect carbon storage and emissions, and the degradation of these ecosystems can thus significantly impair climate change mitigation or adaptation. Ecosystem-based approaches are increasingly being used as a way to address the interlinked challenges of climate change and ecosystem degradation and loss. Protecting and enhancing the ecosystem service of climate regulation, through carbon sinks and stores has the potential to make a significant contribution to mitigation efforts; and managing other ecosystem services, such as water regulation, natural hazard regulation or air regulation, enhances adaptation to the impacts of climate change, for both society and ecosystems. However, one key factor limiting the widespread uptake of ecosystem-based approaches may well be the current lack of quantitative evidence/awareness of their impacts for tackling climate change. Efforts are currently underway to assemble and communicate this evidence base and on the wider benefits of ecosystem services⁹³, though more investment will be needed on ecosystem service indicators and natural capital accounts to ensure that the evidence base is fully available to decision makers.

There are two potentially relevant types of infrastructure that could be included in future Cohesion Policy funding in relation to **transport**:

- Infrastructure that enables user charging, particularly on roads and in urban areas; and

⁹² Trumper, K., Bertzky, M., Dickson, B., van der Heijden, G., Jenkins, M. and Manning, P., 2009. The natural fix? The role of ecosystems in climate mitigation. A UNEP rapid response assessment, United Nations Environment Programme, UNEP-WCMC, Cambridge, UK.

⁹³ TEEB (2011)

- Infrastructure that enables the increased use of alternative, potentially zero carbon sources of energy by transport. Again the focus in this respect would be on alternative energy carriers for road transport (e.g. on electricity charge points), but other modes might also be relevant in this respect.

With respect to the application of transport user charging as a conditional instrument, user charging would only be required under Cohesion Policy on those pieces of inter-urban infrastructure funded by Cohesion Policy, or in urban areas where Cohesion Policy is being used to fund developments to the transport network. In such cases, the application of road user charging would need to be integrated with the respective developments. Hence, in this respect, Cohesion Policy would not be funding road user charging infrastructure as a separate funding category; instead funding for road user charging infrastructure would need to be made available within the categories that fund road construction (i.e. investment categories 20 to 23) or those that develop the urban transport network (i.e. investment categories 25 and 52).

In the short-term, funding for infrastructure that would enable transport to use alternative, energy carriers that have the potential to be zero carbon should focus on the development of the charging infrastructure for electric vehicles. In the longer-term, it might be appropriate to fund infrastructure for hydrogen in the same way⁹⁴. The important element in this respect is that the infrastructure enables an increase in alternative sources that have the potential to be carbon neutral, as otherwise such investments would not enable transport to be decarbonised.

From the perspective of **adaptation to climate change**, certain instruments currently outside of Cohesion Policy could be included within its scope. This is the case with respect to instruments related to regulations on construction in areas at risk of climate related hazards, such as flooding, storms or landslides. Evidence shows that existing regulations are not enforced as completely as they should and lead to increased exposure of economic activities and residential housing to climate-related risks. Cohesion Policy could therefore support measures aiming at improving sustainable urban and land use planning schemes and fund activities aiming at creating zoning and mapping of risks.

Cohesion Policy could also fund activities linked to the enforcement of these regulations since enforcing and adapting existing regulations (or creating new ones) in order to take into account new levels of risk will reduce the expected impacts of climate change and provide economic benefits on the long-term to the society as a whole.

There are a number of measures that are currently deployed by Member States that conserve **water** resources, collect rain water and partially treat wastewaters which are not currently funded through Cohesion Policy mechanisms. Measures include the construction of wetlands and oxidation ponds as natural water filtration systems, in addition to rainwater ponds, lakes and agricultural reservoirs to collect and store water for a variety of habitat, amenity and agricultural uses. Furthermore, investing in natural capital and the services it provides could

⁹⁴ While both battery electric and hydrogen vehicles could be considered to be zero carbon at the point of use, these energy carriers could only truly be considered to be zero carbon energy carriers if their life-cycle emissions, which includes the emissions caused in the production of the electricity or hydrogen, were zero. At present, this is not generally the case, as electricity is produced from a range of sources, only some of which could be considered to be low carbon, while hydrogen is not yet produced on a scale that could be used in transport. However, for example if the electricity sector decarbonises, which it is planning to do, then cars using electricity could be more properly referred to as zero carbon vehicles. Hence, electric cars could be considered to have the potential to be zero carbon. A similar argument might be relevant for hydrogen in the future.

be also more cost-effective, efficient and sustainable compared to those technological solutions and facilities that have traditionally been supported.

With respect to supporting win-wins between **biodiversity** and sustainable socio-economic development under the Cohesion Policy, there are a number of measures currently outside of the Cohesion Policy that could be included in its scope. For example, investments in ecosystem-based mitigation and adaptation to climate change could be included as an area supported under Cohesion Policy (see also discussion on climate change adaptation above). It should be, however, noted that activities that improve an ecosystem's ability to mitigate climate change, such as reforestation, do not automatically have positive impacts on biodiversity. For example, forest plantations can be effective ways for increasing carbon sequestration but they can have a very low biodiversity value and may replace areas with higher biodiversity value (e.g. semi-natural grasslands). Therefore, such activities should always be biodiversity-proofed to ensure true biodiversity benefits and win-wins.

Furthermore, but also linked to the above, support could be provided towards maintaining and improving the overall status of EU's ecosystems and guaranteeing the supply of ecosystem services, i.e. green infrastructure (see Box 17 in Annex 2.3). For example, a representative and well-managed network of protected areas is crucial for delivering EU biodiversity goals and it also helps to maintain several ecosystem services underpinning socio-economic development and wellbeing within the EU (e.g. water retention and purification, mitigation of natural hazards, creation of jobs, support to tourism and sustaining mental & physical health). Similarly, investment in restoring natural areas, such as floodplains and wetlands, can be a cost-effective way to mitigate flooding and improve clean water supply.

Furthermore, establishment of systems to monitor the interrelations between the status of and interrelationship between ecological and socio-economic systems (e.g. establishing EU / national ecosystem accounts or local spatial interrelationships for cities and natural capital) would help to identify benefits related to well-functioning ecosystems (e.g. green infrastructure) and how these would be appropriately integrated into existing policies, e.g. Operational Programmes within the Cohesion Policy.

As indicated above, a successful uptake of market-based instruments and approaches for biodiversity, such as the establishment of payment for ecosystem services (PES)⁹⁵ schemes and the development of business partnerships on a wider scale is expected to require some initial support from the EU and national levels (e.g. into ecosystem service indicators, monitoring and mapping). Targeted investment under Cohesion Policy, to allow for the development and testing of such instruments, could be a possible way to facilitate a broader uptake of such instruments at the EU level.

Finally, the integration of biodiversity win-wins into the implementation of Cohesion Policy and/or national policies requires further information, raising of awareness and capacity building, both among the stakeholders and administrative bodies, who contribute to the design and implementation of Cohesion Policy. Furthermore, stakeholders within the biodiversity sector are often unfamiliar with, and under resourced, to fully utilise the

⁹⁵ Chapter five in TEEB (2011) *The Economics of Ecosystems and Biodiversity in National and International Policy Making*. Edited by Patrick ten Brink. Earthscan. London.

possibilities of funding biodiversity related measures under the Cohesion Policy. Therefore, such capacity building activities could receive dedicated support from the Cohesion Policy.

5.1.8 Gearing financial resources to environmental objectives

After environmental objectives have been set out, the next step will be to ensure that sufficient funding resources are allocated in order to achieve these objectives. Failure to secure the necessary financial means might jeopardise the performance and achievement of concrete results from EU funds interventions. Earmarking is one instrument to harness public financing towards achieving certain policy objective. Thematic concentration might be another way forward. In the 2007-2013 programming period, earmarking was relatively successful in targeting investment in support of the objectives of the Lisbon agenda. Given the desire that the post 2013 programming period be aligned to the Europe 2020 strategy, which itself recognises the importance of the environment in supporting sustainable growth, earmarking funds in the forthcoming period would appear to be a useful instrument to apply. This conclusion is supported by the Communication on the budget review, which called for earmarking to underpin the mainstreaming of *inter alia* climate change and energy policies into Cohesion Policy. Given that resource efficiency Flagship Initiative under Europe 2020 also makes reference to the need to prevent biodiversity loss and recognises that the world is resource-constrained, there is also a clear rationale for earmarking resources to the prevention of biodiversity loss and to improving resource efficiency.

As with the 2007-2013 programming period, there needs to be an instrument or generic approach to ensure that EU funds will allocate a considerable amount of financial resources in support for the sustainable growth objective of the Europe 2020 Strategy, the resource efficiency Flagship Initiative and EU environmental legislation. This approach needs to be explicitly specified within the post 2013 EU Funds General Regulation programming period. The associated principles need to be developed in the revised Strategic Guidelines, while the subsequent allocations to priorities would also need to reflect the high level allocations in the same way in which this was achieved for the post 2013 programming period. Similarly, partnership contracts and OPs would need to reflect these priorities and contribute towards delivering the overall allocation of funds, although the extent to which OPs can be expected to contribute to the overall delivery of the specified allocations will depend on the type of OP.

In the previous programming period earmarking was a useful instrument to concentrate funding resources to strategic priorities. In the on-going political debates other approaches are also being discussed such as ring fencing or establishing obligatory measures. For instance the fifth report on Cohesion Policy states that the ring-fencing expenditure might also be considered. Whatever the exact instrument, however, in principle there should certainly be mechanisms embedded in the EU funds regulatory framework which to ensure that sufficient amount of funding is allocated in support of environmental objectives and targeting environmental projects.

As for biodiversity, in 2007-2013 it has been possible for the Member States to specifically direct Cohesion Policy investment towards promoting biodiversity and nature conservation, including Natura 2000 (ERDF budget category 51). However, allocation of Cohesion Policy funding for this budget category has been voluntary and in practise only some Member States

have taken up this opportunity⁹⁶. Therefore, further steps would be helpful to improve the scope and design of Cohesion Policy OPs so as to ensure that the possibilities for financing biodiversity are taken up in practise. These could include, for example, obligations for the minimum earmarking of funds for biodiversity. Also, in order to ensure the absorption of Cohesion Policy funding for biodiversity at national / regional level, stakeholders responsible for managing biodiversity (e.g. Natura 2000 sites) should be unequivocally recognised in the socio-economic partnerships under Cohesion Policy and efforts should also be made to ensure the capacity of these relatively new ERDF partners to effectively access the available funding.

The fifth report on Cohesion Policy states that the strengthening of strategic programming will be achieved through the Common Strategic Framework as well as increasing thematic concentration. In relation to this the Bremerhaven off-shore wind case study is a good example of coordination within shared management and thematic concentration. In this case funding is received from the European Fisheries Fund (EFF), the European Agricultural Fund for Rural Development (EAFRD) and by the ERDF under the “European Territorial Co-operation” instrument. While all these funds are directed towards the achievement of the same overarching objectives, they target different aspects of the wide strategy and thus avoid double-funding of the same measures.

5.1.9 Compliance with EU environmental acquis

The preamble of the General Regulation 1083/2006/EC stipulates that ‘the activities of the Funds and the operations which they help to finance should be consistent with the other Community policies and comply with Community legislation’. In this context, there are two implications: 1) using Cohesion Policy to finance the implementation of investment heavy Directives in convergence regions and 2) ensuring cross-compliance of all Cohesion interventions with the EU environmental legislation (e.g. EIA/SEA, Birds and Habitats Directives). For instance, majority of EU funds are allocated to aid Member States and regions to help them implement Directives such as the Urban Waste water Treatment Directive, the Water Framework Directive and the waste Framework Directive, which put significant pressures due to the scale of investment necessary for their implementation. Another example is linked to lack of cross-compliance of non-environmental projects with EU environmental *acquis*. Previous research has showed that often the Habitat and Bird directives were disregarded. This was found to be the case of some transport projects, where EU funds were requested only for those parts of the project (e.g. for a transport corridor) which were located outside of habitat or bird areas. One way of attempting to solve this was by ensuring that an EIA was required for the whole project, even if only a part of it is submitted for Cohesion financing.⁹⁷

While managing authorities assume the legal responsibility for ensuring compliance with the *acquis*, the Commission has to take this information into account when appraising projects. In order to assist with the assessment of compliance with the *acquis* of major water and waste

⁹⁶ Kettunen, M., Carter, O., Gantioler, S., Baldock, D., Torkler, P., Arroyo Schnell, A., Baumüller, A., Gerritsen, E., Rayment, M., Daly, E. & Pieterse, M. 2011. Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument. A project for the European Commission. Institute for European Environmental Policy (IEEP), Brussels. (to be published)

⁹⁷ Fiedler, J. and Artim, E. (2006) *Environmental projects financed by the EU funds: Selected experiences and challenges*. Working paper. June 2006

projects, the Commission has developed checklists.⁹⁸ From the case studies (see Section 4) , it is clear that some of the new Member States are using Cohesion Policy funds to develop the infrastructure that should enable compliance with the Community's environmental *acquis*, particularly in relation to waste and water.

Similar compliance checklists to those used for assessing the compliance of major waste and water projects could be extended to other major projects. As discussed in *Supporting Paper 3: Role of non-Cohesion Policy Instruments*, all pieces of infrastructure and changes in land use (e.g. clean energy production) have the potential to impact on biodiversity. Hence, developing a checklist, which includes the need to ensure compliance with relevant biodiversity and nature conservation policies and legislation, has the potential to be beneficial in ensuring that all pieces of infrastructure comply will Community policies and legislation.

5.1.10 Conditionality

Supporting Paper 3: Role of non-Cohesion Policy Instruments has discussed in detail the ways in which a number of non-investment policy instruments could be used alongside Cohesion Policy as conditional or complementary instruments. There is also some evidence from case studies that some of these policy instruments, such as green public procurement (GPP), EMAS and Eco-labelling, are already being used in some Member States as conditional instruments linked to Cohesion Policy.

The notion of introducing some form of conditionality in future Cohesion Policy was proposed in the Communication presenting the conclusions of the 5th Cohesion Report⁹⁹ . The conclusions explicitly note that conditionality could be applied in the area of environmental protection. Such conditionality could ensure that environmental considerations are better integrated into Cohesion Policy both by reinforcing existing win-wins, but also in helping to mitigate win-losses. In *Supporting Paper 3: Role of non-Cohesion Policy Instruments* the use of non-investment instruments as conditional, or at least complementary, instruments are discussed. Using these instruments as either conditional or complementary instruments would require that any general requirements linked to conditionality be set out at a high level in the revised Community Strategic Guidelines for Cohesion, with which all NSRFs and OPs would have to be consistent. This is important in order to ensure that i) the conditions are applied consistently within all Member States and regions that are recipients of Cohesion Policy funds; and ii) that the application takes into account national and regional circumstances. In this respect, the level of detail required will be dependent on the existing EU policy frameworks that are in place and the scope for different approaches to implementation within Member States and regions. The latter will vary from instrument to instrument.

At the highest level, the revised Strategic Guidelines would need to include the necessary references to, and frameworks for, the use of the conditional and complementary instruments, e.g.:

- The need to apply **GPP**, **EMAS** and **Ecolabels**, and any requirements as to their application;

⁹⁸ DG ENVI. Checklist Water and Waste Major projects (20/11/09), http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/checklist_water_waste201109.xls

⁹⁹ EC. Conclusions to the Fifth Cohesion Report.

- The need to apply *thermal insulation standards for buildings*, and any requirements to their use;
- The requirement to undertake the proposed appraisal for *water investment*, and the conditions under which the application of the relevant elements of the Water Framework Directive could be strengthened (e.g full cost recovery pricing), including a reference to more detailed guidance on how to undertake the appraisal;
- A strengthened requirement to apply existing *biodiversity* Regulations, and the framework for the potential application of market-based instruments for biodiversity, including a reference to more detailed guidance on the use of such instruments for nature conservation;
- The conditions under which *user charging for transport* should be applied on infrastructure financed by Cohesion Policy funds, including a reference to more detailed guidance on how this should be operationalised; and

Such requirements would then need to be included in the NSRFs and subsequently in the OPs. In the NSRFs, any relevant national conditions and circumstances would need to be set out. This would include any regional differences within the country, e.g. for the application of user charging for transport or for waste. It would also need to build on the EU-wide framework included within the Community Guidelines by developing the necessary framework within which the respective OPs could be developed. In this respect, consistency between the European level Guidelines and the OPs would be achieved. For their part, the OPs would need to be developed within the framework set out within the NSRFs, as is currently the case.

The EU Funds Regulations do not require the deployment of green public procurement (GPP) or other voluntary instruments such as EMAS and ecolabel as cross-cutting conditionality in the Operational Programmes. In spite of this fact, there is some evidence from the case studies that in some countries, there is growing practice in the application of such instruments in conjunction to EU Funds programmes and projects. For instance by developing actions to promote sustainable consumption and production can have clear positive impacts on GPP, such as in the Basque, which is aiming to achieve a 40% GPP of the total public procurement through these type of measures (see Section 4.2.1). There should be strong encouragement for the use of GPP (and associate whole life costing, WLC), environmental management systems, certification and labelling.

5.2 Procedural Instruments

5.2.1 Strategic Environmental Assessment (SEA)

SEA is one of the most prominently recognised tools for environmental policy integration at the strategic level of planning and decision-making. The General EU Funds Regulation sets out the requirement for Member States to conduct ex-ante, on-going and ex-post evaluations of the OPs which should take into account ‘the objective of sustainable development and of the relevant Community legislation concerning environmental impact and strategic environmental assessment’ (Article 47). The EU SEA Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment provides the legal framework for the application of SEA on plans and programmes, among which the Operational Programmes governing EU funds. Approval of the Programmes by the

Commission was made conditional to compliance with the requirements of the SEA Directive.¹⁰⁰

The experiences across Member States and regions vary significantly in terms of the scope, timeliness, methodology, effectiveness and impact on programme innovation. In several countries there is a general uncertainty whether OPs which do not foresee big infrastructure investments with unlikely negative impacts on the environment, should be subject to an SEA. Overall, the case studies (see Section 4.2.2) provide a number of positive developments and innovative applications of SEA and include the:

- ongoing SEA of the OP for Piemonte, ensures the existence of a feedback mechanism into the implementation of the OP and it influences the implementation phase of the programming;
- improvement of monitoring and evaluations as proposed for the SEA in the South West England OP where the SEA is reviewed biannually ;
- improvement of the link between SEA and the assessment of projects as suggested in the Southern Finland OP, where the SEA identifies critical environmental issues, which are also used in the assessment of projects;
- a need for the SEA to include in its scope the list of indicative projects and consider alternative projects and mitigation measures already at a planning stage;
- use of SEA in order to develop indicators, as in the OP Infrastructure and Environment in Poland for indicators related to the modal share of environmentally friendly transport;
- use of SEA to develop environmental criteria for project selection as in the Bulgarian OP; and
- adapt the SEA to better correspond to the scope of the OP, as done in the Southern Finland OP, where funding authorities are required to consider the SEA and its categories in the assessment of proposals.

In order to improve the application of SEA within Cohesion Policy, the existing Handbook on SEA for Cohesion Policy¹⁰¹ should be revisited and promoted while the development of national and regional guidance documents should be encouraged by tailoring them to the specific context of characteristics of the programmes (in this case investment programmes), administrative levels and geographies. Additionally, the working document on the use of SEA as part of the *ex ante* evaluation¹⁰² could be reviewed in order to ensure that SEA is appropriately applied, e.g. to remove the uncertainty over its application that emerged in the current programming period with respect to its application to OPs that did not contain major projects. It is also important to emphasise the potential of SEA as a procedure to, not only identify negative impacts of OPs, but also as a procedure that is able to identify environmental benefits of activities, such as those linked to ecosystem services.

The *process* of carrying the SEA is also of critical importance. Its end result is often seen as delivering a product – the SEA report. The SEA, however, should be considered more as an

¹⁰⁰ CEC. Report by the Commission on the application and effectiveness of the Directive on Strategic Environmental Assessment (Directive 2001/42/EC), (COM(2009)469), Brussels, 14.9.2009

¹⁰¹ GRDP. 2006. SEA Handbook.
http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/sea_handbook_final_foreword.pdf

¹⁰² http://ec.europa.eu/regional_policy/sources/docoffic/2007/working/wd1_exante_en.pdf

evolving process which takes place in parallel to the programming process itself by offering ‘a rolling integration of the findings of the SEA’ into the programming¹⁰³. Also, rather than having a separate consultation on the SEA, the SEA would frame the overall assessment and consultation – mainstreaming environmental considerations from the start of the process, and maintaining it throughout the design and delivery process. For instance, the SEA Handbook for Cohesion Policy outlines the links between the programming process and corresponding SEA steps arguing that they are interdependent and that ‘both processes can be seen as mutually reinforcing tools within one robust planning system for more sustainable development’ (see Table below)¹⁰⁴.

Table 2.1. Logical links between steps of the programming process and SEA

Typical programming steps	Logically corresponding SEA steps
Determine the overall objectives of the programming document and the main issues it should address	Determine environmental issues, objectives and indicators that should be considered during the SEA process
Possible consultations with other relevant competent authorities	Compulsory consultations with environmental authorities Consultations with concerned public recommended
Analysis of the development context	Evaluate the current situation and trends and their likely evolution if the programming document is not implemented
Propose development objectives and priorities	Assess proposed development objectives and priorities
Propose measures and eligible actions	Assess proposed measures and eligible actions Assess cumulative effects of the entire programming document
Propose evaluation criteria and monitoring system	Evaluate proposed evaluation criteria system Evaluate proposed monitoring system
Compile the proposed programming document and hold consultations with authorities and stakeholders	Compile the Environmental Report and hold consultations with environmental authorities and the public
Formal decision on the programming document and inform public about the decision	Take into account Environmental Report and results of consultation in decision-making Inform environmental authorities and the public on how the outcomes of the SEA have been taken into account

Source: GRDP 2006¹⁰⁵

Such a process will have significant implications in terms of organising a robust planning process and will require the clear division of the roles between the managing and environmental authorities, which can have some impact on increasing administrative costs. Still, the approach will facilitate a communicative and coordination process that can foster the identification of win-wins and addressing potential trade-offs between competing environmental and economic objectives and measures. Therefore, it is important to work with national and regional administrations to improve their perception and ownership of this tool, so that it is not considered as a burdensome procedure that one needs to comply with, but

¹⁰³ Bafors, A. and Schmidtbauer, J. 2002. *Swedish guidelines for strategic environmental assessment for EU Structural Funds*. European Environment, 12 (35-48).

¹⁰⁴ GRDP. 2006. SEA Handbook.
http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/sea_handbook_final_foreword.pdf

¹⁰⁵ http://ec.europa.eu/regional_policy/sources/docoffic/working/doc/sea_handbook_final_foreword.pdf

rather see it as a useful planning tool that can strengthen the sustainability of investment programmes.

There is also scope to use the SEA in a more holistic, comprehensive and co-ordinated manner based on the findings from the case studies, as the SEA can contribute to the development of indicators, project selection criteria, EIAs/other project assessments as well as contributing to the ex-post evaluations of the OPs, through the mandatory SEA monitoring. In addition the SEA can already be started as part of the ex-ante evaluations of the Partnership Contracts, as a safety net for the adequate incorporation of environmental impacts and benefits, which can then be further developed in the SEA of OPs.

5.2.2 Ex-ante Evaluations and SWOTs

Ex ante evaluations are the responsibility of Member States and are developed in parallel to the OPs. SEAs are also conducted as an integral part of ex ante evaluations, while SWOT analyses are also a widely used instrument. Ex ante evaluations have proved themselves to be a useful instrument in aligning OPs to the relevant EU strategies in the 2007-2013 programming period, and are likely to play the same role post 2013 programming period. The fact that they are developed in parallel to the OP is perceived as an opportunity to learn and reflect within the programming process. Still, their application should be strengthened to reflect the new overarching objectives for sustainable growth and therefore a proper practice need to be developed in support for ex-ante evaluations and SWOT to take the environment into account. Furthermore, better incorporation of the SEA into the ex-ante evaluations should be pursued in view of establishing the practice of integrated sustainability appraisals aimed to assess the economic, social and environmental pressures and impacts ex ante. Such assessments could be useful tools for the European Commission in the context of the partnership contracts and operational programmes in order to get a better understanding of the drivers and impacts of the planned investments, as well as their interlinkages to the Europe 2020 Strategy.

There could also be scope for a better integration of SWOTs as a complementary instrument for engagement and identification of problems/solutions. For instance in the SURF INTERREG project SWOTs were used as a relatively simple and straightforward tool to engage stakeholders in the definition of problems and potential solutions (see Section 4.2.2).

5.2.3 Environmental Impact Assessment (EIA)

The EIA Directive 85/337/EEC prescribes that prior to receiving ‘development consent’, certain public and private projects likely to have significant environmental effects by virtue, *inter alia*, of their nature, size or location are made subject to an EIA. The EIA is an important instrument for environmental integration at a project level and therefore is relevant to examining approaches to greening investment projects financed by EU funds. In the past, however, the EIA was often viewed by beneficiaries as an additional burden while applying for EU funds co-financing. Thus it was found to be often carried out improperly, public hearings were conducted hastily and not all affected stakeholders were considered when designing the project.¹⁰⁶

¹⁰⁶ Fiedler, J. and Artim, E. (2006) *Environmental projects financed by the EU funds: Selected experiences and challenges*. Working paper. June 2006

Major projects (the total cost of which is above €50 million) funded by Cohesion Policy are subject to an EIA in line with the EIA Directive 2003/35/EEC. The Regulation covering the 2007-2013 programming period requires Member States to submit ‘an analysis of the environmental impact’ of major projects to the European Commission, which means that the Commission could decide not to approve the project as a result of issues in relation to the EIA.¹⁰⁷

The case studies have identified a number of interesting and innovative approaches (for further details see Section 4.2.2) in their approaches to EIA, such as:

- the creation of independent institutions to ensure extra capacities to improve quality of EIA, like in the Polish Transport case study;
- the development of an informal but mandatory EIA for every project application as in the Danish case study, enhancing the integration of environmental considerations as a cross-cutting theme at project level;
- a stronger link between EIA and project selection, as developed in the Danish case study;
- inconsistencies in the EIA to be addressed by an independent panel, which informs the funding authority, as in the Southern Finland OP: and
- develop the EIA/other project assessment in relation to the SEA, including the selection of indicators and monitoring, that would contribute to the ex-post evaluation of programmes, as in the Southern Finland and Piemonte OPs.

5.2.4 Cost-benefit analysis (CBA)

A cost-benefit analysis (CBA) is one of the compulsory analyses that need to be submitted to the Commission to support a major project application. This should include risk assessment and the foreseeable impact on the sector concerned and the socio-economic impacts for the country/regions considered. DG Regio has published a common guide to CBA¹⁰⁸, which is aimed to aid managing authorities, public administrators and their advisors in the Member States, when they examine project ideas or pre-feasibility studies at an early stage of the project cycle.

The guide explicitly stipulates that the ‘economic analysis’ should take into account externalities and give them monetary value. Externalities in this case could include social costs associated with adverse environmental impacts of the planned project. CBA also includes an analysis of options for the realisation of a project, which usually assess different locations of the project but could also consider the implementation of energy efficiency measures instead of the construction of energy production plants.¹⁰⁹

The CBA includes a risk assessment, which currently focuses on identifying and mitigating risks associated with economic and financial performance of the project. Severe and unforeseen impacts of climate change however could pose significant risk in terms of costs of damage repair in the case of infrastructure projects. This has been the case in the Languedoc-

¹⁰⁷ JASPERS. Regional Office for Central Europe, Vienna. Major project development in the Framework of CF and ERDF funds, Presented at an InterAct Danube Region Strategy workshop on 17 March 2010 in Bratislava

¹⁰⁸ http://ec.europa.eu/regional_policy/sources/docgener/guides/cost/guide2008_en.pdf

¹⁰⁹ Ibid.

Roussillon region in France, where a cost-benefit analysis designated the road shifting as the most economically sustainable solution. Indeed, it appeared that it would be less expensive to shift it next to the railway running along the Thau pond, than to repair it on a frequent basis. The measure was welcomed by green associations and the environment was taken into consideration when the question of the use of the space freed by the shifting of the road was raised. However, it seems that, probably due to the inaccurate implementation of the project, the construction of the road has led to the accidental destruction of rare plant species. Therefore, the costs of preventive climate adaptation measures should be integrated more rigorously in future CBA in terms of designing more financially sustainable but also climate resilient projects.

5.2.5 Environmental project selection criteria

A number of countries have applied different approaches to enhance environmental integration during the process of *project selection*. These approaches might seem often very technical but if applied robustly they could facilitate genuine cost-effective outcomes for the environment by stimulating more environmentally sound projects through the selection process. Such approaches could include some informative instruments, e.g. *formulating the calls* for proposals in a way that they steer a positive approach to taking environmental consideration into account, highlighting the environmental requirements of the programme, providing additional information to project proponents on how to comply with environmental requirement of the programme, etc.¹¹⁰

The establishment of **explicit environmental criteria** and assigning sufficient weight to it could be seen as the most straightforward way to stimulate environmentally sound projects. Some countries have established environmental criteria, granting up to 20 per cent weight to it in the project selection process, such as Bulgaria, Malta and Finland. In the Southern Finland OP the higher weighting of environmental criteria of the Southern Finland OP has also led to a higher percentage of environmentally positive projects compared to the other Finnish OPs, as shown in Box 7 in Section 4.2.2.

There are also interesting examples where the selection of projects, based on environmental criteria, is enhanced through the establishment of appropriate institutional structures or coordination mechanisms where environmental expertise aids the selection process, like in the Danish OP (see Section 4.2.2).

A lesson from the Malta case study is that in setting environmental project selection criteria it is important to set clear standards for these in order to avoid a situation where meeting these criteria is more or less automatic and does not reward projects that go beyond these criteria, as shown in Section 4.2.2.

The use of selection criteria is also important in relation to applying conditionality (see Section 5.1.10) as these could be used to ensure that conditionality has been applied appropriately and therefore reject projects that do not adequately address the environment. If the project does not sufficiently address or take account of the underlying environmental principles, the onus should be on the project to justify why it has chosen this approach. It would be perfectly justifiable for projects to claim any additional costs incurred, e.g. by

¹¹⁰ REC-ENEA (2009) *Improving the Climate Resilience of Cohesion Policy Funding Programmes: An overview of member states' measures and tools for climate proofing Cohesion Policy funds*. ENEA Working Group on Climate Change and Cohesion Policy. November 2009

purchasing greener products or introducing road user charging, from Cohesion Policy, as this would be part of the added value of Cohesion Policy investments in delivering sustainability. Examples of the potential use of selection criteria to require the use of specific conditional or complementary instruments include:

- Where projects led by public or semi-public organisations involve the construction of infrastructure or buildings, or the purchase of products or services, they should be required to apply GPP.
- Applicants should be required to have environmental management systems in place that are consistent with EMAS, or at least commit to putting such systems in place in the course of the project.
- Projects including the construction or significant renovation of buildings would have to apply suitable standards for thermal insulation – at least regulatory requirements, but arguably also stricter than the current standards as these can only be expected to tighten in the future given climate change and energy security concerns
- Projects funding water investment would need to apply (higher levels of) water pricing if the assessment in the respective OP concludes that this is affordable.
- Investment affecting biodiversity would need to demonstrate compliance with biodiversity Regulations and be transparent as regards residual impacts.
- Projects to develop transport infrastructure would need to apply user charging to this infrastructure, unless they can justify otherwise, in line with the guidelines set out in the Strategic Guidelines.
- Feed-in tariffs would need to be applied with respect to renewable energy, unless the project could justify why they are not in line with the guidelines set out in the Strategic Guidelines.

Such requirements could also be included in the development and investment partnership contracts.

5.2.6 Monitoring and environmental indicators

Indicators are important planning and monitoring tools. In the past, quantitative indicators were found to be poorly used or were lacking in ex-ante assessments. Where they existed, there was often a mix of objectives, outputs and results and final reports contained minimal information in this regard¹¹¹. According to the Nordregio¹¹² study the development of impact indicators linked to sustainable development has been difficult to apply as often these are conceived as less tangible. In the 2007-2013 period, the use of indicators is set out in two working documents developed by DG Regio which establish an output-result-impact indicator system. Typical output indicators refer to ‘number of projects’ and result indicators relate to the effects of the intervention, for instance the number of households connected to water supply systems. Impact indicators are linked to longer term targets to which the intervention would contribute achieving, for instance, by 2013 the average rate of ICT usage in Danish businesses is at least 75% compared to 56% for the baseline in 2005.

¹¹¹ Fiedler, J. and Artim, E. (2006) *Environmental projects financed by the EU funds: Selected experiences and challenges*. Working paper. June 2006

¹¹² Nordregio (2009), ‘The Potential for Regional Policy Instruments, 2007-2013, to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development’

Member States are also encouraged to report on ‘core indicators’ (these include output and result indicators) which were agreed between the Commission and Member States as a set of minimum reporting requirements linked to strategic objectives that could be aggregated at EU level. Many programmes included core indicators systems specifically to measure and monitor effects with regard to CO₂ emissions (13 out of 27 Member States¹¹³). However, it has been found that there are discrepancies in the measurement units (CO₂, CO₂ equivalent) used in the different countries and hence the data could not be aggregated at EU level. An ex-post evaluation of the effectiveness and effects of implementing Structural and Cohesion Funds in three pilot countries, the EEA reveals a number of difficulties with data and indicators, in particular those related to environmental impacts of the spending. For example in the area of renewable energy and energy efficiency good data on outputs (in terms of new capacity and impacts, and reduction of greenhouse gas emissions) were only seen in one of the pilot countries (Austria).¹¹⁴ Such examples strongly suggest that the set of core indicators could in the future benefit from establishing a common approach through a unified monitoring system. This might entail the provision of further technical guidance to managing authorities in that respect.

The traditional focus of Cohesion Policy on economic and social cohesion, most notably in view of the criteria for allocating funds, has arguably led to granting more importance to the development and refining of indicators reflecting how the programmes and projects contribute to delivering social and economic outcomes, possibly at the expense of the development and use of environmental indicators. The allocation of funds under the next programming period needs to be better informed by a systematic/consistent use of complementary environmental indicators.

The fifth report on Cohesion Policy calls for a result oriented approach through setting ex-ante clear and measurable outcome indicators. The data from the case studies suggests that environmental indicators have been used on various occasions and some of them have been deployed in quite innovative ways. Climate change and energy indicators are predominant in the examined case studies while fewer examples of biodiversity or resource use indicators could be found. Also, the examined case studies indicate richer experience with the deployment of environmental indicators among EU15 compared to EU12 Member States. A summary of good practice examples of environmental indicators applied can be found in Box 13.

Box 13: Good practice examples of environmental indicators

Climate change

- Reduction of GHG emission in CO₂ or CO₂ equivalents (in 35 of Competitiveness programmes and 19 of Convergence programmes)
- Energy consumption of households (Basque Country)
- Capacity of renewable energy production (Northern Ireland)

¹¹³ Nordregio (2009), ‘The Potential for Regional Policy Instruments, 2007-2013, to contribute to the Lisbon and Göteborg objectives for growth, jobs and sustainable development’

¹¹⁴ EEA. 2009. Territorial Cohesion - Analysis of environmental aspects of the EU Cohesion Policy in selected countries. EEA technical report 10/2009.

Nature

- Ecosystem Services (TIDE INTERREG)
- Restoring water surface levels and species reintroduction (Lake Karla)

Waste and natural resources

- Levels of waste management, recycling and recovery (Northern Ireland)
- Waste reduction (South West England)

Sustainable consumption and production

- Number of enterprises with certified ISO 14001 or EMAS/ECOLABEL registrations (Spain, Italy, Germany, France)
- Green Public Procurement progress indicators (Basque Country)
- R&D activities to improve environmental sustainability of production processes (Piemonte)

For more comprehensive review of available environmental indicators in MS/regions, see *Supporting Paper 5: Tools for Sustainable Development*.

A stakeholder consultation **on the use of indicators in Cohesion Policy** carried out in the context of the FP-7 In-Stream project¹¹⁵ has revealed that:

- GDP, employment and competitiveness indicators are by far the **most influential indicators** in Cohesion Policy.
- Some of the **environmental indicators most commonly used** include greenhouse gas emissions, number of passenger per transport mode, municipal waste generation per capita, PM emissions and emission of other main air pollutants, share of the different energy sources in overall energy consumption/production. These indicators are used most frequently at the stages of monitoring and reporting as well as evaluation.
- According to practitioners in the field, there should be some scope for using the composite **Index for environmental pressures** in Cohesion Policy. In addition, the index, as well as the ecological footprint could be suitable indicators for communicating on sustainability related issues in cohesion policy.
- Among the **ecosystem indicators** which could be of use in Cohesion policy but have so far not been sufficiently considered are the moderation of extreme weather events and the total economic value of services provided by ecosystems (e.g. for cities).
- There is a need for indicators allowing for a **reporting on the level of cost recovery** of natural resource use.
- There could be **scope for using wider natural capital accounts and/or economic and environmental accounts** and associated indicators in Cohesion Policy.

The stakeholder consultation and case studies corroborate that a great majority of environmental indicators are used at project level and primarily in the context of environmental interventions - more particularly for reporting on the project's activity and output. These indicators will therefore tend to be very project output oriented and focused on

¹¹⁵ These results were obtained through structured interviews carried out in early 2011. The full results of this consultation will be published on the project's website in late 2011, at the end of the project: www.in-stream.eu/

the project's objective (e.g. km of wastewater treatment pipes constructed) rather than impact oriented (e.g. improvement of water quality in the region's water bodies). The programmes and projects in which environmental indicators play a steering role are rather limited. Although a few good practice examples exist (e.g. NECATER) there is very little evidence on the use of biodiversity indicators in the case studies, suggesting the extent to which the spending of Cohesion Policy has been linked to biodiversity is far from reaching desirable levels. This is the case even though some relatively simple indicators may exist in this area, such as the indicator of resources allocated to support Natura 2000 sites, suggested by the EEA (i.e. resources made available to municipalities with 75% or more of their territory covered by the Natura 2000 sites) (EEA, 2009).¹¹⁶

A set of environmental indicators need to be developed and rigorously applied in all Member States and regions to ensure comprehensiveness and comparability of data. There are potentially two important stages of the Cohesion Policy cycle where environmental indicators could play a critical role for environmental integration – during the programming (when environmental indicators are designed and geared to concrete objectives/targets) and during monitoring when they are applied for the purpose of measuring performance. It is essential that some of these indicators are included in the list of 'core' indicators based on which Member States could annual report to the European Commission and allow for the aggregation of data at EU level. Environmental indicators should also be introduced more formally in the project cycle in view of measuring environmental performance of projects.

The development and application of environmental indicators can be arranged through a number of delivery mechanisms in the post-2013 Cohesion Policy. For example, they can be explicitly stipulated in the foreseen development and investment partnership contracts, which will be negotiated between Member States and the European Commission. Systematically measuring environmental impacts through the use of a given set of indicators in these delivery mechanisms would result in increasing the opportunities for a better consideration of environmental pressures and impacts. It is important that these opportunities are not missed and environmental indicators will be better used during the ex-ante stages of the policy process in order to increase a region's/Member State's awareness of its natural assets and the impacts of their proposed programmes and projects.

Even when there is willingness to report and monitor indicators, the lack of capacity prevents programming bodies and project applicants to develop and adequately monitor environmental indicators – calling for more technical assistance for the building of the necessary capacities. Operational Programmes should be the prime target of efforts to better integrate the environment through the use of environmental indicators. Operational Programmes in particular bear the potential to serve as a learning exercise and authorities concerned with their development could be the prime target for technical assistance. This would probably be the most appropriate level at which to require consistent reporting with regard to environmental impact and/or performance in the annual implementation reports. An enhanced funding for such capacity building needs however to meet the demand from the regions, which is unlikely to exist given current policy priorities.

¹¹⁶ EEA (2009) Territorial cohesion – Analysis of environmental aspects of the EU Cohesion Policy in selected countries, EEA Technical report No 10/2009

In the absence of strong political commitment of this type, a de minima use of a set of core indicators appears to be necessary to ensure overall policy coherence and support Member States in complying with EU's environmental legislative *acquis* and the targets it sets out. Cohesion Policy spending should more clearly reflect the need to support the implementation of EU policies, acknowledging more explicitly that one of the added value of EU funding is its contribution to greening Member States' economies. This could be achieved by providing funding only where a commitment to meeting environmental criteria, and in particular achieving compliance with the EU *acquis*, has been clearly demonstrated. This would not necessarily require regions to invest extensive resources in reporting on environmental indicators but requirements could include concentrating environmental reporting on a few indicators for which data is easy to collect. This could in particular include indicators on additional capacity for the production of renewable energy, additional population connected to wastewater treatment, km² or rehabilitated (formerly contaminated) land, reduction of greenhouse gas emissions, number of people that have been affected by flood prevention measures. Although "softer" than real impact indicators, these indicators can nonetheless serve a valuable purpose in providing a means for projects to highlight their achievements, and so to show the breadth of horizontal integration (GRDP, 2006).¹¹⁷ Finally, macro-regional strategies such as the Strategy for the Baltic Sea Region (EC, 2009)¹¹⁸ and the Strategy for the Danube Region (EC, 2010) point to new opportunities for regions to use environmental indicators in ways which better acknowledge their specific environmental challenges and commonly agreed targets. This would also be more consistent with the approach promoted by the Commission's 2008 Green Paper on Territorial Cohesion (EC, 2008), which supports an approach to territorial development which would better take into account a region's specific features and priorities¹¹⁹.

5.2.7 *Ex-post evaluation and reporting*

There are a number of requirements for reporting on the implementation of EU funds programmes and projects. Managing authorities are required to submit *annual implementation reports* for the first time in 2008 and then by 30 June each year; with a final implementation report due by 31 March 2017. The Commission has two months to express an opinion on the content of the report from the date of its receipt. Based on the annual implementation reports, the Commission prepares an overall Annual Progress Reports to the Spring European Council.

Member States are also required to submit to the Commission two *strategic reports*, with the second to be submitted by the end of 2012. These reports should demonstrate how the implementation of the OPs contributes to attaining the objectives of Cohesion Policy and to the priorities set out in the Community Strategic Guidelines in line with the Integrated Guidelines for growth and jobs. Furthermore, these reports elaborate on the socio-economic

¹¹⁷ GRDP (2006) Greening projects for Growth and Jobs – Guidance on integrating the environment within regional development programmes and their projects, URL: [http://www.interreg3c.net/sixcms/media.php/5/Greening+Projects+for+Growth+and+Jobs+\(GRDP\).pdf](http://www.interreg3c.net/sixcms/media.php/5/Greening+Projects+for+Growth+and+Jobs+(GRDP).pdf)

¹¹⁸ EC (2009) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions concerning the European Union Strategy for the Baltic Sea Region - COM(2009) 248 final, URL: http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/baltic/com_baltic_en.pdf

¹¹⁹ EC (2008) Communication from the Commission to the Council, the European Parliament, the Committee of the regions and the European economic and social committee – Green Paper on Territorial Cohesion, Turning territorial diversity into strength – COM(2008) 616 final, URL: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0616:FIN:EN:PDF>

situation and trends; achievements, challenges and future prospects and provide good practice examples. Based on the national strategic reports, the Commission prepares a strategic report, which is transmitted to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions.

However, these reports are focused on ‘core’ indicators (often basic socio-economic indicators), which the Commission is able to aggregate at EU level. For instance, the 2010 Strategic report states that based on the submissions from different member States, 13 countries have approved programmes/projects which will contribute to the creation of 351,300 gross jobs, while 8 Member States already report the creation of 55,900 gross jobs.¹²⁰ Similar core indicators should be made compulsory with regards to environmental outcomes. Most obvious is GHG emissions; resource use indicators will also prove critical for resource efficiency ambitions, and ecosystem service indicators for green infrastructure/natural capital.

The ex-post evaluations are a responsibility of the European Commission. To do this, they are carried out several years after the completion of the programming period. For example, the ex-post evaluations of the 2000-2006 period were completed towards the end of 2009, which is two years after the start of the new programming period. In this sense, they cannot influence the next programming cycle and provide valuable lessons learned. They are more likely, however, to provide valuable input to the post-2013 programming period.

The on-going evaluations, which replaced the previous mid-term evaluations, therefore become critical not only in view of evaluating the first results of the implementation of the current EU funds programmes but also in view of providing valuable input into the programming of the post-2013 programming period. While the ongoing evaluations offer some flexibility in terms of their scope and timing depending on domestic circumstances and the actual need for an assessment, they could constitute a challenge to new Member States which rarely possess in-house expertise and culture on policy evaluations. For example, Estonia and Bulgaria are planning to undertake mid-term evaluations¹²¹ as there is more clarity on what these should be. Further guidelines and instructions from the Commission would be critical in order to aid the managing authorities in these countries. Particular guidance would be useful in terms of the environmental dimensions of such evaluations. In the case of Member States this lack of experience and knowledge how to carry further the evaluations will inevitably result in delays and might affect the management of funds overall.

The European Commission could also carry out thematic and strategic evaluations at any time of the policy cycle with the aim to improve the understanding of concrete issues and drivers for these within Cohesion Policy hence strengthening the knowledge base for policy-making and spur learning. Such evaluations but focused on the interlinkages between Cohesion Policy, sustainable development and green economy could be extremely useful tools during the preparations of the policy framework for the future policy but also during the implementation of Operational Programmes. Ensuring a result-driven EU spending is being recognised as a key principle in the EU budget review and calls have been made for the

¹²⁰ European Commission. 2010. Strategic report. (COM(2010)

¹²¹ Applica and Isomeric Europa. 2010. Evaluation network delivering policy analysis on the performance of Cohesion Policy 2007-2013. Synthesis of national reports. December 2010. http://ec.europa.eu/regional_policy/sources/docgener/evaluation/pdf/eval2007/cohesion_policy_synthesis_report_final_en.pdf

future Cohesion Policy to improve the effectiveness and quality of spending. Therefore, the role of thematic evaluation is likely to increase in order to measure drivers, barriers, outcomes and challenges in the implementation of EU funds.

5.2.8 Rewarding performance, including reserve fund

Within Cohesion Policy, there are mechanisms to reward performance. The General EU funds Regulation allows for 3 per cent of the structural funds allocated to any Member State be retained in a national reserve fund in order to reward performance. In this respect, the fund acts as a performance-based financial incentive for regions to improve the implementation of programmes and projects. However, to date the reserve funds have not been used significantly to date.

Importantly, such an incentive could be used in the future to tie the performance of the funds to the achievement of concrete environmental results. However, this tool should be used in a way to stimulate a performance beyond compliance with EU environmental legislation and related targets. The fifth report on Cohesion Policy suggests that a performance reserve could be established for rewarding Member States and regions whose programmes have contributed to the Europe 2020 targets and objectives. In relation to this performance rewards have been used in the Piemonte Region, which assigns extra funds to SMEs that can demonstrate that the innovation projects for which they require financing has a positive environmental impact based on demanding environmental indicators (see Box 8 in Section 4.2.2).

5.2.9 Technical assistance

Its general objective includes building up sector capacity and experience. For example, Joint Assistance in Supporting Projects in European Regions (JASPERS) is a novel instrument developed for the 2007-2013 Cohesion Policy in cooperation with the European Investment Bank (EIB), the European Bank for Reconstruction and Development (EBRD) and KfW (Germany). It is designed to provide technical assistance to new Member States at different stages of the project management cycle (project preparation, selection and implementation) to prepare and implement projects, full absorption of EU funds, fulfilment of EU requirements and Application of international standards.¹²² The focus of the technical assistance is usually on major projects, with a total cost of above €50 million, however, there are a number of other smaller scale projects that has used JASPERS e.g. combining EU grants with public private partnerships, CBA/application guidelines, training workshops (38 projects) and small projects e.g. urban infrastructure (32 projects).

With regards to environmental issues, JASPERS carries out three types of assessments¹²³: assessment of the technical documents (application form for major projects; EIA report and non-technical summary, if applicable; and Appropriate Assessment, if applicable); assessment of the procedural aspects on implementation of EIA and Habitat Directives; and overall assessment of project compliance with environmental *acquis* (IPPC, LCP, Habitat and Birds, SEA, etc). Therefore, JASPERS plays already a key role in aiding managing authorities in new Member States to address a number of environmental integration requirements at the preparatory and development stages of major projects.

¹²² JASPERS web page, <http://www.jaspers-europa-info.org/index.php/about-us.html>

¹²³ Ibid.

It appears that JASPERS has been a useful instrument, which in the future could be geared even further to the needs of environmental integration. The mandate of the technical assistance to address environmental issues could be enlarged, including the production of supporting studies, maps of climate change vulnerabilities, potentials of natural assets and green infrastructure among other things.

5.2.10 Financial engineering

The fifth report on Cohesion Policy calls for an extension of both the scope and scale of financial engineering instruments. However, within the selected case studies and their corresponding OPs, **financial engineering instruments are not widely used to support Cohesion Policy interventions**. Among our case studies financial engineering instruments are used in Lithuania, where JESSICA is employed. More details on the use of JESSICA in Lithuania are provided in Box 9 in Section 4.2.2.

In these case studies, the concept of financial engineering instruments is considered helpful because, in addition to revolving financial contributions, they also provide technical expertise and assistance to the managing authorities. This suggests that ‘blending’ of investments can play an important part also for future financing, particularly when combining technical assistance and loans. Moreover, stakeholders believe that these instruments will be effective in attracting resources and in playing a catalyst role¹²⁴. Technical assistance can support overcoming some of the knowledge barriers linked to increased private investment into certain sectors as well as provide a better understanding of potential risks linked to them. Loans and guarantees can then facilitate private investment by offering attractive opportunities (e.g. concessional loans, seed investment) or sharing some of the risk of investment (e.g. mezzanine finance). A combination of different mechanism is likely to play an important role for those sectors where the risks are still perceived to be higher than the potential return on investment (e.g. green infrastructure), but where scaling up investment might create attractive new business opportunities building on the natural assets of an area.

5.2.11 Proofing tools

While SEA and EIA could be considered to be proofing tools, there is growing interest in and an emerging body of literature dedicated to proofing tools that focus on a specific environmental challenge, particularly in relation to the climate proofing of investment programmes that go beyond SEA and EIA. A genuine ‘proofing’ approach in view of integration instruments would also require the development of similar tools for biodiversity and the use of resources. Existing instruments are not sufficient, as, for example, the SEA¹²⁵ and EIA¹²⁶ Directives themselves do not as currently implemented provide the necessary framework for determining the likely climate change and biodiversity impacts of plans, programmes and projects and hence improve policy coherence.

¹²⁴ Unfortunately, there is little hard evidence about this catalytic role in the case studies primarily because implementation is still at an early stage.

¹²⁵ Commission of the European Communities, Communication on the application and effectiveness of the Strategic Environmental Assessment Directive, (COM(2009)469), 14.9.2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0469:FIN:EN:PDF>

¹²⁶ Commission of the European Communities, Communication on the application and effectiveness of the EIA Directive, (COM(2009) 378 Brussels, 23.7.2009, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2009:0378:FIN:EN:PDF>

Under the EIA Directive, impacts from climate change are limited to CO₂ and other GHG emissions from industry and transport, while the cumulative effects of climate change and adaptation measures are not taken sufficiently into account, nor are GHG emissions related to land use change. The issue is particularly relevant with regard to sectoral programmes and major projects in the energy and transport domains and further methodological guidance linked to EU Funds programmes would be helpful to managing authorities and at the same time offer a new tool to ‘climate- and biodiversity proof’ these programmes/projects.

In the project case studies, the principle of carbon neutrality has been applied effectively in the French regional OP through the NECATER tool (see Box 6). In this approach, GHG emissions generated by investments in economic development (and to a lesser extent in housing and transport) are compensated in the short-term by reductions in GHG emissions thanks to investments in energy control, renewable energies and in the environment. The NECATER tool is potentially transferable to regional OPs in other Member States, as long as there are sufficient data available at the necessary administrative levels. In this respect, it would be useful for guidelines to be developed at the European level on the development and application of such tools. Additionally, such tools are still being developed, so progress until 2014 will have to be captured in these guidelines. Additionally, given the fact that good practice with the tools is likely to develop significantly in the course of the next programming period, it might be appropriate to have a website containing such good practice.

Linked to the discussion on carbon neutrality, resource efficiency and biodiversity no net loss, EU Cohesion Policy should develop a screening tool to be applied ex-ante with the purpose of measuring the likely environmental impacts of Operational Programmes, assess the vulnerability to climate change impacts and their potential to enhance the most resource efficient options. Similar recommendations have recently been made in the Commission Communication on the contribution of EU Regional Policy to sustainable growth. In order to be able to tackle environmental issues, one needs to understand what the drivers and pressures are on the environment, for which a greening instrument would be useful. Furthermore, such a screening tool could be a valuable instrument, which will ensure environmental effectiveness but also improved economic efficiency.

5.3 Organisational Instruments

5.3.1 Partnership for environmental action

The partnership principle sets out the requirement for Member States to organise close cooperation with socio-economic partners and non-governmental organisations during the preparation, implementation, monitoring and evaluation of OPs (Article 11 of the General EU Funds Regulation 1083/2006/EC). For the first time it explicitly refers to environmental organizations as equal partners to other socio-economic ones. In many ways, it provides a platform for environmental actors to institutionalize their participation in the programming process through *working groups* and *steering committees*. During the implementation stage, the formally established Monitoring Committees ensure that the partnership principle is applied by accommodating broad representation of a range of different policy actors, including environmental authorities and NGOs. Arguably, EU funds programmes and projects have had an important indirect positive impact on domestic management and implementation systems in recipient countries.¹²⁷ This has happened not only through

¹²⁷ Bachtler, J. et al. 2010. Challenges, consultations and concepts: preparing for the Cohesion Policy debate. EPRC, February 2010, United Kingdom.

strengthening of existing environmental authorities and their involvement in the policy-making process but also through the involvement of environmental expertise in the managing authorities themselves.

Often *partnerships fail* to provide the expected contribution to the drafting and implementation of sustainable projects, mainly because of flaws in the governance structure. In *Bulgaria*, for instance, environmental partners were only consulted on purely environmental interventions. As a consequence of this, environmental groups lack capacity to participate in the OP planning stage in a meaningful way.

The involvement of environmental authorities through coordination and communication governance mechanisms has played a crucial role for integrating environmental sustainability during the programming and implementation of programmes and projects. The engagement of environmental authorities in the selection of all projects to be co-financed by EU funds has also ensured that priority is given to environmentally sound projects and fostered more positive environmental impacts. This has also ensured that environmental considerations, criteria and indicators were taken into account, not only in the selection of projects to be financed under the environmental priority axes, but also in the selection of projects in purely sectoral programmes. In most other cases, an environmental authority, which is usually part of the regional/national government, has assisted the managing authority in the evaluation of applications¹²⁸. The creation of the Environmental Sustainability Manager as an integral part of the Regional Development Agency staff in *South West England* is particularly interesting in this sense, as it can successfully integrate environmental considerations into the Cohesion Policy process (see Box 10 in Section 4.2.3). The role of a *Cross Programme Environmental Advisory Group* has also helped in meeting environmental priorities (see Section 4.2.3).

The so called *Growth Forums in Denmark* are a novel approach of institutionalised partnership at regional and local level, which bring stakeholders together both in the planning and in the implementation phase. Growth Forums are standing committees parallel to the regional councils and are considered a novel approach of institutionalised partnership at regional and local level with members being representatives of regional and local authorities, businesses, research and higher education as well as social partners. They define a detailed thematic scope for the projects application and they engage actively in developing the content of the projects (See Box 11 in Section 4.2.3)

5.3.2 *Monitoring committees*

According to Article 63 of the General Regulation 1083/2006/EC Member States are required to establish Monitoring Committees (MC) for the OPs, which are chaired by the managing authorities and include representatives of other relevant authorities, socio-economic and environmental partners. Members of the European Commission are also members of these committees but together with environmental NGOs (what is this) they usually have the status of observers and do not hold voting rights. Importantly, the MC are tasked with deciding upon the project selection criteria, reviewing periodically progress made towards achieving the targets of the OPs, examining the results of the OPs interventions, approving the annual and final reports on implementation and in principle can play an important role in facilitating policy coordination and environmental integration.

¹²⁸ This is for instance the case in the Piemonte region. However, in that case, the environmental authority has complained that its participation is required only in the evaluation of projects that have a clear direct environmental aspect.

Monitoring Committees have been established in all case studies as required under the General Regulation 1083/2006/EC however, the practical implications of their functioning show very mixed results across Member States.

Some of the early experiences in new Member States, for example, suggest that they often tend to be a pro forma mechanism to legitimise decisions already made by the managing authorities. In these cases the Monitoring Committees tend to be dominated in numbers by members of the central administration with usually only one representative of the Ministry of Environment. Environmental NGOs are often part of the Monitoring Committee but, as in the case of Bulgaria, the lack of voting power coupled often with relatively limited capacity of the environmental NGOs themselves to constructively engage in a number of economic topics, have discouraged active participation of these organisations in the Monitoring Committee.

5.3.3 Environmental networks

In 2003, a European wide network of environmental and managing authorities (ENEA-MA) of EU funds programmes and projects was set up. It is coordinated by DG Environment and meets twice a year. Its purpose is to bridge the exchange of knowhow and ideas among managing authorities on how to integrate environmental considerations into Cohesion Policy. The network usually establishes ad-hoc internal Working Groups on different topic areas. For the 2008-2010, there were three active working groups focusing on reporting good practices and experience across Member States concerning climate change, SEA and biodiversity¹²⁹. A new working group has been established on the future Cohesion Policy, which aims to provide input to the negotiations on the future EU Funds Regulations from the perspective of environmental integration.

Networks of national and regional environmental authorities are being established at national level as a coordination mechanism aimed at ensuring that environmental concerns are taken into account during the management of various EU funded projects. The aim of these networks is to establish common approaches to environmental investments and integration¹³⁰. At national level such environmental networks were created in a number of Member States, such as in Spain, Italy and Poland. Some of them have been actively involved in environmental integration efforts, for instance, the network in Italy drafted common guidelines on the ex-ante environmental evaluation in Objective 1 regions for the 2000–2006 cycle¹³¹. In Poland, the network was set up as a result of the negotiations of the OP Infrastructure and Environment upon the explicit request of the European Commission. Their planned activities focus primarily on information sharing and knowledge management by preparing different expertise, guidelines, procedures and reports¹³².

5.3.4 Public participation and consultation

Tools such as the SEA, the ex-ante evaluation and project assessment ensure public participation in decision-making and thereby strengthen the quality of decisions. In particular,

¹²⁹ CEC (2009) ENEA and cohesion policy

¹³⁰ IEEP (2010) Manual of European Environmental Policy. Earthscan

¹³¹ IEEP, (2010), Manual for European Environmental Policy, Earthscan.

¹³² Piotr Otawski, The National Network of Environmental Authorities and Management Authorities for European funds „Partnership: The Environment for Development”, Presentation at ENEA meeting, 26 May 2010, Warsaw

the authorities in charge of these tools facilitate engagement with different environmental and economic stakeholders.

As part of the SEA of the Interreg Programme in Finland (Natureship), each country and the region of Åland nominated an environmental contact person that acted as a link for consultation in their respective country/region. In the first stage of the SEA procedure, the draft Scoping Report was prepared by the evaluator and sent out for consultation to national environmental authorities via the environmental contact persons. At the second stage of the environmental consultations, the draft Environmental Report was subject to a three week public consultation. The result of the consultation procedures are then incorporated in the SEA, which is effectively taken into consideration in the development of the programme. The programme in fact includes a detailed table on how mitigation measures have or have not been incorporated (see Section 4.2.3).

The negotiation process between the Commission and Member States preceding the approval of the national/regional Operational Programmes could be seen as an important coordination mechanism for introducing informal recommendations/requirements with regards to environmental integration. It appears that especially in new Member States, the negotiations process resulted in the articulation of better objectives for environmental protection and the integration of environmental concerns horizontally across Cohesion Policy funds programmes.

For instance, in *Slovakia*, the negotiations allowed them to identify and prioritise better investments in the water sector which resulted in establishing concrete targets for increasing the number of people connected to public sewers to 4.4 million, the percentage of population connected to waste water treatment plants to 81% and the proportion of the population supplied with drinking water from public water supply networks to 91%.¹³³ In *Finland*, as a result of the negotiation process, some environmental indicators were added to the programmes to be followed up during implementation (see Section 4.2.3).

Therefore, it should be noted that the negotiations and informal communication between the EC and new MS can be considered as an important tool for policy learning, transfer of good practices and generally – an incentive for stepping up additional efforts for environmental integrations. Of course, the capacity of the European Commission to engage actively with Member States is fairly limited, however, it should be noted that early and active engagement is likely to produce more ambitious objectives and more effective planning, which results are likely to outweigh the cost of active communication and coordination.

¹³³ DG Regional Policy. Slovakia: results from the negotiations for the Cohesion Policy strategies and programmes 2007-2013, http://ec.europa.eu/regional_policy/sources/docoffic/official/communic/negociation/country_sk_en.pdf

6. CONCLUSIONS AND RECOMMENDATIONS - THE ROLE OF COHESION POLICY IN DELIVERING A GREEN ECONOMY

The purpose of this study has been to examine how Cohesion Policy can contribute to the shift to the green economy and to contribute to the development of a framework for Cohesion Policy post-2013. The study focuses on the four key environmental themes that were set out in the EU's Sustainable Development Strategy (SDS)¹³⁴: climate change and clean energy; sustainable transport; sustainable consumption and production; and conservation and management of natural resources, which focused primarily on water resources and biodiversity.

Overarching conclusions

This study has identified the following overarching conclusions:

- **Cohesion Policy is missing important opportunities to secure environmentally sustainable economic growth.** This is in spite of a long period of effort to improve the integration of environmental objectives into Operational Programmes using Commission guidance and a range of strategic and procedural tools to this end. These efforts have failed to be fully effective for a number of reasons, including poor implementation and low capacity. However, an important factor has been that environmental objectives are often seen as secondary to economic objectives, which has resulted in trade-offs between economic and environmental objectives being implicitly accepted in favour of development. As a result potential win-wins have been ignored, which might otherwise have led to more sustainable development paths.
- **If Cohesion Policy fails to deliver sustainable growth this may also undermine its ability to achieve smarter and more inclusive growth, as interventions are less efficient and equitable than might otherwise have been the case.** Missing opportunities for win-wins leads instead to environmental costs, which often impose disproportionate costs on disadvantaged communities and exacerbates social exclusion.
- **The changes needed in Cohesion Policy to fully integrate environmental objectives and to secure sustainable growth are consistent with the emerging wider EU policy framework.** In other words, the nature of the reform required to promote sustainable development paths in Member States is in line with the move towards the green economy as enshrined in the Europe 2020 Strategy and related Flagship Initiatives, the EU Budget Review and the proposals for the post-2013 Multi-annual Financial Framework, as well as other sectoral EU policies. Hence, the reform that would make sustainable growth more likely to be achieved is also one that is consistent with wider pressures for change.
- **There are instruments that do contribute to the integration of environmental sustainability into Cohesion Policy investments.** While Cohesion Policy has, to date, not been successful in delivering a truly sustainable approach with respect to the environment, in some Member States and regions it is possible to identify more

¹³⁴ Council of the European Union (2006) *Review of the EU Sustainable Development Strategy (EU SDS) – Renewed Strategy*, Document 10917/06, <http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf>

sustainable approaches. These examples of good practice need to be extended throughout the whole of Cohesion Policy in order for them to become the rule rather than the exception.

The scope to achieve sustainable growth at the regional level is limited without, at the same time, addressing environmental problems at the EU and global scales.

There are many ways in which the environmental performance of Cohesion Policy could be improved in order to better contribute to the delivery of the smart, sustainable and inclusive growth envisioned by the Europe 2020. Cohesion Policy has the potential to be a driver in the transition to a green economy by its investments (prioritising win-wins, avoiding unsustainable trade-offs), by its leverage (regulatory framework, negotiations, conditionalities), by leading by example (governance process and tools) and by launching innovative solutions which can be duplicated elsewhere.

Overarching principles for the future Cohesion Policy

There are a number of overarching principles underlying the policy reform that derive from the Europe 2020 Strategy and related Flagship Initiatives, the Budget Review and subsequent proposals for the 2014-2020 EU Multi-annual Financial Framework, the Communication on Sustainable Growth, the Barca Report and this report, which would increase the likelihood of securing effective environmental integration, promote resource efficiency and support the move to a green economy. In summary these principles are the following:

- **Adopt the underlying principles of Europe 2020**, i.e. the need to deliver smart, sustainable and inclusive growth, as guiding principles of Cohesion Policy, while recognising that the objectives of Cohesion Policy are wider than those of Europe 2020, to contribute to economic, social and territorial cohesion. In turn, Operational Programmes should, while contributing to economic, social and territorial cohesion, be required to pursue smart, sustainable and inclusive growth in the transition to a resource efficient, equitable, green economy.
- **Adopt a broad and comprehensive definition of regional productive capacity:** Understand that the total productive capacity of a region includes natural capital as well as manufactured, human and social capital. In this respect the Common Strategic Framework ought to recognise the different types of capital stocks, including the benefits of natural capital, such as those of ecosystem services and require that the Partnership Contracts and Operational Programmes do the same.
- **Ensure market and government failure, as well as equity concerns, underpin the rationale for policy interventions:** Enabling environmental costs and impacts to be formally recognised as part of an economically efficient and equitable policy, rather than a response to perceived special cases. This would require an **improvement in strategic planning** by setting out explicit environmental objectives and targets in the Common Strategic Framework and negotiating respective obligatory measures and conditionalities in the Partnership Contracts negotiated with Member States and at the same time recognising the **integrated nature of development**. Therefore, the respective objectives would be set in a holistic manner, based on key themes and strategic outcomes as a response to market/government failure and/or equity concerns,

rather than simply differentiating economic or environmental objectives and reinforcing the tendency to treat environmental issues separately from economic ones.

- **Recognise the need for stronger territorial perspectives:** The identification and management of trade-offs between capital stocks are most obviously undertaken in the implementation of place-based development strategies based on the use of spatial planning. Spatial development strategies should make explicit the range of alternative development paths for regional and local development, and the associated choices. The approach would correspond to the description of territorial cohesion in the Fifth Cohesion Report, recognising that one of the four dimensions of territorial cohesion is the ‘environmental dimension to sustainable development’.
- **Improve investment choices, i.e. where to spend more, where to spend less: Prioritise activities which can realise win-wins,** notably housing stock energy efficiency improvements, green infrastructure, ecosystem service provision and climate mitigation and adaptation. **Phase out or reform** activities with high environmental externalities, i.e. those that entail significant **economic-environmental trade-offs (win-loss)** and that can be seen as **environmentally harmful subsidies**. Where there are trade-offs, require a **burden of proof** that the net benefits are worth Cohesion Policy support.
- **Recognise the need to improve the cost-effectiveness of interventions to improve EU added value: Develop cost-effectiveness tests** for investments by encouraging highest value added per euro spent in support for a result-driven EU budget. Within water, waste water and waste infrastructure, investment should help to meet the EU *acquis Communautaire* and seek cost effective solutions that build in the potential for full cost recovery and resource pricing. Programmes should proactively identify where working with natural capital can lead to more cost-effective solutions due to ecosystem service benefits, rather than the “traditional approach” of using man-made capital and technological solutions (e.g. water purification and provision for cities/towns, flood control, carbon storage). This leads to the recognition of the requirement for stronger development strategies that integrate objectives supported by more rigorous forms of appraisal and evaluation. In turn, this leads to the need for improved governance at Member State level under shared management.
- **Ensure that the added value of EU Cohesion Policy interventions are explicitly recognised and understood:** Recognising the added value of EU interventions will help to ensure that Operational Programmes and investments will contribute to the delivery of added value by, for example, ensuring that Operational Programmes and investments are consistent with EU environmental objectives. In relation to this, the **EU environmental *acquis* provides a framework that Cohesion Policy can help to implement**, as part of a wider effort to tackle the major environmental challenges that continue to exist. Given the difficulties Member States have in implementing this *acquis*, Cohesion Policy can generate strong EU added value by incentivising (through conditionality) and facilitating solutions to these difficulties.
- **Strengthen the appraisal and evaluation processes via improved Cohesion Policy governance and instrument use:** Make greater use of guidelines and guidance and invest in environmental capacities, institutional structures, awareness, training, and skills. Improve the use of existing tools, such as SEA and EIA, and learn from their

successful applications. Build on innovative instruments such as NECATER climate proofing, but elaborate and expand their application to biodiversity and resource efficiency proofing.

The following sections present the key findings and recommendations from the study that build on the evidence of the preceding chapters, case studies and supporting papers. Within the existing programming period, there are already examples where environmental considerations have been integrated into Cohesion Policy funding. Section 6.1 presents key findings from the case studies of projects and programmes within the current programming period, presented by environmental theme. However, as has been highlighted in the report, there are still plenty of opportunities for using Cohesion Policy funding to contribute to the green economy. In this respect, Section 6.2 outlines areas where it would be possible to spend more money, e.g. on win-wins and where less money could be spent in order to avoid unacceptable trade-offs. Section 6.3 outlines how it might be possible to spend money differently to put economies on the path to a green economy, including the use of instruments outside of Cohesion Policy to improve the performance of Cohesion Policy investments (e.g. using complementary and conditional instruments). Section 6.4 reviews how the various governance processes and tools might be amended in order to ensure that these contribute to the delivery of a green economy. Finally, Section 6.5 presents a short summary to conclude the report.

6.1 Summary of the case studies: key findings across environmental themes

Climate change and energy

Climate change and energy has been the rising priority in the current Cohesion Policy as recognition of the importance of tackling climate change and of the potential for economic-social-environmental wins-wins through stimulus packages has become increasingly understood. This recognition is manifested in the new opportunities offered for energy investments in buildings in the European Regional Development Fund (ERDF) Regulation reform¹³⁵. Examples of cases supported under the current programme include:

- Investments in **renewable energy technologies** - e.g. off shore wind energy in **Germany** (Bremerhaven), and the Wave Hub to help harness wave energy in South-West **UK**).
- **Energy efficiency** investments - e.g. in **Lithuania** – where targeted investment offers some of the most important win-wins, with potential benefits for jobs, climate, housing value and disposable income.
- **Eco-innovation** initiatives – e.g. the Eco-Innovation cluster programme in **Lower Austria** that focuses on **SMEs** – can combine competitiveness objectives with environmental objectives (e.g. reducing energy use and cutting GHG).

Regions and cities should seize the widened opportunities under the ERDF (where it is now also possible to use these funds in the residential sector). Greater use of available financial engineering instruments can also help stimulate progress on energy efficiency and renewable energy projects whether in buildings or more widely (see Lithuania (JESSICA) and city of Barcelona (ELENA)). As energy use and emissions from transport remain a fundamental

¹³⁵ Regulation (EC) No 397/2009

challenge, giving priority to projects that enhance the resource efficiency of transport will also be critically important – for climate targets, for innovation, for meeting demands from mobility services and potentially also for long term household disposable income.

Sustainable consumption and production

Encouraging sustainable consumption and production is a core path to developing a resource efficient economy and supporting the ambitions in the Europe 2020 strategy. Examples of Cohesion Policy support include:

- The partner project in Aberdeen, financed under the **SURF Interreg project**, focuses on improving the environment along the River Don. The project aims to investigate opportunities for **green tourism** and to improve access for local people, by empowering local communities.
- The policy of moving to **water charging** that aims to apply the full cost recovery principle, supported by the Cohesion Fund allocations in Romania is likely to **help finance the supply of clean water** (socio-economic win), ensure the **supply of clean water** (socio-economic win), and help avoid water consumption increases (relative environmental win).

Natural Resources: Water and Waste

Water is an increasingly scarce resource in many parts of the EU as is land potentially useable for waste disposal (landfills). Cohesion Policy investments have led to hundreds of water supply and waste management projects with different levels of win-wins¹³⁶. The choice of the investment, the use of conditionality (e.g. for charging) and the national/regional context (affordability, number of people, pricing system and power to influence) each potentially affects the level of win-win. Unfavourable choices or contexts can naturally also lead to relative loss-wins – an economic loss as monies could have been spent better elsewhere. Interesting cases of Cohesion Policy investment in this area include the above water example and also:

- Using the **estuary ecosystems** for sustainable provision of services and allowing for the continued development of **ports** whilst preserving natural assets (**TIDE Interreg**). This is also an interesting example of green infrastructure.

There should be a systematic assessment as to the potential for additional measures to reach full cost recovery charging (and beyond that to resource pricing where resources are limited, such as declining aquifers) to help encourage the efficiency of services provisions.

Biodiversity, ecosystems and green infrastructure

While *Biodiversity, ecosystems and green infrastructure* has not been a “traditional” area of focus of Cohesion Policy, there have been some valuable experiences with win-wins to date. These include:

- The Natureship project of the **Central Baltic Interreg IVA Programme** is a novel approach to the planning and management of traditional rural landscapes and

¹³⁶ In some cases weaknesses in design or conditionality have led to relative loss-wins - economic loss as monies could have been spent better elsewhere.

selected coastlines. The aim of the project is to create and restore an optimal ecosystem service network based on integrated sustainable coastal planning that **includes ecosystem services as part of land use planning, thus helping to provide potential win-wins**. The project has a spatial planning component and could be used as a model of the type of objectives that can be used for integrating the environment into land use planning from a **territorial cohesion** point of view.

- The ***SURF project***, financed under the Interreg North Sea Regional Programme, anticipates delivering economic and environmental benefits by developing a range of tools and recommendations to improve the competitiveness of urban fringes, while at the same time recognising the value of, and maintaining and developing green spaces. In this respect, **tools that assist with the economic quantification of ecosystem services, for example, could be developed, as the lack of quantification of ecosystem services has been a barrier to the inclusion of such services in the decision-making process.**
- ***TIDE (Tidal River Development)*** is an Interreg project which covers the estuaries of the Rivers Elbe (Germany), Humber (UK), Scheldt (Belgium/Netherlands) and Weser (Germany) whose aim is to identify knowledge gaps in hydrology, morphology and ecology, and integrate planning in local policy whilst ensuring that NATURA 2000 and Water Framework Directive requirements are met. In practice, the ecosystem services approach works by defining the most important ecosystem services in each estuary and then relating this to benefits. By this method it is possible to compare measures and enhance ecosystem services. **The integration of ecosystems services approach in planning in estuaries allows for the continued development of ports whilst preserving natural assets.**

6.2 Harnessing the Cohesion Policy for the green economy: spending on win-wins and avoiding trade-offs

Synergies (win-wins)

The study has found that EU Cohesion Policy has a fairly good track record of support to environmentally related investments over the years, which have often realised important **‘triple win’ benefits** for the regional economies, social sphere and environmental sustainability. These include:

- Investments in the provision of fundamental environmental services such as **clean water supply, waste water treatment and waste management** – which on the one hand aid compliance with ‘investment heavy’ EU Directives while on the other hand realise benefits for citizens, improvement in locational quality of regions, reduce damage to the environment and create/support jobs;
- **Clean urban and railway systems** and support for modal shift/connectivity – to ensure mobility and accessibility services are provided at a lower environmental impact;
- **Energy savings investment**, e.g. in building stock, that helps address climate change, delivers savings, including of disposable income, and delivers energy security and jobs;

- **Renewable energy sources** – where not causing crowding out of existing support and endangering biodiversity sites, there is a potential for EU added value in encouraging innovation that supports climate mitigation and energy security;
- **Eco-innovation and environmental technologies** – which reduces dependence on natural resources while delivering substantive benefits for improved productivity and competitiveness, creating new business niches, sources of development and employment opportunities for both low and high qualified workers;
- **Climate change adaptation / natural hazards management** – develops the resilience of economic sectors, natural systems and infrastructures to adverse weather conditions and avoids higher cost of inaction on the long term; and
- **Green infrastructure and ecosystem services** – that builds on the growing understanding of the value of nature and the services it provides (provisioning, regulating, cultural and supporting), ensuring ecosystem-based adaptation to, and mitigation of, climate change and consequently supporting socio-economic wellbeing (for example improving the attractiveness of places).

Between 2007 and 2013 the Structural Funds and the Cohesion Fund had a budget of €347 billion, one-third of the EU's total budget. This has enabled a wide range of win-wins to be supported. Flexibility has been created during the programme by the reform of the regulations to facilitate stimulus package support for investment in energy efficiency of buildings, which complements the changes in Cohesion Policy from the 2000-06 Programme to the 2007-13 programme with the increasing emphasis on climate. There is now a growing move towards identifying a wider set of win-wins, ones that also build on the socio-economic benefits of nature, through the appreciation of the ecosystem services that our natural capital provides. There is also an increasing recognition of the need to move towards full cost recovery and there are growing opportunities for win-wins in some areas, and arguably lessening potential in others (e.g. in countries where water and waste infrastructures are mature and charging pays for operation and maintenance and needed stock replacements).

Changing investment priorities towards win-wins

There is a new awareness of the wider economic and social benefits from working with natural capital¹³⁷, e.g. the potential for cost-effective provision of services (e.g. water purification and supply for cities, carbon storage and sequestration, city cooling and adaptation to climate change, flood control), and the potential to use natural capital as a motor for economic growth (e.g. restored canals and rivers, coastal zones, protected areas). In times of economic crisis it is particularly important to identify (e.g. by spatial mapping), understand (e.g. using/developing ecosystem service indicators and natural capital accounts) and make use of the opportunities presented by protected areas and wider green infrastructure, e.g. by due restoration, integration in spatial planning and integration in wider investment projects (such as green infrastructure elements for coastal areas, ports, rail, roads, rivers, canals). This helps to use the often limited financial resources in a way that supports

¹³⁷ TEEB – The Economics of Ecosystems and Biodiversity (2008) *TEEB Interim Report*. Available from www.teebweb.org; TEEB – The Economics of Ecosystems and Biodiversity for National and International Policy Makers – Summary: Responding to the Value of Nature 2009. And TEEB (2010): *The Economics of Ecosystems and Biodiversity: Ecological and Economic Foundations*. Edited by Pushpam Kumar, Earthscan, London. And finally TEEB (2011), *The Economics of Ecosystems and Biodiversity in National and International Policy Making*. Edited by Patrick ten Brink. Earthscan, London.

the delivery of biodiversity and sustainable development objectives. A new focus on preserving and making full use of the ecosystem service potential of the natural environment will be an invaluable contribution of Cohesion Policy.

Recommendations for scaling up CP funding in the following investment priorities:

- **Climate:** Investment in ecosystem-based mitigation for climate change and the development and maintenance of natural carbon sinks;
- **Climate adaptation:** Investment aimed at improving sustainable urban and land planning schemes and fund activities aiming at creating zoning and mapping of areas at risk from climate change;
- **Towards sustainable Transport:** Infrastructure that enables the increased use of alternative, potentially zero carbon sources of energy by transport. The focus in this respect would be on alternative energy carriers for road transport, but other modes might also be relevant in this respect. This would include infrastructure that enables user charging, particularly on roads and in urban areas; and
- Investment in **green infrastructure**. This includes investment in natural and semi-natural systems that conserve water resources, collect rain water and partially treat wastewaters. This can be of high value to cities and towns.

However, focusing Cohesion Policy on win-wins needs to avoid contributing to the **crowding out** of private funds. While the risk of crowding out did not appear to have been significant for many areas, for investment where there is clearly the potential to attract private funding, such as clean energy, climate change, transport and water, it is important to ensure that the potential contribution of private finance is maximised. There are various means of doing this, including allowing private investors to recover the costs of construction and maintenance of infrastructure. This approach has the added value that applying charging in this way also reduces the risk of adverse environmental impacts.

Refocusing Cohesion Policy investments: Mitigating win-losses and avoiding environmentally harmful subsidies

At the same time, EU Cohesion Policy has been largely supporting traditional economic activities, which imply certain **trade-offs** for the environment, such as the construction of new roads and airports, support for fossil-based energy sources, traditional large scale tourism development etc.

Cohesion Policy investment takes place within the framework of EU legislation on the environment. While many projects address a need or demand (e.g. mobility or energy security), and are able to deliver a short term economic gain (e.g. employment, trade and GDP growth), they can come at the cost of environmental damage (CO₂ emissions and climate impacts, land use change, habitat disruption) and in some cases social inequalities. The trade-offs in some cases may be “acceptable” given the economic and social benefits, but in other cases the overall societal balance may be a negative one. In some cases the same objectives could have been met by other means (e.g. rail not road) or the same means but

integrating environmental aspects to reduce damage (e.g. reflecting EIA recommendations in routing; greening the grey infrastructure, etc.).

Where there is an impact on the environment, i.e. there is a win-loss, the subsidy can arguably be classified as an environmental harmful subsidy (EHS^{138,139}). Whether it is appropriate for reform depends on whether there are other overriding benefits (e.g. economic and social), whether there is a more effective and efficient way of achieving objectives that the subsidy seeks to address (e.g. addressing demand for mobility services by rail rather than road) and whether there are ways of putting in complementary policy instruments or actions to reduce damage (i.e. making the EHS less harmful).

Trade-offs should be managed and minimised where this is possible through changes in investment patterns, the application of tools and instruments for environmental integration and the establishment of governance systems that nurture change and learning.

Where investment has led to significant environmental damage, these can be regarded as environmentally harmful subsidies. Some traditional road and energy projects which failed to integrate environmental concerns can be seen as harmful subsidies. Where the damage is significant what may at first appear as an economic-environmental win-loss (and hence at first sight potentially acceptable) may actually turn out to be a loss-loss once the impact on public goods/wellbeing is integrated.

The recommendations associated with addressing win-losses are discussed in more detail in the following section.

6.3 On the path to a resource efficient, green economy

The results of the development path analysis (DPA) conducted within the project on the planned 2007-2013 EU fund allocations was presented in Section 3.2. This showed that in the current Cohesion Programme period, most of the Cohesion Policy allocations focused on the Development Paths that potentially contribute to *declining sustainability* or *environmental compliance, including the provision of environmental infrastructure* (i.e. development paths A and B, respectively). On the other hand less funding was allocated to those paths that could be considered to be more sustainable and which are needed to deliver the increasing environmental challenges set out in Europe 2020's Flagship Initiative on Resource Efficiency (see Section 2.1).

A green economy will require better synergy between economic, environmental and social capitals, where opportunities for resource efficiency and for working with natural capital are seized and where trade-offs that erode natural capital, which can also erode social capital, are avoided. In reality, there is no single 'development path' but rather a mix of paths, with different paths followed by different regional economies, depending on their existing level of development and the respective national and regional political frameworks and capital bases. However, it is possible to identify that some development paths are preferable to others from the perspective of a green economy.

¹³⁸ Lehmann M., P. ten Brink, S. Bassi, D. Cooper, A. Kenny, S. Kuppler, A von Moltke, and S. Withana (2011). Reforming Subsidies. In *The Economics of Ecosystems and Biodiversity (TEEB) in National and International Policy Making* An output of TEEB, edited by Patrick ten Brink, IEEP. Earthscan, London

¹³⁹ OECD (Organisation for Economic Co-operation and Development) (2005) *Environmentally Harmful Subsidies: Challenges for Reform*, OECD, Paris

Cohesion Policy can contribute to the shift to the green economy by funding or encouraging projects that are consistent with the more sustainable development paths and encouraging a move away from investments that may risk damaging the environment and hence contribute to **declining sustainability** – ‘development path A’. In some cases, such investment might still be justified, if the economic and social benefits of the investment significantly outweigh the costs of environmental damage. However, in the cases of such ‘win-losses’, the trade-offs need to be explicitly recognised and care must be given in order to ensure that such investment does not become an environmentally harmful subsidy. Recommendations are given in the box below.

Recommendations to avoid investment risks contributing to *declining sustainability (Path A)*:

- **Explicitly and transparently identify and acknowledge trade-offs** in order to **mitigate win-losses** and ensure that lose-lose options, which might at first sight appear as acceptable win-lose trade-offs, are not taken forward;
- For win-losses, **consider whether conditional or complementary instruments might be applied** to mitigate the potential losses (see later section on conditional instruments);
- For certain types of investment (i.e. those that are most likely to deliver environmental harm), **require that there be a burden of proof on the project applicant to demonstrate the need for the investment**, including demonstrating the value added. This is particularly important for roads; and
- **Improve the use of tools** to minimise or halt losses in natural capital. The use of procedural instruments, such as EIA and SEA, is critical here, as are the proofing tools that are being developed, e.g. to deliver carbon neutrality and no net loss for biodiversity (see also later section on integration).

Compliance with EU law has been a core commitment in Cohesion Policy and an explicit focus of funding historically - through investments in environmental infrastructures (e.g. water and waste treatment), generally using manufactured capital to address the problem, and the provision of the necessary services (e.g. water and waste management services). Such an approach could be characterised as development path B, i.e. **environmental compliance, including man-made capital and environmental infrastructures**.

Recommendations with respect to investment that focuses on development path B, *environmental compliance*:

- Where there remains a need to support environmental compliance, **investments should encourage cost-effective solutions**, e.g. by due project prioritisation and requiring charging where relevant. For such investment, there will be important geographic differences, e.g. for water supply, waste water treatment and waste management, as some countries have mature and complete infrastructure, while others require significant additional capital expenditure.

- In order to maximise the potential benefit of such investments, **parallel measures should be taken to free up Cohesion Policy funds**. For example, as soon as it becomes affordable, users should be charged for larger proportions of the costs of use, particularly the costs of operation and maintenance. The aspiration should be that user charging also covers the cost of the infrastructure and, if and where possible, also the resource price (e.g. water) and external costs of use (e.g. for transport). Project applicants would have to justify the level (or absence) of user charging.
- **Better application of the provisions of existing legislation**, including the investment appraisal and user charging that are enabled by the Water Framework Directive and the existing Biodiversity Regulations.

The recommendations in the previous two boxes are of particular importance in order to ensure that Cohesion Policy funding does not adversely affect the environment, and reflect the discussions on minimising trade-offs and realising win-wins as discussed earlier. However, following these recommendations, even those to improve the way in which investment consistent with the *environmental compliance* is implemented, will not on their own contribute sufficiently to the structural changes that are called for by Europe 2020 and are needed for a transition to a green economy.

The remaining four development paths each have an important contribution to make towards the transition to a green economy. To some extent, elements of the more sustainable development paths are already being taken forward in some countries and supported by Cohesion Policy funds, but within a green economy, these paths need to be supported systematically rather than only by the front-running countries and regions. Additionally, it is important to note that many of the actions under the more sustainable development paths would need to be implemented in parallel to, or “outside” of, Cohesion Policy, as a conditional or a complementary instrument.

There is a clear need for a more systematic and rigorous approach to *risk management* which is an important element of delivering a climate resilient economy (Development Path C: Risk Management). Currently, some risks are addressed within EU legislation, such as those relating to industrial pollution and existing and future flood risks¹⁴⁰. However, in the context of moving towards a green economy in the face of the existing environmental challenges, there is a wide range of other risks that need to be taken into account, including risks associated with climate adaptation, invasive alien species¹⁴¹, ecological critical thresholds (e.g. eutrophication and ‘dead zones’) and other resource limits and resource scarcity issues. In order to address these, Cohesion Policy should support actions such as the following:

- **Risk mapping**, including the integration of projected changes of natural hazards related to climate change;

¹⁴⁰ Directive on the assessment and management of [flood](#) risks [2007/60/EC](#) (OJ L20 288)

¹⁴¹ The new Biodiversity Strategy - COM(2011) 244 final - Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions - Our life insurance, our natural capital: an EU biodiversity strategy to 2020 and also Shine, C., Kettunen, M., Genovesi, P., Essl, F. Gollasch, S., Rabitsch, W., Scalera, R., Starfinger, U. and ten Brink, P. 2010. Assessment to support continued development of the EU Strategy to combat invasive alien species. Institute for European Environmental Policy (IEEP), Brussels, Belgium. Kettunen, M., Genovesi, P., Gollasch, S., Pagad, S., Starfinger, U. ten Brink, P. & Shine, C. 2009. Technical support to EU strategy on invasive species (IAS) - Assessment of the impacts of IAS in Europe and the EU. Institute for European Environmental Policy (IEEP), Brussels, Belgium. 44 pp. + Annexes.

- Step up investment beyond responses to natural and technological hazards onto **preparedness, early warning systems and adaptive capacity** through a balanced mix of ‘grey’ (i.e. infrastructure), ‘green’ (ecosystem-based) and ‘soft’ capacity building’ measures;
- **Capacity building**, while generally relevant for Cohesion Policy, has a specific application for risk management given the growing challenges – it should be made a priority in order to raise awareness of risks, develop skills and management capacity to improve the ability to plan and respond to risks. At the same time this will help contribute to a change in the mind-set towards a more ‘proactive risk minimisation’ and ‘precautionary principle’ approach rather than being reactive which can be less cost-effective; and
- **Cross-border coordination, communication and collaboration on risks**, e.g. flooding and on invasive alien species which have risks for many productive sectors of the economy as well as infrastructure.

The next development path - *investment in natural capital (including clean-up, restoration and conservation)*, that is development path D - has the potential to offer significant (social) return on investment, which often offers better value for money than alternative (e.g. man-made, technological) solutions (e.g. restoration of wetlands and carbon storage; water purification and supply costs¹⁴², as well as in some cases adaptation to climate change and natural hazards management). This will require a vastly improved understanding of the extent, state and changes in natural capital, which will require investment in knowledge on ecosystem service indicators, as well as natural capital accounts and links to GDP via systems of environmental-economic accounting¹⁴³. Actions that should be supported by Cohesion Policy include:

- Increase investment for the restoration and development of **green infrastructure** where this offers important ecosystem services, e.g. watersheds for water provision/purification for cities; protected areas for recreation and tourism; river restoration; and combating fragmentation;
- Increase investment in **greening man-made infrastructure**, particularly rail and roads, in order to help reduce impacts and facilitate additional connectivity;
- Invest in **regional natural capital accounts, ecosystem services indicators and capacity** to understand the interactions and synergies between natural capital and economic and social activities. The Necater case study has shown the benefits of carbon emissions indicators and accounts; it would similarly be useful to have carbon storage and sequestration accounts from natural capital.
- Invest in measures that go beyond legislative requirements but that offer important benefits, e.g. natural waste water treatment via reed beds to complement man-made waste water treatment plants. This can, for example, lead to downstream waters reaching quality appropriate for recreation.

Development Path E, which focuses on *eco-efficiency*, is crucial in delivering Europe 2020’s objective of a resource efficient economy. This covers a number of issues, including the use

¹⁴² TEEB 2009, 2010, 2011 Op Cit.

¹⁴³ See, for example, www.beyond-gdp.eu/download/bgdp-ve-seea.pdf

of materials for production, management systems, product efficiency and the wider use of natural capital. The issue of subsidy reform (within Cohesion Policy and using Cohesion Policy funds as leverage) is critical here. Measures to promote eco-efficiency directly are also important, including the application of whole life costing (WLC; linked to green public procurement support for investment in infrastructures that encourage eco-efficiency), investment in energy efficiency and support for eco-efficiency measures that have previously often fallen outside of Cohesion Policy (e.g. facilitating renewable energies). Each of these will contribute to the relative decoupling of the economy from resource inputs and pollution.

Relevant critical Cohesion Policy initiatives include:

- Systematic use of **Whole Life Costing** (WLC), particularly with respect to the application of water pricing, which is enabled under the Water Framework Directive (WFD), and user charging for transport, which would need to be consistent with the Eurovignette Directive. Some are concerned that requiring some Member States to apply user charging might not be affordable. In order to address this, the potential to apply user charging should be assessed, e.g. as part of the improved appraisal of water investment under the WFD or as part of the SEA for transport projects. The assumption should be that WLC and user charging should be applied, unless it can be shown to be unaffordable or otherwise socially undesirable.
- Application of **market-based instruments for biodiversity**, including a reform of subsidies, introduction of taxes and fees and the establishment of payments for environmental services (PES).
- **Green Public Procurement** in Cohesion Policy procurement, e.g. vehicle purchase (consistent with the Clean Vehicle Directive) and for all other suitable investments (e.g. roads and rail) and purchases;
- Support **R&D** activities and innovation for environment-friendly technologies; and
- Applying **EMAS and Ecolabel**, or at least equivalent systems and standards, as a **conditional requirement** of Cohesion Policy investments, where appropriate (see also discussion on conditional and complementary instruments).

Finally, if economic growth is to be able to continue unabated, there will be a need to move towards Development Path F, the **absolute decoupling** of economic growth from environment impacts, pollution, resource use and natural capital erosion¹⁴⁴, which would be a truly green economy. This builds on many of the above development paths. Some of the approaches implied by the above may be sufficient to achieve absolute decoupling in many areas (e.g. regulation has led to economic growth being decoupled from ozone generation and from SO₂ emissions). However, it is likely that in other areas consumption changes and procurement choices will also need to change, which is linked to awareness raising and labelling, management systems and also an evolution in social norms. In other areas, a mix will be required, for example legislative requirements for the energy efficiency of buildings, labelling/energy passports, Cohesion Policy support via investments in building insulation. Some examples of actions that Cohesion Policy could support include:

- Investment in the **energy efficiency of buildings** and associated **skills and capacities** (energy audit, energy management systems). This has major potential for savings,

¹⁴⁴ Jackson, T. (2009) *Prosperity without growth? The transition to a sustainable economy* Sustainable Development Commission, UK

improved levels of disposable income and comfort, increases in the value of the housing stock, as well as contributing to emissions reductions and help job creation.

- Support for **labelling/certification schemes** to help improve the supply of information and products/services that can encourage the due evolution of social norms (e.g. product labelling, building standards and associated labels/passports).
- Encourage the adoption of objectives and targets such as “**carbon neutral**” or “**no net loss of biodiversity**” or “**net gain**” (as well as fair trade issues for sustainable procurement).

A transition to a resource efficient, equitable green economy will require a move away from the ‘traditional’ development path of substituting natural capital for other capitals with associated erosion of natural capital stock, and towards a world which supports policies and actions that encourage development in the direction of the five other development paths – of improved compliance with legislation (including implementation), improved pro-active risk management attitude, approaches and measures, investment in natural capital as an equal capital, encouragement for innovation and other resource efficiency measures and encouragement of new green economies.

While actions within Cohesion Policy can act as an important driver and catalyst in the transition to a green economy, this can be enhanced through the use of a range of conditional and complementary instruments, many of which have been mentioned above. However, for the purpose of clarity, recommendations with respect to such instruments are brought together in the box below.

Recommendations for the application of conditional and complementary instruments:

The following policy instruments should be applied as conditional instruments with Cohesion Policy:

- Applying *GPP* generally and to the transport sector in particular;
- Applying *EMAS and Ecolabels*;
- Applying the requirements laid down by the *WFD for investment appraisal and user charging* in justifying investment needs in Operational Programmes;
- Applying *standards* for the *thermal insulation of buildings* in a systematic way when buildings are constructed;
- Strengthening the *implementation of the Water Framework Directive*, including the greater use of *water pricing* to assist *full cost recovery* and the development of guidelines for undertaking the proposed appraisal for water investment;
- Strengthening the use of *existing EU biodiversity Regulations* and the application of market based mechanisms for nature conservation; and
- Applying *user charging for transport* infrastructure.

For each of these instruments, the necessary strategic framework needs to be set out at the EU level, while Member State specific requirements should be set out at the Member State level, e.g. in the respective Partnership Contracts. These frameworks need to be reflected in lower level of governance.

6.4 Governance process and tools for integration

6.4.1 *The tools*

Whether expenditure within the Cohesion Policy has the potential to encourage a move to path to a green economy depends on the instruments that are used within the Cohesion Policy cycle, i.e. at the various stages of decision-making that lead to the delivery of the investment on the ground. This needs a multi-level governance approach involving stakeholders from the European level, through the national and regional levels, down to the local level in many cases. Different instruments can be applied at different levels to ensure that environmental sustainability is properly integrated into Cohesion Policy funding. A list of the main instruments that might be used in order to integrate environmental sustainability into Cohesion Policy is presented in Table 5 (Section 3.3).

These instruments have been applied to integrate the environment into Cohesion Policy, with a range of positive experiences as well as a range of missed opportunities and weak implementation. Integration is far from achieved and there are weaknesses with the processes and tools including weak institutions for environmental integration, weak EIA and SEA, both in (the timing of) application and the use of the results, as well as weaknesses as regards transparency, accountability and participation. Natural capital has not been seen as an 'equal capital' and assessments rarely take into account the wider societal losses and life cycle costs associated with natural capital loss. There also remains a bias to large scale technological solutions (e.g. to flood control and water provision) that reflect the lack of integration of the evidence that natural capital solutions can be more cost-effective and offer other co-benefits.

Overall, as was clear from the discussion of Section 5, there is a need for reform. Currently there is not a fully efficient or effective use of EU funds, and an insufficient integration of sustainable development into Cohesion Policy. The experience of EU Cohesion Policy has shown that while EU Structural Funds and the Cohesion Fund have brought a number of spill-over effects in terms of institutional innovations and an evolving toolbox for environmental integration, the effectiveness of these has been relatively low so far or limited to a few front running regions or Member States.

6.4.2 *Recommendations for the improved integration of the environment in Cohesion Policy – across the policy cycle*

There has been a **significant evolution in the way Cohesion Policy has pursued sustainable development and enhanced environmental sustainability.** This process entailed the development and application of a wide range of integration instruments, tools and mechanisms, which manifest themselves within the complex multi-level governance system in which EU Cohesion Policy operates. There are many instruments that are already embedded into the existing regulatory basis of Cohesion Policy, whereas others have been developed in a bottom up manner by the managing authorities in the respective Member States and regions. The latter were reviewed based on the 26 case studies undertaken within the project, as shown in Section 4 and in the detailed case studies.

The research also showed, however, that **there is considerable variation in the actual application and operationalisation** of most instruments under the shared management by the respective managing authorities. The variation depended on a number of factors, such as the maturity of administrative systems and decision-making traditions, the capacity and skills of the managing authorities and environmental actors, as well as the political commitment for

environmental sustainability. For example, the *strategic alignment* of OPs to the renewed Lisbon Strategy for growth and jobs appears to have been stronger through the explicit earmarking mechanism embedded in the General EU Funds Regulations compared to the alignment to the EU SDS or the 6EAP. Most Member States have articulated *explicit environmental objectives* in their OPs and identified *concrete environmental measures*. Many of the environmental measures have been driven by the requirements for *compliance with EU environmental acquis* particularly in the fields of wastewater, water supply, waste management and to a lesser degree climate change and nature conservation.

The operationalisation of *sustainable development as a horizontal principle*, however, appears to be more challenging. The same could be said regarding fundamental principles that should guide environmental integration in Cohesion Policy funds programmes and projects. The *polluter pays principle* for example has been to some extent incorporated into the practices of cost-benefit analysis for major projects; however, its ‘extensions’ such as *‘full cost recovery’* have had a fairly limited application in the context of Cohesion Policy. Similarly, the *carbon neutrality* principle has been pioneered and operationalised effectively in French regions, but it has yet to be taken up elsewhere.

SEA and EIA are relatively well established, yet their implementation and capacity to really ‘green’ the decision-making is not always straightforward. While these instruments are already in place, much greater efforts are necessary to improve their performance and relevance to the decision-making process both at programme and project levels. *Cost-benefit analysis (CBA)* is also widely used, but its utility to consider environmental costs and benefits could be further strengthened in the case of major projects. Further to this, a *cost-effectiveness analysis* could be made complementary to the CBA as far as proper consideration of costs against the effectiveness and quality of spending is concerned.

Institutional mechanisms for integration underpin the establishment and functioning of a good governance system for sustainable development in the context of Cohesion Policy. The 2007-2013 programming period institutionalised the *partnership principle* and set out an explicit requirement for *Monitoring Committees* in order to enhance the participation of environmental actors (see Northern Ireland case). It is relatively early, however, to assess objectively the effectiveness of these fairly ‘young’ institutional mechanisms for integration although their implementation in practice is their critical test for effectiveness. At the same time, other successful practices and institutional innovations could be observed across countries and regions, for example *working groups, environmental networks, steering committees, sustainability managers, growth forums* and *eco-communities*.

The analysis of the case studies and additional literature suggests that there are a number of instruments which have significant potential to steer environmental integration such as *inter alia proofing tools, conditionality, environmental project selection criteria, environmental indicators* and *robust thematic evaluation*. However, the current use of the majority of these remains limited to a few Member States or regions. It is important to seek ways in which some of these good practices and policy innovations could be formally institutionalised and diffused to other countries and regions.

The application of the various instruments could be improved in a number of ways for Cohesion Policy to effectively deliver sustainable development. In particular, the overarching principles set out in the introduction to Section 6, should inform the development of the new Regulation, as well as the new Common Strategic Framework and Partnership Contracts.

Various sets of guidance would also need to be reviewed in order to ensure that they reflect the new principles, and Member States (and the Commission) should ensure that Operational Programmes and associated documents also reflect the new approach.

In addition to the overarching principles, there are a number of other concepts that would be important to apply better at the strategic level (and then subsequently at the national and regional levels). For example, the new Common Strategic Framework and Partnership Contracts should be used as an opportunity to clarify how managing authorities should address cross-cutting issues such as **sustainable development**. Additionally, the Europe 2020 and flagship initiatives introduce new concepts such as sustainable growth, resource efficiency, green infrastructure, ecosystem services, etc. Such concepts are likely to be equally ambiguous to many managing authorities and stakeholders, especially at lower levels of governance, so these concepts and what they imply in terms of investments need to be better defined in the relevant strategic documents, supported by guidance as appropriate (see also recommendations on guidance, below).

From the assessment of the case studies and existing tools, it is evident that there needs to be clearer **environmental principles underlying the allocation and use of Cohesion Policy funds**. In this respect, there is an argument for making the precautionary principle, the principle of preventative action and the polluter pays principle guiding principles underlying Cohesion Policy funding, in order to ensure that the environmental principles that underlie EU environmental policy also underlie Cohesion Policy funding, which affects the environment considerably.

As well as the need for a better statement and operationalisation of such general environmental principles, it is possible to apply specific principles that aim to address some of the more pressing environmental challenges that the EU faces, particularly climate change and biodiversity loss. In this respect, Cohesion Policy funding should be allocated where the highest EU value added can be exploited, i.e. to actions which can contribute to achieving EU's strategic objectives and targets, including those related to carbon reduction. Member States that are committed to reducing their CO₂ emissions within the time period of the next Cohesion Policy programming period, should be allowed to use Cohesion Policy funds only for actions that do not significantly increase CO₂ emissions and for actions that support exemplary/pioneering projects and projects of 'excellence' in terms of environmental achievements. Those Member States that are allowed to increase their CO₂ emissions within the timescales of the next programming period are likely to be those that need to catch up on available infrastructure. Hence, there should be an aspiration for their Cohesion Policy funds programmes to be **overall carbon neutral**, as EU funds programmes should set an example and drive the direction for other investments. It should also be remembered that, if such Member States are supported to invest in carbon intensive infrastructures now, they might be running the risk of getting into a technological lock-in and consequently high carbon path dependency. However, prior to 2020, the funding programmes of Member States that are still allowed to increase their CO₂ emissions under the burden sharing agreement should be allowed to increase their CO₂ emissions, as long as the Member State can justify, from an economic and/or social perspective, why carbon neutrality should not apply. Any emissions increases resulting from Cohesion Policy programmes should be consistent with the respective emissions targets under the burden sharing agreement. In the long run, e.g. post 2020, all Member States should also use EU funds only for projects ensuring emission reductions and their Operational Programmes should be carbon savings.

The resource efficiency Flagship Initiative also notes the need to halt the loss and restore biodiversity and ecosystem services. Consequently, applying a **principle of biodiversity no net loss** and indeed **net positive gain** to Operational Programmes would be consistent with achieving these aims. This would require some specific requirements to ensure no net loss when planning interventions and projects that are likely to have significant impacts on land use. While the EIA procedure can ensure that such negative impacts are identified and mitigated the principle of no net loss would imply that developments with potential to disrupt natural ecosystems should not receive a go head through support by Cohesion Policy funds. There is also a need for proactive investment in natural capital by Cohesion Policy.

In the 2007-2013 programming period, earmarking was relatively successful in targeting investment in support of the objectives of the Lisbon agenda. In the ongoing political debates other approaches are also being discussed such as ring fencing or establishing obligatory measures. Whatever the exact instrument, mechanisms should be embedded in the Cohesion Policy funds regulatory framework to ensure that sufficient funding is allocated in support of the environmental objectives that are consistent with the delivery of a low carbon, resource efficient and climate resilient economy, as foreseen by Europe 2020.

In the 2007-2013 programming, there is a **reserve fund to reward performance**, which has not been used significantly to date. Notwithstanding its lack of use, this mechanism potentially has an important role to play in stimulating investment with good environmental performance in the post-2013 programming period. A summary of the relevant strategic recommendations can be found in the box, below.

Recommendations on environmental principles:

- **Adopt key environmental principles as guiding principles of Cohesion Policy.** Within the EU Funds General Regulation, the Common Strategic Framework and the partnership contracts, the polluter pays principle, the precautionary principle and the principle of preventative action should be adopted as the underlying environmental principles guiding Cohesion Policy. Also reinforce the need to avoid environmentally harmful subsidies and use of full cost recovery (subject to affordability constraints). Within the partnership contracts, the principles should be re-stated and interpreted in the national context.
- Require that projects and programmes in those Member States that are committed to reducing their CO₂ emissions by 2020 apply the **principles of carbon neutrality**. Require that emissions reductions in programmes in other Member States are consistent with their emission targets within the effort sharing decision, though encourage a move to carbon neutrality of use of Cohesion Policy funds where feasible. The overall ambition for Cohesion Policy should be of having overall carbon neutrality for the programme. Incentivise investments in all Member States that are consistent with the delivery of long term emission reduction targets for 2050. In cases where these principles are breached, Member States need to prove that the breaches are justified on environmental (e.g. trade-offs between environmental impacts), economic and/or social grounds. This requirement needs to be stated in Common Strategic Framework and re-stated and interpreted in the national context.
- In line with the EU commitments under the Convention on Biological Diversity (CBD) and the recent commitment to 20 targets in the CBD Strategic Plan 2011-20 which aims at halting biodiversity loss, the use of Cohesion Policy should encourage the **no net loss (and ideally net positive gain) of biodiversity**.

- Funding should ensure that **investment is concentrated on the strategic priorities, including delivering a low carbon, resource efficient and climate resilient economy.** The mechanism for achieving this could be earmarking, ring-fencing or requiring obligatory measures.

In relation to the **reserve fund**:

- **Review the reasons** why the reserve fund has not been used significantly within the 2007-2013 programming period and adapt the rules accordingly for the post-2013 programming period.
- **Consider using** the reserve fund to reward performance towards achieving the environmental objectives of Europe 2020.

As discussed earlier, there is a requirement that major water and waste projects are included in the respective national strategies, but this requirement does not cover all major projects, e.g. transport projects. Additionally, there can be inconsistencies between Cohesion Policy investments and the respective national and regional development (and sustainable development) strategies. For the post-2013 programming period, mechanisms should be put in place, e.g. in the Common Strategic Framework, to **improve the consistency between Cohesion Policy investments and the various national and regional strategies** (e.g. aligning OPs with strategic objectives to EU in Basque Country; with national Strategies for Sustainable Development in Catalonia and Northern Ireland; or with Sustainable Energy Action Plans as in Province of Barcelona). For example, establishing an explicit link between the Partnership Contracts and the national sustainable development strategies, where a political commitment to sustainable development is conveyed and a definition of it is provided, would be beneficial. If this link is reinforced, Cohesion Policy funds programmes can be better informed by nationally developed strategies for sustainable development, which enjoy stronger ownership and provide clarity to the issues.

Checklists have been used in relation to major waste and water projects in order to ensure that these are in **compliance with the EU environmental acquis**. As discussed in the *Supporting Paper 3: Role of non-Cohesion Policy Instruments*, all pieces of infrastructure have the potential to impact on biodiversity, so developing a checklist, which includes the need to ensure compliance with relevant biodiversity and nature conservation policies and legislation, has the potential to be beneficial in ensuring that all pieces of infrastructure comply with Community policies and legislation. A summary of the relevant recommendations is presented in the box below.

Recommendation on major projects, national and regional strategies:

- The Common Strategic Framework should require that **all major projects funded by Cohesion Policy are included within the respective national and regional strategies.** Additionally, Partnership Contracts and Operational Programmes should be required to be **consistent with the respective national and regional strategies.** This should help to improve consistency between Cohesion Policy investments and national priorities. However, it is important that Cohesion Policy investments are allowed if they are consistent with a more sustainable development path in order to pre-empt the situation in which a relevant strategy, for example, a regional development strategy, might not be consistent with the underlying principles of sustainable development.

- Similar **compliance checklists** that are used in relation to waste and water projects, **should be developed for, and applied to, all infrastructure projects** funded by Cohesion Policy.

Given the problems with the interpretation of the concept of sustainable development noted above, coupled with the new concepts introduced by Europe 2020, there is clearly a **need for more detailed guidance** from the Commission on interpretation and operationalisation of these concepts. Additionally, the re-assessment of other guidance documents, such as those that relate to Strategic Environmental Assessment (SEA), ongoing evaluations, due to the ongoing uncertainty as to what these should entail, and ex ante assessments/SWOTs, would be beneficial in order to strengthen these assessments and evaluations. Recommendations for more, or revised guidance, are presented in the box below.

Recommendations for new and revised guidance:

Strategic

- There needs to be **more EU detailed guidance** with respect to the interpretation and operationalisation of concepts and principles, both for Member States and for regional delivery authorities. This should apply to existing concepts, such as sustainable development, as well as new concepts introduced by Europe 2020, such as sustainable growth, resource efficiency, green infrastructure and ecosystem services, as well as the environmental principles noted in the previous recommendation. Guidance will also be needed on the application of Development Path Analysis. The guidance needs to specify how these strategic, broader and cross-cutting concepts should be operationalised in terms of translating them into concrete objectives, analysis of trade-offs, priorities and measures.
- The Commission should develop **proofing tools and guidance** in order to **enable the principles of carbon neutrality and no net loss of biodiversity** in the post-2013 programming period.

Procedural Tools

As **SEA** is still applied inconsistently:

- **The existing Handbook on SEA for Cohesion Policy should be revisited and its use promoted**, while the development of national and regional guidance documents should be encouraged by tailoring these to the specific context of the respective programmes, administrative levels and geographies.
- **The working document on the use of SEA as part of the ex ante evaluation should be reviewed** in order to ensure that SEA is appropriately applied. In particular, it should be made explicit that an SEA should be undertaken for all Operational Programmes, including those that do not contain major projects.

Evaluations

- The Commission should develop further guidance and instructions on undertaking **ongoing evaluations**. For the post-2013 programming period, the guidance will need to reflect the environmental elements of the Europe 2020 Strategy, i.e. achieving a low carbon, resource efficient and climate resilient economy.
- Review the current guidance on **ex ante evaluations** for Cohesion Policy in light of

the new strategic priorities for the post-2013 programming period. Additionally, the ex ante evaluation for the post-2013 programming period should be used to identify and manage trade-offs between different types of capital. The aspiration should be that the ex ante evaluation effectively becomes a full sustainability appraisal, supported by SEA (at least in the short-term), in order to establish the win-wins and trade-offs of alternative development paths. However, given the current state of the art and wider culture that tends to rank economic considerations higher than environmental ones, relying solely on a sustainability appraisal risks perpetuating rather than changing existing practices. Consequently, in the short-term, any attempt at moving towards a full sustainability appraisal would need to retain an SEA to ensure that the environmental elements are not lost.

- The Common Strategic Framework, and other relevant documents, should ensure that the inclusion of environmental **project selection criteria** and environmental indicators play an important role in improving the environmental performance of post-2013 Cohesion Policy. In particular guidance needs to be strengthened on developing environmental criteria and indicators based on the underlying appraisals (and/or evaluations).

Additionally, from the case studies undertaken within this project there were several innovative examples on how to better undertake SEAs of Operational Programme and EIAs of particular projects that might be considered within the forthcoming programming period (see below).

Recommendations on procedures and assessments:

The following ways of improving the application of SEAs should be considered:

- Require SEAs to be undertaken in an **ongoing** way (e.g. see Piemonte case study).
- Review the SEA on a **regular** (e.g. bi-annual) basis (e.g. see South West England case study).
- Improve the **link between SEA and the assessment of projects** (e.g. see Southern Finland case study).
- Require the SEA to **include in its scope a list of indicative projects** in order that alternative projects and mitigation measures are considered at the planning stage.
- Use SEA to develop **indicators** (e.g. see case study on Polish Infrastructure and Environment) and environmental criteria (e.g. see Bulgarian case study).
- **Adapt** SEA to better **correspond to the scope of the Operational Programme** (e.g. see Southern Finland case study).

The following possible ways of improving the application of EIAs for the post-2013 programming period should be considered:

- Create **independent institutions** to ensure that there is sufficient capacity to improve the quality of EIA (e.g. see Polish Transport case study).
- Develop an **informal, but mandatory, EIA for every project** (e.g. see Danish case study).
- Make a **stronger link between the EIA and project selection** (e.g. see the Danish case study).

- Set up an **independent panel** to address inconsistencies in EIAs (e.g. see Southern Finland case study).
- Develop the EIA in relation to the SEA, including the selection of indicators and monitoring, that would contribute to the ex-post evaluation of programmes (e.g. see the Southern Finland and Piemonte case studies).

The majority of the recommendations so far have focussed on the strategic or procedural instruments. However, there are some more elements that are important in the context of the Operational Programmes. Setting out **environmental objectives** in the OPs is critical as they become an important point of reference for future investments. While sustainable development as a cross-cutting principle is aimed to ensure horizontal integration across the different Programmes, concrete environmental objectives are necessary to ensure that the environment is given sufficient weight vertically, or within the Partnership Contracts and the Operational Programmes. These should mirror the strategic orientations provided at EU level by the respective overarching strategies such as Europe 2020, but should also be in line with the environmental objectives as set out in the national/regional sustainable development or environmental strategies. Finally, monitoring committees, partnerships, environmental networks and public participation have all played positive roles in improving the environmental performance of Cohesion Policy investment. However, there is the potential to strengthen the application of these instruments in many cases.

Recommendations of relevance to the OP and regional governance structures

Development and Integration of Environmental objectives in Cohesion Policy:

- **Environmental objectives should be based on an understanding of the regional stock of natural capital** and its contribution (through the provision of eco-system services) to regional productive capacity. This requires improved mapping of environmental assets and the services they provide, and trends in the stock of these assets and services. It should also include a more formal assessment as part of the SWOT analysis of the risks that current or future trends could already breach, or potentially breach, critical ecological thresholds.
- **Environmental objectives in OPs need to be consistent with the strategic orientations** provided at EU level. They also need to be consistent with the environmental objectives set out in the respective national and regional sustainable development or environmental strategies. Where these contradict, investment consistent with more sustainable development paths should be considered to be preferable.
- They should be better integrated with economic and social objectives as part of **thematic objectives**. Such themes could include for example increasing resource efficiency, or ensuring carbon neutrality or no net loss of biodiversity.

Indicators and evidence base for good governance

- It is important to vest in and integrate *environmental indicators* in the system of core Cohesion Policy indicators and require their application in annual implementation and strategic reports and evaluations. Investment in measurement to improve management can usefully include improved indicators for ecosystem services related to green infrastructure, natural capital accounts (e.g. carbon stocks) and spatial analysis of interrelations between ecosystems, economic and social

systems (e.g. cities, protected area and wider green infrastructure benefit for water provision or flood control, recreation and livelihoods).

In order to reflect the new principles underlying post-2013 Cohesion Policy, Operational Programmes will need to be based on:

- A **SWOT analysis** of the productive capacity of the region described by reference to the four capitals (or something similar to capture the full range of assets and their limits), which would include clear statement of the underlying market failures and social needs to exploiting the productive capacities.
- **Definition of alternative development scenarios** encompassing explicit territorial perspectives and described in relation to aspirational / feasible development goals; and the use of different regional productive capacities. These alternatives could be conceived as development scenarios.
- **Formal appraisal** of alternative development scenarios in terms of their ability to deliver win-wins (across different capital stocks) and avoidance of trade-offs. Develop the ex-ante evaluation into a full sustainability appraisal, supported by SEA (at least in the short-term until the underlying culture has changed), to identify and define a preferred development path capable of delivering smart, sustainable and inclusive growth.

Governance – organisational instruments

- **Ensure the accountability of Programme Monitoring Committee activity, e.g. by making it subject to external review.** Progress against strategy and sustainability criteria could also be subject to external review.
- **Increase partnership** (in addition to mainstream economic actors) and **increase stakeholder participation** in strategy and programme development, as well as subsequent monitoring and evaluation.

6.5 Summary

The EU Cohesion Policy has the potential to be a key tool to implement Europe 2020 and to address a wide range of EU economic, environmental and social objectives. It could and indeed should become a catalyst and driver of the transition towards smart, sustainable and inclusive growth. It currently offers both examples of significant economic and environmental “win-wins” and of “trade-offs” that fail to offer net added value. Governance performance is equally mixed, with opportunities to learn from the many positive and innovative experiences of the current governance vanguard.

Cohesion Policy has the potential to impact directly by its investment, by its leverage (legal framework, negotiations, and conditionalities), by leading by example and by launching innovative solutions that other may quickly learn from. This would help actors at city, regional or national levels to choose a development path to a resource efficient Europe that responds to the needs for improved territorial cohesion, builds on the diverse natural and man-made assets and infrastructures of the regions and be a catalyst in the transition to a green economy.

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ANNEX 1: COHESION POLICY IN CONTEXT

A1.1 Historical context of Cohesion Policy and the Environment

A series of adjustments and reforms in EU Regional Policy have been undertaken over the last twenty years to facilitate the integration of environmental objectives into that policy. Since 1988, Cohesion Policy and Structural Fund programmes have taken account of environmental requirements and from 1993 environmental sustainability became a necessary component of the development strategies put forward by Member States. Analysis of this first ‘greening’ of regional policy in the 1980s notes that ‘procedural guidance’ on the integration of environmental objectives by the Commission (i.e. environmental profile, list of indicators, handbook on environmental impact assessment, etc.) played a crucial role in raising the importance of the environment in Structural Fund programmes¹⁴⁵.

In the period 1988-1993, Structural Funds provided dedicated, even if limited, funding for environmental measures (such as environmental infrastructure). A number of guiding documents were issued by the Commission with regard to assessing the environmental impact of investment programmes. Even so, at that time, the environment did not constitute a priority area for the Funds and only a few national or regional programmes referred to the environment as a development objective¹⁴⁶.

The 1993 revision of the EU Funds Regulations (EC) No. 2081/93 introduced sustainable development as a compulsory component for the development strategies that Member States needed to put forward. They also required that the ‘Community support frameworks’ of the time should include an appraisal of the environmental situation and environmental impact of the plans and respective measures as well as information regarding the involvement of environmental authorities in the planning and implementation process. The revised Regulations were also supported by notes and guidance prepared by the Commission urging Member States to take the environment into account in the development and implementation of programmes receiving EU funding. At that time, the Commission undertook a more ‘indirect steering role’ relying on active initiatives by Member States. This did not prove to be a very effective approach and soon the then Commissioner for the Environment, Margot Wallström, warned that EU funding could be withheld in case of breaches of the EU environmental *acquis*¹⁴⁷.

For the 2000-2006 period Structural Funds programmes have been subject to a more systematic and comprehensive framework for integrating environmental considerations into all aspects of programme development and implementation. Environmental sustainability concerns were set out as ‘horizontal themes’ and environmental authorities were encouraged to actively participate in the full policy cycle of regional programmes¹⁴⁸. The Regulations introduced the partnership principle, strengthened monitoring and evaluation requirements, as well as information and publicity. Further guidance was published in the form of Commission

¹⁴⁵ Lenschow, A (2002) New Regulatory Approaches to ‘Greening’ EU Policies. *European Law Journal* 8(1) 19-37

¹⁴⁶ Ferry, M. Mendez, C. and Bachtler, J. 2008. From environmental sustainability to sustainable development? Making concepts tangible in Structural Funds programmes. IQ-Net Thematic Paper N22/2. European Policies Research Centre.

¹⁴⁷ Lenschow, A (2002) New Regulatory Approaches to ‘Greening’ EU Policies. *European Law Journal* 8(1) 19-37

¹⁴⁸ Wilkinson, D (2007) Environmental Policy Integration at EU Level – State-of-the-Art Report. EPIGOV Papers 4. IEEP, London.

working papers and technical documents, the most important of all being the handbook on Strategic Environmental Assessment for EU funded programmes¹⁴⁹. This type of ‘procedural guidance’ is considered to have played a crucial role for enhancing environmental integration¹⁵⁰.

Other tools considered successful in integrating sustainability considerations during the 2000-2006 period include the development of booklets, manuals and checklists especially in relation to project generation, appraisal and selection; these were often aided by specialised assistance from the administration, appointing Sustainable Development specialists (cross-cutting issues managers), and applying special project selection techniques where sustainable development and environmental considerations were given special treatment or more weight in the scoring system¹⁵¹.

Although the reforms introduced a number of novel instruments for integration, their effectiveness varied considerably between Member States. The existence of national or regional sustainable development strategies, for instance, appeared to be a critical factor for the success of environmental integration and the contribution of the Structural Funds to sustainable development.¹⁵² Furthermore, the existence of national environmental policies and strategies, which have framed the programming of the Funds and guided the spending, was a pre-requisite for effective spending patterns. Moreover, these policies and strategies often improved coherence and coordination among the different funds for the different measures. For instance, the Austrian national policy set out strong goals for renewable energy which were considered to have provided an effective platform for spending from the EU Structural Funds.¹⁵³

The General Regulation (EC) No. 1083/2006 that governs the 2007-2013 programming period states in Article 2 of the Preamble that Cohesion Policy should contribute to ‘increasing growth, competitiveness by incorporating the Community’s priorities for sustainable development ... as defined at the Goteborg European Council of 15 and 16 June 2001.’¹⁵⁴ Article 17 further stipulates that ‘the objectives of the Fund shall be pursued in the framework of sustainable development and the Community promotion of the goal of protecting and improving the environment as set out in Article 6 of the Treaty.’ The Community Strategic Guidelines on Cohesion for the 2007-2013 programming period also contained a number of references to the need for Cohesion Policy to contribute to sustainable development¹⁵⁵. This means that sustainable development and environmental protection should be integrated as cross-cutting horizontal principles in national and regional EU funds,

¹⁴⁹ CEC (1998), A Handbook on Environmental Assessment of Regional Development Plans and EU Structural Funds Programmes, Environmental Resource Management August 1998,

¹⁵⁰ Lenschow, A (2002) New Regulatory Approaches to ‘Greening’ EU Policies. *European Law Journal* 8(1) 19-37

¹⁵¹ EPRC, METIS and University of Strathclyde Glasgow. 2009. Ex-post evaluation of Cohesion Policy programmes 2000-2006 co-financed by the ERDF (Objective 1 and 2), Work package 11: management and implementation systems for Cohesion Policy, DG Regio

¹⁵² GHK, PSI, IEEP, CE (2003) The thematic evaluation of the contribution of the structural funds to sustainable development, DG Regio, European Commission, Brussels.

¹⁵³ EEA. 2009. Analysis of environmental aspects of the EU Cohesion Policy in selected countries. EEA technical report 10/2009.

¹⁵⁴ Regulation 1083/2006 laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund, L210/25, 31.7.2006

¹⁵⁵ European Commission, 2006. Community Strategic Guidelines on Cohesion.
http://ec.europa.eu/regional_policy/sources/docoffic/2007/osc/1_29120061021en00110032.pdf

programmes and projects. The Guidelines also called for the strengthening of the synergies between environmental protection and growth. In this respect, the aim was that priority would be given to the provision of environmental services (e.g. clean water supplies) and protection from environmental risks (e.g. in the face of climate change).

There has, therefore, been an evolving framework that has aimed to improve the integration of environmental considerations into Cohesion Policy. Tools have been developed at each stage to facilitate this integration. For the next programming period, i.e. from 2014 to 2020, and beyond, a more integrated and proactive approach to integrating environmental sustainability into Cohesion Policy will be needed, in order to fulfil the objectives of the emerging EU policy framework.

Towards a Resource-efficient Green Economy by 2020 and Beyond – a new context for Cohesion Policy

The financial and economic crisis of 2008 gave impetus to new thinking towards green pathways of development, both globally and in Europe, which will have implications for the next Cohesion Policy programming period. In November 2008, the Commission tabled its European Economic Recovery Plan¹⁵⁶ which sets out an exit strategy from the economic crisis with a clear focus on innovation and greening EU investments: ‘The EU level can act as a catalyst for such ‘smart action’, combining EU policies and funds to help Member States maintain or pull forward investments which will create jobs, boost demand, and strengthen Europe's capacity to benefit from globalisation’¹⁵⁷. Key elements of the proposal included *inter alia* re-programming Structural Funds’ operational programmes towards the support of energy efficiency and renewable energy sources in social housing up to a limit of 4 per cent of the European Regional Development Fund (ERDF) programme. Reportedly, 14 Member States seized this new opportunity and harnessed funds for energy efficiency and renewable energy in the housing sector¹⁵⁸.

These developments gave more political currency to another related notion - that of the green economy. Building a green economy increasingly is seen as a way to pursue economic growth and development¹⁵⁹, while preventing further environmental degradation and unsustainable material consumption and production. This notion takes forward existing sustainable development thinking and practices in many countries and aims at identifying cleaner, healthier sources of growth, including putting a higher value on natural capital, recognising its value in providing a range of ecosystem services¹⁶⁰ and seizing the opportunities to develop new green industries, jobs and technologies, while also managing the structural changes associated with the transition to a greener economy¹⁶¹. The pillars of green growth include: green tax and budget reform; establishing a sustainable infrastructure;

¹⁵⁶ CEC. 2008. Communication from the Commission to the European Council: A European Economic Recovery Plan, (COM(2008)800), Brussels, 26/11/2008.

¹⁵⁷ CEC. 2008. Communication from the Commission to the European Council: A European Economic Recovery Plan, (COM(2008)800), Brussels, 26/11/2008.

¹⁵⁸ EC. 2010. Cohesion Policy: Responding to the economic crisis. (SEC(2020)1291), Brussels, 25/10/2010

¹⁵⁹ UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication. www.unep.org/greeneconomy

¹⁶⁰ TEEB 2011 The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London.

¹⁶¹ OECD 2010, Green Growth Strategy, Interim report, Implementing our Commitment for a Sustainable Future, Meeting of the OECD Council at the Ministerial Level, 27-28 May 2010.

greening of business and markets; investment in natural capital, pursuing eco-efficiency (indicator) targets and promoting sustainable consumption (demand-side management). Essentially, the transition to a green economy requires considerable structural changes, investment in new infrastructure, new technologies and green jobs. In this context, EU Heads of State and Government committed to a longer term decarbonisation agenda for the transport and energy sectors by 2050 to meet greenhouse gas abatement targets¹⁶².

The strategic policy framework that is emerging at the EU level increasingly reflects such considerations. In this respect, a number of communications and reports are relevant and are reviewed below.

Europe 2020 Strategy

Building on the thinking surrounding the economic recovery plans and the transition to a green economy, in March 2010 the European Commission unveiled its much anticipated proposal for a successor to the Lisbon Strategy entitled ‘Europe 2020: A strategy for smart, sustainable and inclusive growth’ (COM(2010)2020)¹⁶³. This was endorsed by EU Heads of State and Government in June 2010. This Strategy is a potentially important milestone in facilitating the transition to a green economy in the longer-term, as it establishes objectives and targets for 2020. Ultimately, the Strategy aims to turn the EU into a smart (based on knowledge and innovation), sustainable (promoting resource efficient, greener and more competitive growth); and inclusive (high employment, delivering economic, social and territorial cohesion) economy. The need for EU action under the ‘sustainable growth’ priority emphasises the competitive advantage attainable from the employment of green technologies, the need to implement emission reduction commitments and the importance of strengthening resilience to climate risks, as well as the financial and energy security related benefits of meeting energy targets, and the ultimate aim of decoupling growth from energy and resource use. It also acknowledges the need to phase out environmentally harmful subsidies. The Strategy proposes five EU headline targets relating to the three priorities which include *inter alia* the pre-existing 20-20-20 climate and energy targets (including an increase to a 30 per cent emission reduction ‘if conditions are right’); and that 3 per cent of the EU’s GDP to be spent on R&D. In the context of ‘sustainable growth’, Europe 2020 makes an explicit link between sustainable growth and key environmental themes, as it argues that attaining such growth would help the EU ‘to prosper in a low-carbon, resource constrained world while preventing environmental degradation, biodiversity loss and unsustainable use of resources’. The Strategy also commits the Commission to establish a vision of the ‘changes required to move to a low carbon, resource efficient and climate resilient economy by 2050’. All EU policies, instruments, legal acts, and financial instruments are intended to be mobilised in pursuit of the Strategy’s objectives.

¹⁶² In July 2009, the leaders of the European Union and the G8 announced an objective to reduce greenhouse gas emissions by at least 80% below 1990 levels by 2050. In October 2009 the European Council set the appropriate abatement objective for Europe and other developed economies at 80-95% below 1990 levels by 2050

¹⁶³ European Commission 2010. Communication from the Commission - Europe 2020: A strategy for smart, sustainable and inclusive growth, (COM(2010)2020), 3/3/2010, <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>

Seven ‘flagship initiatives’ to stimulate action in each area are proposed in the Strategy and include:

- **Resource efficient Europe:** The aim under this initiative is to support the shift towards a resource efficient and low-carbon economy (COM(2011)21)¹⁶⁴. In relation to Cohesion Policy and in the context of the next EU budget, it calls for the alignment of the post-2013 EU funds with the requirements of a resource-efficient, low-carbon economy;
- **Innovation Union:** Proposals include developing a strategic approach to the EU’s research agenda focused on *inter alia* energy security, transport, climate change, resource efficiency, environmentally-friendly production methods and land management; and developing the role of EU funding instruments (including Structural Funds and Rural Development Funds) to support innovation (COM(2010) 546¹⁶⁵); and
- **Industrial policy for the globalisation era:** At the EU level, this includes the development of a framework for an industrial policy *inter alia* to support the transition to greater energy and resource efficiency and promote technology and production methods that reduce natural resource use and increase investment in existing natural assets (COM(2010) 614¹⁶⁶).

While these initiatives are emerging, their details will take a while to develop. To date, the Flagship Initiative ‘Innovation Union’ contains only a few references to environmental technologies and services as sources of innovation, which sends a relatively vague signal to the different stakeholders. In support of the ‘Resource-Efficient Europe’ Flagship Initiative EU modelling assumptions have been developed for each scenario, which have a range of assumptions, e.g. from weak to strong protection of biodiversity in the EU. In spite of the current lack of detail, some elements have emerged that potentially provide a framework for future Cohesion Policy. For example, the ‘Resource-Efficient Europe’ Flagship Initiative underlines the importance of developing different components of policy, including the policy agendas for climate change, energy, transport, biodiversity and regional development, in a coordinated manner. It also notes the need to cut greenhouse gas emissions by 80 per cent to 95 per cent by 2050, the need for low carbon energy and transport systems, the need to take early action to adapt to climate change and a new biodiversity strategy ‘to halt further loss to and restore biodiversity and ecosystem services’.

The EU Budget Review

A parallel strategic process in which future Cohesion Policy and the shift towards a low carbon economy are being debated is the EU Budget Review. In October 2010, the European Commission adopted a Communication (COM(2010)700)¹⁶⁷ setting out key principles and

¹⁶⁴ European Commission 2011. Resource Efficiency Flagship Initiative. COM(2011)17, Brussels, http://ec.europa.eu/resource-efficient-europe/pdf/resource_efficient_europe_en.pdf

¹⁶⁵ European Commission 2010. Communication – Europe 2020 Flagship Initiative: Innovation Union (COM(2010) 546), 6.10.2010

¹⁶⁶ European Commission 2010. Communication – An Integrated Industrial Policy for the Globalisation Era Putting Competitiveness and Sustainability at Centre Stage (COM(2010) 546)

¹⁶⁷ EC (2010) *The EU Budget Review*. Communication from the Commission. (COM(2010)700, Brussels, 19/10/2010, http://ec.europa.eu/budget/reform/library/communication/com_2010_700_en.pdf

options of the future EU budget which include delivering key policy priorities, EU value added, a result-driven budget and mutual benefits through solidarity. The paper establishes that the ‘budget for the future’ is to be closely aligned to the Europe 2020 Strategy and it ‘must play a key role in delivering this Strategy’. Therefore, the future priorities for the EU budget, as they are presented in the published Communication, follow strictly the three-pillar goals for smart, sustainable and inclusive growth. The Communication proposes the creation of a ‘common strategic framework, outlining a comprehensive investment strategy translating the targets and objectives of Europe 2020 into investment priorities’. This proposal is being considered in close relationship to the investment needs arising from the Europe 2020 Flagship Initiatives. It is meant to replace the current set of strategic guidelines developed for the separate policies. There are two key proposals which concern the future Cohesion Policy.

First, the mainstreaming energy and climate policies in a resource efficient economy to address climate change, resource efficiency and energy security is highlighted in the Communication and the case for ensuring the necessary investments in green technologies, services and jobs is clearly made.² Two options are presented in this regard: 1) creating large-scale dedicated funds to support climate change and energy investments, building upon the experiences made with the European Economic Recovery Plan and 2) mainstreaming these priorities into different programmes and existing funding instruments. The latter is considered to be a potentially more effective approach, where the primacy of goals like climate and energy would indicate a need for re-prioritisation inside policies like research, cohesion, agriculture and rural development; they should be underpinned by clear political ‘earmarking’ (allocating a fixed amount of financing for these objectives) and could be linked to a cross-cutting requirement for reporting of the types and amounts of expenditure made.

Cohesion Policy is further discussed in relation to the objective for ‘Inclusive growth’ where potential future priorities should include *inter alia* reducing emissions, improving the quality of the environment and energy savings. The Communication argues that Cohesion Policy should continue to support less advanced regions, but also the rest of the European Union particularly with the aim to tackle social exclusion and improving the quality of the environment in urban areas. It also recommends that the Policy should ensure greater concentration of resources on a limited number of ‘thematic’ priorities in concurrence with the Integrated Guidelines and the Flagship Initiatives, endorsed under the Europe 2020 Strategy. The paper also notes the importance of increasing the quality of spending. This is again closely linked to the issue of the existing gap between spending and actual results, but also in terms of the low absorption rates of Structural Funds and the Cohesion Fund in the current programming period. Some ideas put forward in the paper in this respect are the possibility of introducing a qualitative competition among programmes for Cohesion funding; setting up a performance reserve to reward good performers; and modulating co-financing rates according to performance.

Territorial Cohesion and Sustainable Development

The Lisbon Treaty stipulates that the EU shall promote economic, social and territorial cohesion, thereby introducing a new objective to Cohesion Policy. A Green Paper on Territorial Cohesion¹⁶⁸, has produced a new wealth of ideas and input from stakeholders, but has not yet been followed up with a policy document (e.g. a white paper) that elaborates the aims and scope, or even an unequivocal definition, of territorial cohesion. Given the

¹⁶⁸ CEC, 2008. Green Paper on Territorial Cohesion: Turning Territorial Diversity into Strength, Brussels.

contested nature of territorial cohesion, it is highly unlikely that this concept can be used in a regulatory sense in the short or medium term. On the other hand, it serves as a leitmotif for European investments such as the Structural Funds, thanks to its official status in European law and its positive connotations in European political discourse.

The EEA has argued, in the discussions on territorial cohesion, such as the Territorial Agenda process and within the European Spatial Planning Observation Network (ESPON) programme, that the social and economic dimensions have been overemphasized at the expense of environmental or ecological considerations¹⁶⁹. The more holistic definition of territorial cohesion as an integration of the economic, environmental and social pillars suggested above (and hence recognition of interconnections and interactions between economic, social and ecological assets, infrastructures and systems) continues in the tradition of promoting spatial cohesion and balanced development in Europe¹⁷⁰, and can be used to prioritize projects which can demonstrate an integration of all three dimensions, such as the creation of green jobs in disadvantaged regions or harnessing a region's territorial capital for sustainable economic development, or the promotion of spatial planning practices such as transit-oriented development, brownfield redevelopment or smart growth where win/wins are achieved on a daily basis through good urban design.¹⁷¹

Spatial planning can be an important policy instrument for territorial development as it seeks to reconcile different sectoral objectives in a single geographical area. The EU does not have a formal (de jure) competence for spatial planning; this remains largely in the hands of Member States. At the same time, various EU policies, including Cohesion Policy have a clear spatial dimension and have clear spatial impacts (e.g. TENs, CAP) and impacts on land-use planning systems (e.g. Water Framework Directive, Natura 2000). Marine Spatial Planning is also being promoted within the EU Integrated Maritime Policy. So one could speak of informal (de facto) spatial planning at the European level. Moreover, the inclusion of territorial cohesion in the Lisbon Treaty as a formal Community objective presents the opportunity to use this concept to facilitate a spatial planning approach that is sensitive to environmental issues, as territorial cohesion has not yet been formally defined and elaborated. The description of territorial cohesion in the *Fifth Report on Social, Economic and Territorial Cohesion* (2010) is very encouraging in this respect: one of the four dimensions of territorial cohesion is the 'environmental dimension to sustainable development', while the other three are quite amenable to spatial planning ('access to services of general economic interest', 'functional geographies' and 'territorial analysis'). This interpretation of the term can therefore be used as a vehicle to make the Cohesion Policy funds more sustainable at the EU level (e.g. through an ex-ante territorial impact assessment) and promote activities such as long-term strategic spatial planning at the regional level.

For example, one of the four dimensions of territorial cohesion identified in the Cohesion Report are novel approaches to planning which stretch beyond the boundaries of administrative regions and address functional geographies such as river basins and seas. Such

¹⁶⁹ EEA (2009) *Territorial cohesion – analysis of environmental measures under EU regional policy*. Task 1: final report. European Environmental Agency: Copenhagen.

¹⁷⁰ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions - Mainstreaming sustainable development into EU policies: 2009 Review of the European Union Strategy for Sustainable Development (COM/2009/0400)

¹⁷¹ Wheeler, S. and T. Beatley (2004) *The Sustainable Urban Development Reader*, Routledge: London.

approaches should be promoted even more in future Cohesion Policy, especially when the objectives enhance environmental quality and sustainability. This has already proven to be the case in the Baltic Sea. In addition to transnational activities, the EU may wish to actively promote good practices in spatial planning where this has proven to contribute to responsible and sustainable spatial development by means of information exchange and provision of spatial data. The work of EEA and ESPON in this regard constitutes an important first step.

Future Framework for Cohesion Policy

DG Regional Policy has published a Communication providing specific and practical guidelines on how Member States and regions could, during the current programming period, re-allocate EU funds so that they are better aligned to Cohesion Policy via the sustainable growth objective of the Europe 2020 Strategy. It is argued that this could be achieved through scaling up of financial resources targeting natural capital and green investments, integrating environmental concerns throughout the entire programme/project cycle and strengthening governance through more participatory approaches, networks and exchange of good practice (COM(2011)17).¹⁷²

This Communication proposes a two-pillar approach to increase the contribution of Regional Policy to sustainable growth during the current programming period: to invest more in sustainable growth; and to invest better in sustainable growth.

In order to invest more into sustainable growth the Communication suggests the following main areas where action is required:

- Transition to a low-carbon economy: focus on investments in energy efficiency, buildings, renewables and clean transport.
- Ecosystem services: focus on preserving and maximising the potential of the natural environment.
- Eco-innovation: focus on mobilising innovation partnerships and information technology.

In order to invest better into sustainable growth the Communication suggests the following main areas of action:

- Integrating sustainability throughout the project life-cycle, including more use of Green Public Procurement.
- Checking investments against climate resilience and resource efficiency.
- Better governance.

Linked to the discussion on the future Cohesion Policy, a report by Dr. Fabrizio Barca reviewed Cohesion Policy to date and put forward a series of proposals for a reform agenda post-2013. Key recommendations included: the concentration of resources on core priorities, with a large proportion of funds (up to 65 per cent) to address fewer (3-4) key priorities; and a menu of six priority policy areas: innovation and climate change (within an 'efficiency' group); migration and children ('social inclusion' group), and skills and ageing (cutting

¹⁷² EC. 2011. Regional policy contributing to sustainable growth in Europe 2020. (COM(2011)17)

across both 'efficiency' and 'social inclusion' groups). The review highlighted the importance of effective quality and performance monitoring to ensure interventions address policy priorities and focus on results; the use of the 'functional region' as the unit for intervention; and the role of the Commission in playing a greater role in the development of place-based policy.

The review also emphasised the need to more formally justify policy intervention on the basis of clear market or government failure and the delivery of public goods and/or to meet the needs of social justice (efficiency/equity considerations). In the report efficiency is concerned with utilising current productive capacity in the region and the expansion of capacity. Interventions to this end would need to be justified by the related costs and benefits of the intervention – if capacity expansion increased external costs by more than the gains in private income the intervention would be ruled out. More generally, declining total capital stocks over time would not be consistent with the efficiency objective.

The focus on efficiency and the provision of public goods; and equity considerations would allow a more effective allocation of resources to environmental objectives and the maintenance and enhancement of natural capital.

In November 2010, the 5th Cohesion Report¹⁷³ was published, which provided a more strategic outlook for future Cohesion Policy. The environmental perspective is to be significantly strengthened, both in relation to the sustainable growth objective and the '20-20-20' target, but also as an intrinsic element of defining and achieving territorial cohesion. The social and economic costs of environmental degradation, as well as the opportunities for environmental investments to create new green sources of growth and employment, are clearly indicated. Furthermore, the vision for 'harmonious development' underpinning Cohesion Policy aims to include not only economic development and support to social groups but also 'environmental sustainability and respect for the territorial and cultural features of different parts of the EU'.

The 5th Cohesion Report indicates a clear shift to improve the actual performance of Cohesion Policy and that this will require a clear strategic vision, concentration of policy priorities and improving monitoring and evaluation systems. The report notes a number of positive impacts in terms of the provision of environmental infrastructure, however, it also suggests that these investments should be more carefully considered and made an integral part of clear plans for long-term financing, if their environmental sustainability is to be ensured. The report also proposes that certain priorities would be obligatory and mechanisms such as ring-fencing expenditure for specific targets groups or experimental approaches could be applied. The report also paves the way for a new system of binding conditionality, which would require Member States to make funding conditional to achievements in areas directly linked to Cohesion Policy, such as environmental protection.

¹⁷³ European Commission 2010. Conclusions of the fifth report on economic, social and territorial cohesion: the future of cohesion policy. COM(2010)642, Brussels

A1.2 Cohesion Policy and Environmental Integration: Policy background and experience

The previous section outlined the evolving policy framework in which Cohesion Policy will be operating in the 2013-20 programming period, as well as the ongoing environmental challenges that it will need to play a role in addressing. However, it is important to note that in the 2007-13 programming period, as well as in earlier programming periods, attempts have been made to integrate environmental considerations into Cohesion Policy. This section begins by setting out the policy background for such attempts, followed by a discussion of the environmental challenges that Cohesion Policy will have to contribute to addressing in the post-2013 programming period. It then reviews the environmental performance of the previous programming periods in terms of expenditure on the environment and environmental improvements and then underlines the need for multi-level governance and shared management in order to deliver the necessary environmental integration. It concludes by providing an overview of the barriers that have prevented environmental considerations being sufficiently integrated into Cohesion Policy.

Policy framework for the integration of environmental considerations into Cohesion Policy

The principle of sustainable development and environmental protection is not new to Cohesion Policy. Article 3 of the Treaty of the European Union states the objectives of the European Union and defines the principle of sustainable development while Article 11 of the TFEU (Treaty on the Functioning of the European Union) requires that ‘*environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities*’ which applies *inter alia* to Cohesion Policy. Article 191 (2) further stipulates the key principles such as the precautionary principle, prevention at the source of the environmental problem and the polluter pays principle which need to be taken on board as well when Cohesion Policy programmes are designed and implemented.

A series of reforms in EU Cohesion Policy have been undertaken to accommodate the integration of environmental objectives into programmes and projects over the years, as noted in the previous section. Initially, a number of ‘integration tools’ were introduced within cohesion policy interventions *inter alia* environmental profiles, indicators and a handbook on environmental impact assessment. However, more targeted efforts to integrate the environment ‘horizontally’ emerged after 2000. The result has been a greater emphasis in programmes on projects directly related to environmental sustainability that promote eco-industries and clean technologies, sustainable tourism activities, cleaner public transport, as well as the construction of large environmental infrastructure.

The concept of integration can be traced back to the 1970s, but it gained significant prominence after it featured in the Brundtland report¹⁷⁴ in 1987 and Agenda 21¹⁷⁵ particularly in relation to sustainable development and ecological modernisation¹⁷⁶. The idea of taking into account environmental concerns in sectoral policy-making came about when it was acknowledged that key pressures on the environment and ecosystems are deeply entrenched in sectoral activity. It was also recognised that a more fundamental shift in traditional policy-

¹⁷⁴ World Commission of Environment and Development (1987) *Our Common Future*, report by the WCED, Oxford University Press.

¹⁷⁵ UNCED (1992) *Agenda 21*, United Nations, New York.

¹⁷⁶ Nilsson, M and Eckerberg, K (2007) *Environmental Policy Integration in Practice: Shaping Institutions for Learning*. Earthscan.

making was necessary where an emphasis is given to anticipating/preventing environmental impacts instead of ‘cleaning up’ or deploying ‘end-of-the-pipe’ technologies.

Research shows¹⁷⁷ that there is much potential for Cohesion Policy to facilitate integrated development approaches through environmental policy integration. It has been argued that strategic processes such as the multi-annual financial programming to the EU budget, and particularly the EU budget review, offer an exceptional opportunity for environmental policy integration^{178,179}.

Environmental policy integration (EPI), to use a formulation developed by the EEA, involves¹⁸⁰:

‘...a continual process to ensure environmental issues are taken into account in all policy-making, generally demanding changes in the political, organisational and procedural activities, so that environmental issues are taken on board as early as possible and continuing during implementation. The product of EPI should be an overall improvement in policy and its implementation.’

It also refers to the reforms needed in political, organisational and procedural domains as well as the ‘preventive’ nature of the concept, but also implies that ultimately, integration is about the overall improvement of sectoral policies in relation to the state of the environment.

The need for Cohesion Policy to address increasing Environmental Challenges

As noted in the previous section, the emerging EU strategic policy framework is calling for a more integrated approach to the environment with the aim of delivering a low carbon, resource efficient and climate resilient economy. Additionally, Cohesion Policy is explicitly mentioned as one of the policy areas that need to contribute to the attainment of such an economy. However, in contributing to the move to the ‘green economy’, Cohesion Policy has to recognise that there continue to be major environmental challenges, which can be addressed at the regional level. Additionally, the appreciation of the nature and scale of these environmental challenges is evolving and has changed since the start of the 2007-2013 programming period. This reflects:

- progress in taking forward action on the environment (e.g. the development of environmental infrastructure has led to improvements in the state of the environment);
- the emergence of new evidence (e.g. improved knowledge of the dangers of climate change and the recognition of the need for mitigation and adaptation¹⁸¹); and
- as values of natural capital, that were often overlooked in the past, are being recognised (e.g. in relation to ecosystem services¹⁸²).

¹⁷⁷ See analysis provided in Supporting Paper 2.

¹⁷⁸ EEA (2005) Environmental policy integration in Europe. State of play and an evaluation framework. EEA Technical report 2/2005.

¹⁷⁹ Wilkinson, D (2007) Environmental Policy Integration at EU Level – State-of-the-Art Report. EPIGOV Papers 4. IEEP, London.

¹⁸⁰ EEA (2005) Environmental policy integration in Europe. State of play and an evaluation framework. EEA Technical report 2/2005.

¹⁸¹ As noted in Intergovernmental Panel on Climate Change reports and EEA State of the Environment Reports.

As noted in Section 1.1, this study has focused on the environmental themes that were set out in the EU SDS. These themes were highlighted as they were perceived to be key environmental challenges at the time, and these remain the most relevant environmental challenges in the context of Europe 2020, and therefore for the 2014-2020 programming period. These challenges are briefly summarised below.

Climate Change and Clean Energy

Addressing climate change and delivering clean energy is clearly linked to the need to deliver a low carbon economy under Europe 2020 (and beyond). Even though greenhouse gas (GHG) emissions in the EU-27 have decreased by 7.7 per cent since 1990, partly due to a significant decrease in the new Member States (EU-12) between 1990 and 2000, they have risen steadily in two major sectors: transport and the energy industries¹⁸³ (also see below). The EEA's 2010 State of the Environment report notes that while the EU-27 Member States are on track to meet their target commitments under the Kyoto Protocol, the emissions reductions that have been achieved are, however, insufficient if the targets needed internationally to keep the average global temperature increase to below two degrees¹⁸⁴.

At the same time, the low carbon and renewable energy sector is gaining significant prominence fuelled by EU targets for 20 per cent renewable energy within the supply mix by 2020. In 2009, renewable power accounted for almost 20 per cent of total EU net electricity generation. Within this, hydro-electric power was still the largest renewable source (11.6 per cent), followed by wind (4.2 per cent), biomass (3.5 per cent) and solar (0.4 per cent). In 2009, the EU-27 again increased its cumulative installed capacity to reach 16 GW.¹⁸⁵ Still, energy conservation remains a challenge especially in the building and transport sectors, while investments in renewable energy infrastructure are still lagging behind.

However, without adequate environmental safeguards support to clean energy and renewable energy production can also have negative consequences. Biofuel plantations have a low biodiversity value and may replace areas with higher biodiversity value (e.g. natural or semi-natural grasslands)¹⁸⁶. Furthermore, an uncontrolled extension of biofuel crops may lead to deforestation causing more emissions than are prevented. Also, the production of biofuels can result in an increased risk for the spread of invasive alien species (IAS)¹⁸⁷. However, if sustainably planned and managed, biofuel production could bring some benefits to

¹⁸² As noted in The Economics of Ecosystems and Biodiversity (TEEB) books - see TEEB (2011) The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London. – and reports – see www.teebweb.org

¹⁸³ EEA. 2009. Core Set of Indicators (CSI) 010 – Greenhouse gas emission trends.

¹⁸⁴ European Environment Agency (2010) [The European Environment - State and Outlook 2010](#).

¹⁸⁵ Joint Research Centre, Institute for Energy 2010. Renewable Energy Snapshots 2010. H. Bloem, M. Szabo, F. Monforti-Ferrario and A. Jäger-Waldau.

¹⁸⁶ MACIS. 2008. MACIS Deliverables 2.2 and 2.3: Meta-analysis of adaptation and mitigation measures across the EU25 and their impacts and recommendations how negative impacts can be avoided (<http://www.macis-project.net/MACIS-Deliverable-2.2-2.3-Oct.2008.pdf>) and EU AHWEG. 2009. Towards a Strategy on Climate Change, Ecosystem Services and Biodiversity - A Discussion Paper prepared by the EU Ad Hoc Expert Working Group on Biodiversity and Climate Change (http://ec.europa.eu/environment/nature/pdf/discussion_paper_climate_change.pdf)

¹⁸⁷ Genovesi. P. 2010. European biofuel policies may increase biological invasions: the risk of inertia. Environmental Sustainability 3:1–5.

biodiversity, ecosystems and their services compared to previous intensive land use practises¹⁸⁸.

Sustainable Transport

The transport sector is one of the major contributors to GHG emissions in the EU and is one of the two sectors from which GHG emissions are still increasing, as noted above. Between 2000 and 2007, these grew by 7 per cent per cent and are projected to continue to do so due to high transport demand and heavy dependence on oil as a transport fuel¹⁸⁹. Hence, making transport more sustainable, particularly reducing its GHG emissions, is clearly important to delivering a low carbon economy, as required by Europe 2020. There is a strong emerging agenda to decarbonise transport. The Resource Efficiency Flagship Initiative suggests that transport could reduce its GHG emissions 60 per cent by 2050, whereas a study for DG Climate Action concluded that a reduction of 89 per cent was possible from transport if a mixture of measures is adopted including technical, structural and behavioural options¹⁹⁰.

In addition, transport is not always socially and economically benign; accidents and the health impacts of air pollution and noise are significant social costs, while congestion and environmental damage have adverse economic impacts. No significant improvement in the concentration of particulate matter has been achieved in urban areas with high traffic levels¹⁹¹. Transport also has a significant negative impact on landscapes within the EU. It is commonly acknowledged that the development of transport networks has been among the main reasons for fragmentation of ecosystems within the EU, leading to negative impacts on habitats and biodiversity¹⁹², which could have been avoided or mitigated by environmentally sensitive planning, at national, regional and local scales.

The EU SDS goal of a shift towards a more environmentally friendly transport mode has not been achieved. Especially, in Central and Eastern European (CEE) countries, there has been a massive exodus of freight and passengers from rail and public transport to road over the last 15 years. However, the share of passengers transported by public transport in the CEE countries is still considerably higher than in the EU-15.

Conservation and Management of Natural Resources

The conservation and protection of biodiversity and water resources clearly have the potential to contribute to the attainment of the Europe 2020's aim of a resource efficient and climate resilient economy by 2050. However, to date progress has not been as good as had been hoped for.

¹⁸⁸ MACIS, 2008 (see above) and Eggers J. et al. (2009) Is biofuel policy harming biodiversity in Europe? GCB Bioenergy, 1: 18-34.

¹⁸⁹ Eurostat. 2009. Sustainable development in the European Union - 2009 monitoring report of the EU sustainable development strategy. Brussels: European Communities.

¹⁹⁰ See the EU Transport GHG 2050 project website, <http://www.eutransportghg2050.eu/>

¹⁹¹ Eurostat. 2009. Sustainable development in the European Union - 2009 monitoring report of the EU sustainable development strategy. Brussels: European Communities

¹⁹² Kettunen, M.; Terry, A.; Tucker, G. and Jones, A. (2007) Guidance on the maintenance of landscape connectivity features of major importance for wild flora and fauna - Guidance on the implementation of Article 3 of the Birds Directive and Article 10 of the Habitats Directive. (http://ec.europa.eu/environment/nature/ecosystems/index_en.htm#art10)

The target for a ‘significant reduction of the current rate of biodiversity loss’ by 2010 has not been met¹⁹³, largely because the pressures on biodiversity have been increasing. These pressures include: habitat loss and degradation (e.g. fragmentation of a landscape); excessive nutrient loads and other sources of pollution; over-exploitation and unsustainable use; invasive alien species; and climate change. Furthermore, there is a gap in resources needed to effectively address these pressures, further contributing to the failure of meeting biodiversity targets¹⁹⁴. In addition, climate change is now expected to have greater than initially forecast impacts on biodiversity and ecosystems, altering species’ distributions and ranges and also putting further pressure on ecosystems’ ability to continue functioning normally and maintaining the supply of ecosystem services. These pressures, combined with increased global trade and tourism, have also increased the vulnerability of Europe’s ecosystems to invasive alien species, particularly in marine and freshwater ecosystems.

According to the 2010 State of the Environment report, the implementation of the urban wastewater treatment Directive (UWWTD) brought a series of improvements in the collection and treatment of wastewater in some European regions which have led to a reduction in the discharge of some pollutants to fresh and coastal waters. Still, many outstanding problems remain because the implementation of the Directive is incomplete. Also, despite declining nitrate and phosphate pollution of freshwater systems, atmospheric nitrogen deposition remains a significant issue across the EU in terrestrial ecosystems¹⁹⁵.

Although the EU has made some progress in combating pollution, society has experienced an increasing demand for water resulting in water scarcities in some regions of Europe¹⁹⁶. This has been further exacerbated by climate change in some regions. At least 11 per cent of the European population and 17 per cent of the EU territory have been affected by water scarcity to date. The number of areas and people affected by droughts has increased by almost 20 per cent between 1976 and 2006. One of the most widespread droughts occurred in 2003 when over 100 million people and a third of the EU territory was affected. The cost of the damage to the European economy was at least € 8.7 billion. The total cost of droughts over the past thirty years amounts to € 100 billion¹⁹⁷.

Sustainable Consumption and Production

Essentially, climate change, loss of natural resources, loss of biodiversity and environmental damage caused by emissions and waste are results of unsustainable patterns of consumption and production. Moving towards more sustainable patterns of consumption and production is therefore an important element in delivering a resource efficient economy, as foreseen by the Europe 2020 Strategy.

¹⁹³ Secretariat of the Convention on Biological Diversity (2010) Global Biodiversity Outlook 3. Available at: <http://69.90.183.227/gbo/gbo3/doc/GBO3-final-en.pdf>

¹⁹⁴ Kettunen, M., Carter, O., Gantioler, S., Baldock, D., Torkler, P., Arroyo Schnell, A., Baumüller, A., Gerritsen, E., Rayment, M., Daly, E. & Pieterse, M. 2011. Assessment of the Natura 2000 co-financing arrangements of the EU financing instrument. A project for the European Commission. Institute for European Environmental Policy (IEEP), Brussels. (to be published)

¹⁹⁵ EEA. 2010. Freshwater quality – SOER 2010 thematic assessment. <http://www.eea.europa.eu/soer/europe/freshwater-quality>

¹⁹⁶ EEA (2009) Report No 2: Water resources across Europe — confronting water scarcity and drought, Copenhagen: EEA

¹⁹⁷ Communication from the Commission to the Council and the European Parliament, *Addressing the challenge of water scarcity and droughts in the European Union*, 18 July 2007, Brussels http://ec.europa.eu/environment/water/quantity/scarcity_en.htm

In general, the main focus of current sustainable consumption and production (SCP) approaches is on the supply side while policies to promote more sustainable consumption patterns are relatively under-developed. Yet, the number of EMAS-registered organisations and the registration of Eco-labels have not increased as much in the new Member States as in the EU-15¹⁹⁸. The Commission, in 2009, concluded in its review of the EU SDS that consumption patterns (mainly regarding energy consumption and car ownership) show clear unfavourable developments.

¹⁹⁸ Eurostat. 2009. Sustainable development in the European Union - 2009 monitoring report of the EU sustainable development strategy. Brussels: European Communities.

ANNEX 2 – Cohesion Policy and Opportunities for Sustainable Growth

A2.1 Cohesion Policy is Missing Opportunities to Secure Sustainable, as well as Smart and Inclusive, Growth

As noted in Section 2.2.1 and Annex 1, while there has been progress in relation to integrating environmental considerations into Cohesion Policy investments, investment can also undermine the attainment of wider environmental objectives. This section develops this argument, as it argues that Cohesion Policy is currently missing important opportunities to develop the smart, sustainable and inclusive growth envisioned by Europe 2020. It begins by providing an overview of the rationale for greener Cohesion Policy intervention.

Rationale for Greener Cohesion Policy Intervention

The EU has committed to an ambitious long-term agenda with 2020 as a key milestone for placing the development pathway of the EU on a sustainable trajectory. The necessary transformation to a greener development pathway will require very large scale investments. The public sector, including the EU budget and Cohesion Policy in particular, have a critical role to coordinate actions, set examples of excellence, spur innovation and leverage additional financial resources. Against this background, Cohesion Policy is well placed to deliver substantive EU value added if it contributes to the necessary transition towards a greener economy, while also tailoring it to specific regional needs and local potentials. This section will look into some of the evidence for such an argument.

While the debate on policy instruments can be quite abstract and theoretical, it is useful so as to underpin a separate discussion on the rationale for instrument choice. For instance, the EU has at its disposal a diverse repertoire of instruments for policy intervention and EU Cohesion Policy is one of these. The question which is evoked here is what the justification is for Cohesion Policy to be an appropriate instrument to tackle environmental and sustainability issues. Perspectives from economic theory seek to establish that governmental interventions are justified in relation to tackling market failures by controlling pollution, regulating resource use and protecting and managing the natural environment¹⁹⁹.

The first step is to be clear about the basis for intervention. This can be found both in the Treaty, in the goals of cohesion, but also in the broader concept of market failure. Market failure occurs when the market does not produce optimal welfare²⁰⁰. Important manifestations of market failures, studied in-depth and well documented in environmental economics include:

- A shortfall in the supply of **public goods**, such as common natural resources and ecosystem services beneficial to the wider society (e.g. natural functions maintaining a stable climate and clean atmosphere or natural ecosystem functions leading to the provision of clean water to cities);
- A failure to take account of **externalities**, i.e. unintended negative side effects of economic activities, such as pollution or waste generation;

¹⁹⁹ IVM, GHK, and SERI (2009) The economic benefits of environmental policy, 15 December 2009.

²⁰⁰ Sterner, T. (2003) Policy Instruments for Environmental and Natural Resource Management. RFF: Washington D.C.

- **Asymmetric information** where limited access to information for businesses and households can lead to sub-optimal outcomes, for example when the benefits from environmental interventions may deter the realisation of win-wins; and
- The presence of (oligopoly or) **monopoly power**, where buyers and sellers of certain goods or services are in place, as this can lead to a reduction in the opportunities to realise both economic and environmental benefits.

All of these arguments can be used to support government, and therefore Cohesion Policy, intervention in defence of the environment in order to address a market failure. In addition to market failure, equity considerations can also provide a justification for public intervention.

The next important step is to establish why and when action at EU level is most appropriate. Typical arguments in support of this are traditionally related to economies of scale where action at EU level would amplify the effect of the intervention by increased cost-efficiency. Furthermore, in the environmental sphere global issues, such as climate change, biodiversity loss and the degradation of ecosystems and their services, spill across political borders and are usually better addressed through coordinated action at higher tiers of governance.²⁰¹ EU action is additionally justified in terms of enhancing the single market through infrastructural developments that tackle bottlenecks and cross-border links. It is important to note that while this proposition has long been prominent in man-made capital developments, similar logic could be applied to natural capital in order to ensure, for example, that well-functioning ecosystems that provide a range of resources and maintain important ecosystem services are maintained at an EU scale. This requires securing effective conservation of biodiversity and ecosystems at the transnational level. For example, several current and future threats to biodiversity, ecosystems and related services, such as the contamination of transnational water bodies, are of a transboundary nature, therefore requiring measures to be taken at the EU level. Similarly, a number of issues including the prevention of further fragmentation of ecosystems and ensuring ecosystems' functioning across landscapes (i.e. ecological connectivity and the maintenance of green infrastructure) can be effectively and fully addressed only when tackled at a wider Community level to complement local and national level. This discussion is closely related to the debates on EU value added.

The failure to fully integrate environmental objectives also means that low income and economically disadvantaged regions continue to have poor local physical environments for residents and employers, thus exacerbating the problems of attracting new investment, perpetuating social disadvantage and undermining social cohesion. These equity and solidarity considerations, which underpin EU Cohesion Policy, are critical because environmental impacts and the move to a green economy affect regions (and parts of these regions) differently depending on their economic, social and environmental characteristics; with some regions needing more assistance, including financial, than others. This reflects both the vulnerability of certain regional economies to the transition, as well as the concentrated exposure of certain communities to environmental pollution and the degradation of environmental quality. This rationale is recognised in the requirement of Cohesion Policy to assist in meeting the costs of regions' compliance with the EU *acquis*, where the implementation of EU environmental, climate and energy legislation is associated with a disproportionate cost to the national or regional level.

²⁰¹ Adelle et al 2008, Kettunen, M., Baldock, D., Adelle, C., Cooper, T., Farmer, M., Hart, K., Torkler, P. 2009a. Biodiversity and the EU Budget – an IEEP briefing paper. Institute for European Environmental Policy, London / Brussels. 29 pp.

There are additional considerations that need to be taken into account if the same question is posed with regard to Cohesion Policy and its appropriateness to deliver public intervention compared to other instruments (e.g. regulation) or other forms of financial support (e.g. private financing, loans and national public budgets). These are linked to the very purpose of Cohesion Policy which is to navigate and deliver structural development in European regional economies. Escalating environmental and climate change problems are predicted to pose significant impacts on a number of key sectors in different European regions and thereby impose threats to their potential for economic development and to make progress in social cohesion²⁰². At a global level it has been demonstrated that the cost of early action is going to outweigh the long-term benefits it can generate²⁰³.

Issues of path dependency and technological lock-in effects also need to be taken into account. For example, the dependency on road transport for mobility or on fossil fuels for energy makes alternative mobility (e.g. water freight, public transport) or alternative means of meeting energy demand (e.g. via demand side management, energy efficiency and renewables) less easy to adopt. Public intervention may therefore be necessary to escape technological lock-in. Political choices about infrastructural developments made at present will have an impact on regions' prospects for development in the medium- and long-term. Deferring decisions about improving the environmental sustainability, resource efficiency and climate resilience of investments will only increase their cost in the long run.

Furthermore, in line with the objective of sustainable growth enshrined in the Europe 2020 Strategy and the principal call for a transition to a green economy, it could be argued that there is a strong case for EU Cohesion Policy to act as a driver for sustainable change by directing investments to win-win opportunities. For example, previous evaluation studies²⁰⁴ show that environmental investments under the Cohesion Policy are able to have a significant impact on regional economic development, contributing to an increase in GDP by 1 per cent to 2 per cent in most Member States concerned. Apart from this economic benefit, environmental investments are increasingly seen as delivering numerous ancillary benefits amongst which are increased productivity; new business opportunities based on environmental goods and services; energy security and diversification; promoting the identity of an area based on its environmental quality as a part of inward investment strategy; creating jobs and developing new skills; and reducing health costs and tackling energy poverty.

Public policy is usually delivered through a set of different policy instruments or mixes of instruments²⁰⁵. These include: command-and-control, market-based instruments and voluntary agreements, including information and awareness raising instruments. In the field of environmental policy, there is growing evidence that while 'new' environmental policy instruments coupled with new modes of governance are emerging, regulation remains one of the most effective policy instruments for delivering wider behaviour changes²⁰⁶. Despite this,

²⁰² EC (2008) Regions 2020. The Climate Change Challenge for European Regions.

²⁰³ Stern (2006) Stern Review on the Economics of Climate Change.

²⁰⁴ GHK, IEEP, Arcadis (2006): Strategic Evaluation on Environment and Risk Prevention Under Structural and Cohesion Funds (2007-2013), No. 2005.CE.16.0.At.016, for DG Regio.

²⁰⁵ Howlett, M and Ramesh, M (1995) Studying public policy: policy cycles and policy subsystems. Oxford University Press, Oxford.

²⁰⁶ IEEP. 2011. Manual of European Environmental Policy. Earthscan: London. <http://www.europeanenvironmentalpolicy.eu/>

an argument could be made that effective policy-making should rely on a mix of instruments coupled with the necessary implementation capacities.

Hence, there is a strong rationale for Cohesion Policy to intervene in defence of the environment. Consequently, Cohesion Policy has a potentially important role in delivering the low carbon, resource efficient and climate resilient economy envisioned by the Europe 2020 Strategy. However, as noted in Section 2.2.1, environmental considerations are already taken into account within Cohesion Policy, and some investment is arguably contributing to existing environmental challenges. The following sections look at the missed opportunities to first minimise win-losses and then to the potential to enhance win-wins.

A2.3 Missed Opportunities to Minimise Win-Losses

This section presents a more extensive version of the section on missed opportunities from Section 2.2.2.

Where Cohesion Policy investments deliver win-losses, i.e. an economic (or social) benefit at a clear environmental cost, it could be argued that such investments amount to an environmentally harmful subsidy (EHS), e.g. transport infrastructure is often seen as a potentially harmful subsidy (EEA, 2007²⁰⁷).

‘Subsidies are often inefficient, expensive, socially inequitable and environmentally harmful, imposing a burden on government budgets and taxpayers – all strong arguments for reforming the existing subsidy policies.’

OECD (2005)²⁰⁸

There are different definitions of subsidies that are used in different contexts that cover a range of different measures (see Box 14); different terms are also used when talking of subsidies, such as ‘transfers’, ‘payments’, ‘support measures’, ‘assistance’ and ‘protection’. From the perspective of Cohesion Policy and sustainable development the key issue is whether a measure (e.g. an investment) creates an incentive for a more efficient allocation and use of resources within the economy or a less efficient use of resources (e.g. by creating externalities). In both cases, the damage to the environment needs to be balanced against the economic (and social) benefits, as it might be possible to justify the environmental damage if there are sufficient economic (and social) benefits (see the discussion of the four capitals model, in Section 3.1).

²⁰⁷ EEA (2007) Size, structure and distribution of transport subsidies in Europe. EEA Technical report No 3/2007 http://www.eea.europa.eu/publications/technical_report_2007_3

²⁰⁸ OECD (Organisation for Economic Co-operation and Development) (2005) *Environmentally Harmful Subsidies: Challenges for Reform*, OECD, Paris

Box 14: What are subsidies?

Subsidies come in many shapes and forms. They can consist of direct transfers of funds (e.g. grants) and potential direct transfers to cover possible liabilities (e.g. for accidents), income or price support (e.g. for water), tax credits, exemptions and rebates (e.g. for fuel), low-interest loans and guarantees, preferential treatment and use of regulatory support mechanisms (e.g. demand quotas). They can also involve implicit income transfers in situations where natural resources or services (e.g. water, energy) are not priced at full cost.

Some subsidies are *on-budget* (clearly visible in government budgets or can be estimated from budget accounts) while others are *off-budget* (not accounted for in national budgets).

The OECD has defined a subsidy as a ‘government action that confers an advantage on consumers or producers in order to supplement their income or lower their cost’²⁰⁹. This focuses on government actions. According to the WTO, ‘a subsidy is a financial contribution by a government, or agent of a government, that confers a benefit on its recipients’. This definition, again focuses on action, however, it excludes general infrastructure provided by government.

One issue under debate is whether to expand the formal definition of a subsidy to include the non-internalization of external costs (e.g. where a polluter does not pay for damage resulting from pollution). From an economic efficiency perspective, it is clear that the non-internalisation of externalities – or government inaction more generally – will frequently act like a subsidy (e.g. it lowers costs to polluters in the market and thereby confers an advantage on them) and has an effect on market signals and can potentially effect economic, production and consumptions choices, lead to inefficiencies in resource use and can influence the ability to move to a resource efficient economy.

There is increasing recognition of the need to address EHS and political calls for reform. The 2006 EU SDS²¹⁰ includes a call for the European Commission to draft a roadmap for the reform of EHS. The conclusions adopted by Environment Ministers have invited the Commission to work towards the removal of EHS: in their conclusions ‘*Toward an eco-efficient economy*’ they have called the Commission to ‘*review, as a matter of urgency, sector by sector, of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to gradually eliminating them, in line with the EU SDS and the recent G20 call in that regard*’. At the G20 meeting in September 2009²¹¹, Heads of State committed to phasing out and rationalising inefficient fossil fuel subsidies over the medium-term while providing targeted support for the poorest energy users. Moreover, with the adoption in October 2010, in Nagoya Japan, of the Strategic Plan for Biodiversity for 2011–2020, the Parties to the CBD (including the EU) are now committed to eliminating, phasing out or reforming subsidies that are harmful for biodiversity. The Europe 2020 Strategy also requires that Member States should ‘phase out environmentally harmful subsidies, limiting exceptions to people with social needs’.

These calls reflect a growing recognition that many subsidies are no longer relevant (e.g. their original rationale is no longer relevant or a priority), that they can be ineffective (in that they

²⁰⁹ OECD (2005), *Environmentally Harmful Subsidies: Challenges for Reform*, OECD, Paris.

²¹⁰ Council of the European Union (2006) *Review of the EU Sustainable Development Strategy – Renewed Strategy*, Document 10917/06, <http://register.consilium.europa.eu/pdf/en/06/st10/st10917.en06.pdf>

²¹¹ G20 (2009) ‘Leader’s Statement’, The Pittsburgh Summit, 24 to 25 September 2009, <http://www.pittsburghsummit.gov/mediacenter/129639.htm>. See also the subsequent recitation of ambition at the ‘The G20 Toronto Summit Declaration’, 26 to 27 June 2010, www.mea.gov.in/meaxpsite/declarestatement/2010/06/27js02.pdf, last access 27 October 2010

do not always achieve their purpose), inefficient (as their objectives can sometimes be achieved more cost effectively by other means) and inequitable (as they can have inappropriate distributional effects), as well as having important negative effects, such as being harmful to the environment and stifling innovation by locking-in carbon intensive technologies. In this respect, the view is that monies could often be spent on different priorities and more effectively, or simply saved to address budget consolidation concerns. This applies to subsidies across the spectrum – energy, transport, agriculture, fisheries, water - which together account for over a trillion US\$ per year of subsidies globally and several hundreds of billions of € per year in the EU (see Lehmann et al, 2011 in TEEB 2011²¹²; IEA 2010²¹³; OECD 2009²¹⁴; Valsecchi et al 2009²¹⁵; GSI 2007; EEA 2007²¹⁶; IEEP et al 2007²¹⁷). For transport alone, it has been estimated that European transport subsidies are worth at least €270 to €290 billion annually; road transport receives the most substantial share, €125 billion annually²¹⁸. The role of Cohesion Policy in this respect can be seen from the fact that approximately 12 per cent of the 2007-2013 allocation is to be invested in motorways projects. In this respect, the Barca report stresses that if Cohesion Policy is to promote a policy agenda that seeks to reduce pressure on the environment and climate, it needs to revisit the transport portfolio, consider phasing out such subsidies and shift funding towards measures stimulating mobility services and modal shift.

Hence, there is a clear political consensus behind the need to reform subsidies, and it is clear that Cohesion Policy investments can be included in this respect. At this point, it is important to note that subsidy reform is not simply about getting rid of subsidies, but also about reforming them. Different options in this respect are:

- Reform to *deliver the same objective through different means*, e.g. meeting mobility needs through providing for rail, rather than road, infrastructure or encouraging other mobility services.
- Reform to *reduce the environmental, and particularly carbon, footprint of existing activities*, e.g. enabling transport to be powered by potentially less carbon intensive

²¹² TEEB 2011 The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London.

²¹³ IEA (2010) *Energy Subsidies: Getting the Prices Right*, International Energy Agency, Office of the Chief Economist, Brief issued 7 June 2010

²¹⁴ OECD (Organisation for Economic Co-operation and Development) (2009) *Agricultural Policies in OECD Countries. Monitoring and Evaluation*, OECD, Paris, www.cbd.int/doc/case-studies/inc/cs-inc-oecdagriculturalpolicies2009-en.pdf, accessed 27 July 2010

²¹⁵ Valsecchi, C., ten Brink, P., Bassi, S., Withana, S., Lewis, M., Best A., Oosterhuis F., Dias Soares C., Rogers-Ganter H., and Kaphengst T. (2009) *Environmentally Harmful Subsidies (EHS): Identification and Assessment*, Report to the European Commission's DG Environment by IEEP (Institute for European Environmental Policy), Ecologic and IVM, <http://ec.europa.eu/environment/enveco/taxation/pdf/Harmful%20Subsidies%20Report.pdf>, accessed 22 September 2010

²¹⁶ EEA (2007) Size, structure and distribution of transport subsidies in Europe. EEA Technical report No 3/2007 http://www.eea.europa.eu/publications/technical_report_2007_3

²¹⁷ IEEP (Institute for European Environmental Policy – Valsecchi, C., ten Brink, P., Fergusson, M., Bassi, S., Skinner, I. and Pallemerts, M.), Ecologic (Best, A., Blobel, D., Berglund, M.), FEEM (Markandya, A., Sgobbi, A., Longo, C.) and IVM (Oosterhuis, F.) (2007) *Reforming Environmentally Harmful Subsidies*, Report to the European Commission – DG Environment, available at http://ec.europa.eu/environment/enveco/others/pdf/ehs_sum_report.pdf, accessed 22 September 2010

²¹⁸ EEA (2007) Size, structure and distribution of transport subsidies in Europe. EEA Technical report No 3/2007 http://www.eea.europa.eu/publications/technical_report_2007_3

energy sources through investing in the development of networks of electricity charging points for road infrastructure.

- **Applying ‘conditionalities’** to subsidies that at least mitigate any environmental damage, or reduce the level of investment needed. For example, using whole life costing (WLC) and GPP has the potential to mitigate environmental damage, while applying water pricing and full cost recovery (FCR) can mitigate environmental damage and reduce the levels of investment needed in the first place.
- **Applying ‘cross-compliance’ requirements**, e.g. linking the subsidy to particular environmental practice by requiring compliance with higher legislative standards or the adoption of EMAS or eco-label, which can increase the power of policy filters and reduce impacts.

If applied to Cohesion Policy investments, all of these options have the potential to contribute to the mitigation of win-losses. Addressing EHS within Cohesion Policy will therefore require changes to current investment categories and priorities and the use of policy instruments in parallel to Cohesion Policy in order to mitigate or avoid win-losses. Options for mitigating win-losses are discussed in more detail later in this report, i.e. changing the type of investment to deliver the same or different objectives is discussed in more detail in Section 5.1.7; while the use of conditional instruments (or ‘conditionalities’) and complementary instruments (cross-compliance) is discussed in Section 5.1.10.

Additionally, the potential for an EHS, and therefore the need to mitigate or avoid win-losses, also needs to be considered within the other tools that can be used to integrate better environmental considerations in Cohesion Policy. For example, from the point of view of conserving biodiversity and preventing the degradation of ecosystems and their services, there is a need to reform the way in which investments are approached in developing transport infrastructure. It is commonly acknowledged that the development of transport networks has been among the main reasons for fragmentation of ecosystems within the EU, leading to negative impacts on habitats and biodiversity²¹⁹ and also possibly impacting the functioning of wider ecosystems (e.g. their ecosystem services). In addition, air pollution caused by the transport sector can also have adverse effects on biodiversity. Here, Cohesion Policy should seek to apply better environmental assessment tools and/or improve environmental assessment tools, improved land use (and coastal and marine) planning techniques and biodiversity proofing tools. Similar to transport, it is also important to ensure that the land use changes driven by the need for clean energy (e.g. biofuels production) are sustainable. For example, an uncontrolled extension of biofuel crops may lead to deforestation causing negative impacts on biodiversity and resulting in increased total emissions²²⁰. The discussion on tools and strategies for environmental integration in Cohesion Policy therefore is a crucial one in terms of decoupling economic growth from environmental impacts. The literature review draws on the literature on environmental policy integration and reviews the definitions, approaches and integration (proofing) tools as well as criteria for evaluating integration.

²¹⁹ Kettunen, M.; Terry, A.; Tucker, G. and Jones, A. (2007) Guidance on the maintenance of landscape connectivity features of major importance for wild flora and fauna - Guidance on the implementation of Article 3 of the Birds Directive and Article 10 of the Habitats Directive. (http://ec.europa.eu/environment/nature/ecosystems/index_en.htm#art10)

²²⁰ EU AHWEG (2009) Towards a Strategy on Climate Change, Ecosystem Services and Biodiversity - A Discussion Paper prepared by the EU Ad Hoc Expert Working Group on Biodiversity and Climate Change (http://ec.europa.eu/environment/nature/pdf/discussion_paper_climate_change.pdf)

Within Cohesion Policy, there are a number of areas where there is the potential to reduce EHS by moving towards a wider application of price mechanisms to at least deliver full cost recovery, and eventually external cost pricing. One particular area of potential is to make a move towards *full cost recovery via water pricing* a condition of funding and hence encouraging the implementation of Article 9 of the Water Framework Directive ([2000/60/EC](#))²²¹. This says:

Recovery of costs for water services (Article 9): Member States are required to 'take account of the principle' of recovery of the costs of water services. This should take account of the economic analysis of water use required by Article 5. Member States are required to ensure, by 2010, that water pricing provides adequate incentives to ensure efficient water use and that this is spread across different water use sectors.

This will contribute to resource efficiency and also liberate Cohesion Policy funding by moving financing to private individuals (see Box 15 for an example of water pricing reform). This needs to be done with due care to affordability²²², which can be addressed via the design of the instrument and by having a gradual transition to full cost recovery over an appropriate time period. It has been estimated that moving to an average of 5 per cent of household income for the range of environmental services, with due consideration for lower income households, would enable all additional investment needs to be met via the charges²²³. This would free up significant funds from Cohesion Policy.

²²¹ Directive establishing a framework for Community action in the field of water policy [2000/60/EC](#) (OJ L327 22.12.2000)

²²² As a rule of thumb, affordability for water supply, waste water treatment and MSW taken together can be seen as 5% of household income (as recorded for the 10% of households with the lowest incomes). See GHK et al (2006)

²²³ GHK, Ecolas, IEEP and CE (2006): Strategic Evaluation on Environment and Risk Prevention Under Structural and Cohesion Funds (2007-2013), No. 2005.CE.16.0.At.016, for DG Regio.

Box 15: Reforming water subsidies

Czech Republic

Until 1990, water pricing covered only a fraction of its real cost as it was only EUR 0.02 per m³. This low price led to indirect subsidization of water extraction, treatment and distribution. This hidden subsidy was removed in the 1990s, moving to full cost recovery. By 2004 the cost of water had reached EUR 0.71 per m³. The reform also addressed fees for withdrawing surface and ground water and discharge of waste water. Between 1990 and 1999, water withdrawals decreased by 88 per cent in agriculture, 47 per cent in industry and 34 per cent in public water mains.

Source: IEEP et al (2007)

Ireland: The on-going financial crisis has led to the government embracing fiscal reform, and this reform included plans for water charging. On 24th November 2010 the Irish government released its National Recovery Plan 2011-2014. To achieve the Maastricht Criteria of a deficit of below three per cent of GDP by 2014, the Government estimated that an overall saving of 15 billion Euro is needed, ten billion Euro to come in spending reductions and five billion Euro in tax and revenue raising measures. One of the green fiscal measures launched was that of water charges for households to cover local authorities' operational costs. These are expected to raise 500 million Euro.

“Given that we in Ireland have to raise taxes, it makes sense to raise them in ways that simultaneously improve our environmental quality, provide incentives for new low carbon enterprise, ensure that we manage our resources efficiently, help meet our EU obligations, apply the polluter pays principle, and that allow other taxes that damage economic performance to be reduced or at least limit the extent of the rise.”

Frank J. Convery, Director of the Earth Sciences Institute, University College Dublin²²⁴

Another growing area of potential subsidy reform where Cohesion Policy has the capacity to contribute is that of *road pricing* that takes externalities into account (see Box 16 on Benefits of road pricing). The revised ‘Eurovignette’ Directive ([2006/38/EC](#)) in 2006 offered some, albeit limited, scope of charges to reflect environmental externalities, the 2007 Green Paper on urban mobility ([COM\(2007\)551](#)) enlarged this scope, as did the 2008 ‘Greening of transport package’ and the 2008 proposal (COM(2008) 436 final²²⁵) to amend the Eurovignette further (see Box 16 below, which also presents estimates for benefits).

In the 2011 transport White Paper, the Commission signalled the importance that it attaches to the notion of getting the prices right and avoiding economic distortions in the transport sector²²⁶. One of the 40 initiatives included in the White Paper focused on the development of smart pricing and taxation. As part of this, the Commission stated its intention to phase in mandatory user charging for heavy duty vehicles, as opposed to the voluntary Eurovignette, to cover the costs of infrastructure damage, noise and local air pollution. Additionally, the Commission will develop guidelines for the application of user charging to other road vehicles, including cars, in order to cover the associated costs of congestion, local pollution, noise, accidents and possibly CO₂, unless this has been covered by other economic instruments (e.g. included in fuel taxation).

²²⁴ <http://www.foes.de/pdf/GreenBudgetNews27.pdf>

²²⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0436:FIN:EN:PDF>

²²⁶ European Commission (2011) *White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system* COM(2011) 144, Brussels 28.03.2011

Box 16: Eurovignette and Road pricing – internalising externalities can reduce CO₂ emissions and save money

The proposed current amendment to the Eurovignette Directive is to have a road-transport charging framework so as to enable Member States to calculate and vary tolls on the basis of the external costs of road freight transport in terms of air pollution, noise and congestion, by further implementing the "polluter pays" principle. A political agreement was reached by the Council on 6 October 2010.

The introduction of road pricing to internalise externalities in a revised Eurovignette would potentially reduce CO₂ emissions from road freight transport and fuel consumption by 8 per cent, and that 'if an average increase in transport costs of 3% is assumed, a decrease of 13.5 billion tonne kilometres in road transport volumes would be expected'. The internalisation of road freight transport costs at EU level on Europe's main roads has been estimated to result in a total net welfare gain of €1.8 billion per year. Extending congestion charging to passenger cars would increase the net welfare gain to a yearly €2.3 billion.

Source: Cristidies and Brons (2010)²²⁷ and EC (2008)²²⁸

A third area is that of encouraging *waste charging* (e.g. the 1996 UK landfill tax, revised in 2008; see EEA, 2005²²⁹) that encourages the waste hierarchy to be respected. Again there is potential to make use of conditionalities linked to investment in landfills. The effectiveness of different policy instruments for waste management in the Member States is currently the focus of research being funded by DG ENV.

A2.3 Potential opportunities to enhance Win-Wins

EU Cohesion Policy aims to foster economic, social and territorial cohesion across European regions. Therefore, the range of interventions co-financed by EU Structural and Cohesion Funds is in line with the EU's overarching economic strategies: for the 2007-2013 period, this was the renewed Lisbon Strategy for growth and jobs; from 2014 to 2020, this will be the Europe 2020 Strategy (see Section 2.1). Investments are also supposed to be in compliance with the EU SDS, while 50 per cent of the Cohesion Fund is targeting specific environmental interventions linked to the 6th Environmental Action Programme and the implementation of Community environmental *acquis*. Hence, Cohesion Policy should be contributing to a range of win-wins.

However, EU Structural and Cohesion Funds are relatively small when compared to the financial resources available from public budgets in most Member States and private investments. Therefore, interventions co-financed by the EU Cohesion Policy should be well justified. In this sense, there is a strong rationale that the most value added of EU financed intervention in the context of Cohesion Policy is through the provision of support for

²²⁷ Christidis P. and Brons M (2010) *Impacts of the proposal for amending Directive 1999/62/EC on road infrastructure charging. An analysis on selected corridors and main impacts* Working Papers on Energy, Transport and Climate Change N.3

²²⁸ EC (2008) European Commission Staff Working Document, Impact assessment on the internalisation of external costs accompanying the proposal for a directive (COM) and a communication on the internalisation of external costs (COM), 2008.

²²⁹ EEA (2005) *Market-based instruments for environmental policy in Europe* EEA Technical report No 8/2005 http://www.eea2006.org/presentations/EEA_technical_report_8_2005.pdf

interventions that deliver multiple benefits and aid regions to achieve compound policy objectives. In this respect, there are a number of potential win-win interventions that could bring along benefits for both the economic and environmental domains.

At the same time, between 2007 and 2013 the Structural Funds and the Cohesion Fund have a budget of €347 billion, amounting to one-third of the EU's total budget. Consequently, in terms of the influence that the EU can have on the environment in the Member States, this is still a significant financial resource that benefits especially new Member States and poorer regions in the EU15. Furthermore, EU funds have an important leverage effect on attracting additional public and private financing and in this regard play a crucial role determining the development pathways of many European regions. In this sense, EU funds interventions could support **structural changes** in the economies of these regions in relation for instance to improving the resilience of economies to climate change impacts, fostering greater sustainability and ensuring energy security, as envisaged by Europe 2020. There is also a strong case for Cohesion Policy, which traditionally assists in regions' structural reforms, to stimulate more win-win interventions which could stir the transition pathways to low carbon and resource efficient economies of European regions.

This can be generally done in two ways, both of which are likely to offer 'win-win' solutions to the economy and the environment:

- Through **direct environmental investments**, such as investments in natural capital, environmental infrastructure ('green infrastructure'), the conservation and restoration of biodiversity, ecosystems and their services. Cohesion Policy can assist regions to achieve better environmental performance, to provide different ecosystem services (e.g. clean water to cities), to reduce economic costs (e.g. from reduced (risk of) climate change impacts or due to improved resource efficiency) and to implement the investment-heavy Directives of the EU *acquis*; and
- Through **indirect environmental investments**. Cohesion Policy can 'green' energy, transport and production systems and therefore contribute to innovation, competitiveness, the development of new markets and business niches, growth, employment and an overall better quality of life²³⁰. Such investment can also contribute to the decarbonisation of traditional economic sectors such as energy and transport in line with the EU commitments beyond 2020 towards 2050.

The following sections provide an overview of potential win-win interventions, which could realise multiple policy outcomes in the context of Cohesion Policy. From a purely economic perspective, the total turnover of eco-industries in the EU-25 in 2004 was €227 billion, making up 2.2 per cent of their GDP. Pollution management activities accounted for 64 per cent of total turnover (€144.9 billion) and the remaining 36 per cent (€81.8 billion) is from resource management²³¹. An evaluation by GHK et al²³² showed that environmental investments under the Cohesion Policy are able to have a significant impact on regional

²³⁰ ENEA (2007) Ideas Paper – Stimulating innovation through the cohesion and environmental policies. DG Environment. 21/02/2007.

²³¹ Ernst and Young, 2006, *Eco Industry, Its Size, Employment, Perspectives and Barriers to Growth in an Enlarged EU*, for DG Environment of the European Commission.

²³² GHK, CE and IEEP (2007) Links between the Environment, Economy and Jobs, DG Environment, European Commission.

economic development, contributing to the increase of GDP by 1-2 per cent in most Member States.

There are also important social impacts in terms of job creation. GHK et al²³³ estimated that total EU-27 employment in eco-industries and all activities dependent on the environment amounted to 21 million people. Including multiplier effects, the total estimate was 36 million, representing 17 per cent of EU employment. Another study by Ecorys²³⁴ found that direct employment in the EU eco-industries was 3.4 million in 2007, having grown by more than 70 per cent since 2000.

Reports by IVM²³⁵, ENEA²³⁶, ENEA-REC²³⁷ and the project on Greening Regional Development Programmes²³⁸ have found that supporting environmental interventions (both direct and indirect) in Cohesion Policy is likely to realise the following win-win benefits:

- Tackling poor environmental quality and unsustainable practices that are barrier to development;
- Promoting economic diversification;
- Provisions of infrastructure for economic modernisation and competitiveness;
- Stimulating skills and innovation to provide new high value opportunities in the knowledge economy;
- Creating opportunities for tourism and improving attractiveness of places for investors, workers and businesses;
- Tackling the effects of industrial decline and dereliction;
- Provision of new opportunities in peripheral regions and under-developed rural areas; and
- Economic multiplier effects associated with all the above.

An overview of potential win-win interventions by environmental theme is given in Table 8 and is discussed in more detail in the following sections.

²³³ GHK, CE and IEEP (2007) Links between the Environment, Economy and Jobs, DG Environment, European Commission.

²³⁴ Ecorys (2009) Study on the Competitiveness of the EU Eco-industry.

²³⁵ IVM, GHK, and SERI (2009) The economic benefits of environmental policy, 15 December 2009.

²³⁶ ENEA (2007) Ideas Paper – Stimulating innovation through the cohesion and environmental policies. DG Environment. 21/02/2007.

²³⁷ ENEA-REC (2009) Improving the climate resilience of Cohesion policy funding programmes. REC: Szentendre

²³⁸ Greening Regional Development Programmes (2006) Beyond Compliance - how regions can help build a sustainable Europe. INTERREG IIIC.

Table 8: Categories of win-win interventions and associated economic and social gains

Category	Positive gains for social and economic domains
Direct	
Biodiversity, ecosystems and ecosystem services	Provides ecosystem services (provisioning, regulating, cultural and supporting) and consequently supports socio-economic wellbeing for example improves attractiveness of places (locational quality) and hence can attract more labour force into greener areas; attached certain industries (e.g. access to cleaner water); increase house values; benefits from ‘green infrastructure’ (e.g. water purification and retention and erosion control); and ecosystem-based adaptation to and mitigation of climate change
Waste prevention/recycling/reuse	Creates more jobs compared to landfills and incineration facilities; Improves overall the resource efficiency of the economy; and Reduces dependence on resource imports and extraction.
Water and waste water	Access to clean water Better quality of life Attractiveness of places/territories Improved resilience of ecosystems to provide ecosystem services
Climate change adaptation	Resilience of economies and economic sectors to the impacts of climate change; depending on the nature of the investment this can also lead to a range of other co-benefits.
Indirect	
Energy efficiency	Improves living conditions; Integrates jobless or low skilled persons into the workforce; Creates three to four times the number of jobs than comparable energy supply investments; and Provides competitiveness edge for industry
Renewable energy	Foster innovation and new technologies; Improved energy security; Improved competitiveness and new sources of growth
Energy efficient transport systems	Provides access to mobility services and agglomeration benefits; Improves access to jobs; Creates jobs in planning, running, and maintaining transit systems, outweighing any reductions in employment in car and truck manufacturing and related fields; Reduces congestion, cost savings; and Increases productivity and competitiveness Improves quality of housing and life in general Reduces energy poverty
Eco-innovation and environmental technologies	Improved resource efficiency and improved productivity Strengthens competitiveness Creates innovation and new business niches, new sources of growth Creates new employment Reduces dependence on resource imports Creates jobs for both low and high qualified workers

Biodiversity, Well-functioning Ecosystems and Related Ecosystem Services

Investing in the natural environment helps to maintain and restore biodiversity, ecosystems and ecosystem services with numerous positive ancillary effects on the social domain and economic development. Such investments can improve the quality of life and diversify the local economy while ensuring the sustainable utilisation of natural resources²³⁹. Investments in biodiversity and ecosystem protection and/or restoration can benefit multiple policy sectors and help them to achieve their policy goals. This applies – but is not limited to – sustainable urban and regional development, water purification and wastewater treatment, and promotion of tourism as well as protection from natural hazards and support to policies for public health²⁴⁰.

The European network of Natura 2000 sites can be considered as the backbone for conserving biodiversity and well-functioning ecosystems within the EU. It also contributes to the provision of a range of ecosystem services in the EU, e.g. tourism and recreation, water quality, flood control, and wider cultural services²⁴¹. Investments in Natura 2000 therefore can have a direct effect on improving the quality of life and environmental sustainability and/or security of communities adjacent to the sites and create opportunities for eco-tourism. Further to this, research in four selected regions in Austria (Waldviertel, Steinfeld, Verwall, Karwendel) showed that the establishment of Natura 2000 conservation areas can result in positive economic impacts (local and regional value added, increased employment). However, in some individual cases of land use conflicts, there might also be some negative economic effects that need to be considered and/or compensated for²⁴².

Investing in natural capital is also linked to what is currently being defined as ‘Green Infrastructure’ (see Box 17). It can be seen as a more holistic and landscape-wide approach to biodiversity and ecosystem conservation. However, it is also increasingly interpreted as the provision of a wide range of benefits to society through the maintenance and/or restoration of ecosystems’ natural structures and functions that help to ensure the delivery of different ecosystem services (e.g. water purification and retention, erosion control and flood mitigation). Green infrastructure can, in principle, constitute a very wide range of elements ranging from large, unspoilt natural areas to green roofs in urban areas.

²³⁹ ENEA (2007) Ideas Paper – Stimulating innovation through the cohesion and environmental policies. DG Environment. 21/02/2007.

²⁴⁰ TEEB (2009) The Economics of Ecosystems and Biodiversity for National and International Policy Makers (<http://www.teebweb.org/ForPolicymakers/tabid/1019/language/en-US/Default.aspx>)

²⁴¹ IEEP at al. 2010. The costs and socio-economic benefits associated with the Natura 2000 network. DG Environment. http://ec.europa.eu/environment/nature/natura2000/financing/docs/natura2000_costs_benefits.pdf

²⁴² Getzner M. and Jungmeier, M. 2004. *Conservation policy and the regional economy: the regional economic impact of Natura 2000 conservation sites in Austria*. [Journal for Nature Conservation](#). [Volume 10, Issue 1](#), 2002, Pages 25-34.

Box 17. Definition of Green Infrastructure

According to COM(2009)147 and COM(2011)17 and COM (2011)244 Green Infrastructure refers to forests, rivers, coastal zones, parks, eco-corridors and other natural or semi-natural features which constitute key elements for the provision of ecosystem services. Developing green infrastructure is key to maintaining a sustainable environment in which our economy and society can prosper. In particular it helps to adapt to climate change and contributes to the creation and proper management of ecological networks. Thus, managing authorities should ensure that the impact on natural areas and land use is fully examined in their appraisal of all infrastructural projects. The use of appropriate instruments such as integrated coastal and river basin management should be reinforced in particular where Natura 2000 areas are likely to be affected.

Given the increasing trend towards urbanisation, green infrastructure in, or associated with, urban areas is likely to become more prevalent and has the potential to provide greater and more direct benefits to people who may have a greater chance of accessing these benefits. These include ecosystem services associated with parks, canals, river banks, single trees, gardens, and green roofs. There are potential multiple societal benefits to be gained from the provision of services from natural areas, in particular, in areas of greater proximity to urban areas.

A review by the UK Sustainable Development Commission²⁴³ of the health benefits of natural areas suggests that there are substantial gains to human health to be gained from the increase in access to green areas (everything from parks and open countryside to gardens) in urban areas. Research from across Europe has found that those living in areas with a high proportion of nature to be three times more likely to be physically active and 40 per cent less likely to be overweight than those living in areas with low proportions of nature²⁴⁴.

There are potential synergies between investments in biodiversity and ecosystem services and climate change via ecosystem-based mitigation of and/or adaptation (see also ‘climate change adaptation’ below). For example, the active protection of tropical forests is now widely perceived as a crucial ecosystem management priority that can help restore ecosystems and at the same time, reduce global carbon emissions in a cost-effective way. Reducing Emissions from Deforestation and forest Degradation could potentially reduce the cost of global action by 40 per cent²⁴⁵. Upland peatlands and wetlands appear to have a potentially important role for both climate change mitigation and adaptation, particularly in the sequestration of carbon and water regulation. The degradation of mires and peatlands in Europe has led to considerable losses of these habitats and their function to store carbon in recent decades²⁴⁶.

In 2000, the governments of Bulgaria, Romania, Ukraine and Moldova pledged to work together to establish a ‘green corridor’ along the entire length of the Lower Danube River. The Lower Danube Green Corridor aims to reconnect the Lower Danube to its natural flooding areas and wetlands, thereby reducing the risks of major flooding in areas with

²⁴³ SDC (2008), Health, Place and Nature, How Outdoor Environments Influence Health and Well-being: A Knowledge Base, http://www.sd-commission.org.uk/publications/downloads/Outdoor_environments_and_health.pdf

²⁴⁴ Ellaway A, Macintyre S, Xavier B (2005) Graffiti, greenery and obesity in adults: secondary analysis of European cross sectional survey. *British Medical Journal*, 331, 611-612 (cited in SDC, 2008)

²⁴⁵ OECD, 2009, The economics of climate change mitigation and UNEP Yearbook 2010, February 2010, New science and developments in our changing environment, Chap. 2 Ecosystems management

²⁴⁶ Schäfer, A. (2009) Moore und Euros – die vergessenen Millionen. *Archiv für Forstwesen und Landschaftsökologie* 43, 156-160.

human settlements and offering benefits both for local economies by way of fisheries and tourism and for the ecosystems along the river. The value of the various benefits from the restored Danube floodplains is estimated to be at least €500 per hectare per year²⁴⁷. Twenty nine million people live in the Lower Danube River basin, and they will benefit from this green corridor, which will help secure the services that it provides, whether this is clean drinking water or climate adaptation services. Cut-off from the river by dykes, these floodplain lands were of marginal value for primary industries, and once restored, are of similar scale as the area inundated in the 2005 and 2006 floods. Implementation of the potential restoration sites along the Lower Danube Green Corridor is estimated to cost €183 million, compared to damages of €396 million from the 2005 flood and likely earnings of €85.6 million per year²⁴⁸. The Lower Danube Green Project shows the value of restoring the natural resilience of the environment to climate events by improving the natural capacity to retain and release peak floods. It also highlights how replacing vulnerable monocultures with more diverse livelihoods based on natural ecosystems (in this case tourism, fishing, grazing and fibre production) can strengthen local economies.

Waste prevention/recycling/reuse

Waste management, and particularly prevention, reuse and recycling, are the cornerstones of a sustainable economy as they reduce the volume of waste going to disposal but also consumption of natural resources. Hence, they could yield important benefits for stimulating resource productivity of companies and reducing dependence and import of materials. Solid waste management and recycling industries have a turnover of €137 billion which is just over 1.1 per cent of EU GDP²⁴⁹.

Solid waste management and recycling industries have together created over 2 million jobs in the EU²⁵⁰. The literature on waste with regards to employment impacts shows divergent results. Some studies suggest that recycling practices create employment but it is usually low-skilled and low-paid. At the same time, it offers job opportunities for socially excluded groups and low skilled workers hence having some indirect impacts on the integration of these groups into the labour market. The quality of work is also particularly low in the collection, transport and sorting of waste. High quality jobs are associated with more technology intensive and specialised activities²⁵¹.

The ex-post evaluation of the ERDF found evidence of the positive economic impacts of the development of sorting and recycling activities. The role of the ERDF has been, in some cases, to fund the basic infrastructure, such as collection points and containers for separate collection (e.g. in Catalonia (Spain) and Midi-Pyrénées (France)), which have allowed for the

²⁴⁷ http://wwf.panda.org/who_we_are/wwf_offices/hungary/?189121/A-decade-on-lower-Danube-exceeds-green-corridor-targets

²⁴⁸ http://wwf.panda.org/what_we_do/where_we_work/black_sea_basin/danube_carpathian/news/?uNewsID=143901

²⁴⁹ Study on the Competitiveness of the EU eco-industry, ENTR/06/054 Final Report. Directorate-General Enterprise & Industry and Thematic Strategy on the Prevention and Recycling of Waste COM(2005) 666

²⁵⁰ Study on the Competitiveness of the EU eco-industry, ENTR/06/054 Final Report. Directorate-General Enterprise & Industry and Thematic Strategy on the Prevention and Recycling of Waste COM(2005) 666

²⁵¹ Pira and Ecolas. 2005. Study on the implementation of Directive 94/62/EC on packaging and packaging waste and options to strengthen prevention and re-use of packaging. Final report, http://ec.europa.eu/environment/waste/studies/packaging/050224_final_report.pdf

development of business activities. In other cases, such as Brandenburg (Germany), the ERDF has contributed to the development of the recycling industry by covering part of their investment costs. The role of ERDF is assessed as to have clearly a positive effect, even if they were not easy to design and manage due to the complexity of the waste market and the difficulty in elaborating a business plan²⁵².

Water supply and waste water treatment

Currently, poor water quality requires extensive expenditure on treatment prior to distribution or use. Improvements will reduce both the costs of treatment to the water supply sector and to agriculture and industry associated with own-treatment of water for production processes. Improvements in surface water quality make the resource more suitable for economic uses, such as cooling water, irrigation and industrial water. This brings significant direct cost reductions to water intensive industries in the majority of Member States because of current problems with water quality. A general improvement in water quality and expansion of supply improves resources such as fish stocks, with benefits to commercial fisheries and to aquaculture, and enables improved levels of recreation and tourism. Benefits are expected to accrue to all Member States, but especially those dependent on tourism.

The construction of any new water supply can support the development of activities in the area surrounding the new infrastructure. While agriculture and tourism are usually the first to benefit, new industrial activities and the development of urban areas can also be among the first beneficiaries. New water supply is therefore expected to bring additional benefits for sectors that are highly dependent on the availability of water resources. At the same time, the construction of dams/reservoirs can have serious implications for the functioning of freshwater ecosystems in a river basin and ultimately have an impact on livelihoods. Dams disconnect rivers from their flood-plains and wetlands, and reduce river flows. In some cases, river flows have been reduced by a factor of four in ten years due to new infrastructures. They affect the migratory patterns of fish and flood riparian habitats, such as waterfalls, rapids, riverbanks and wetlands, which are essential feeding and breeding areas for many aquatic and terrestrial species. Dams also disrupt the ecosystem services provided by rivers and wetlands, e.g. water purification. By slowing the movement of water, dams prevent the natural downstream movement of sediments to deltas, estuaries, flooded forests, wetlands and inland seas, thus affecting the composition and productivity of species²⁵³.

The Commission's ex-post evaluation of the 2000-2006 ERDF operations showed that environmental infrastructure needs to be constructed or upgraded, especially in the less developed regions in the EU, as it constitutes an important factor for regional socio-economic development. To quantify this impact, based on indicators of OPs, more than 20 million additional people have benefited from wastewater treatment projects in the EU-25 between 2000 and 2006. The study notes that the impact of interventions on water quality, such as river water, bathing water and lakes, in relation to public health is somewhat more difficult to quantify²⁵⁴.

²⁵² ADE. 2010. Ex-post evaluation of ERDF.

²⁵³ EC (2007): Impact Assessment SEC(2007) 993 supporting COM(2007) 414 final - Addressing the challenge of water scarcity and droughts in the European Union

²⁵⁴ EC(2009): Ex-post evaluation of cohesion policy programmes 2000-2006 co-financed by the European Fund for Regional Development (EFRD), Final Report- Work Package 5B: Environment and Climate Change

A GHK et al study has found that water investment supply and treatment programmes will have an impact on regional development and convergence as improvements will benefit local businesses and contribute to higher quality of life for residents in addition to providing the required conditions to sustain tourism. A water investment programme of 25 billion euro across the 11 MS covered in the period 2007-2013 would in 2013 generate a gross additional level of Gross Value Added (GVA) of 11 billion euro, representing an increase of 0.9% in GVA in 2013 (in 2000 prices) than would have been the case without the investment. The net additional impact (comparing the pattern of investment in the programmes compared to Member States current investment activity) is slightly positive for the 11 Member States taken together, suggesting that the programmes have slightly larger multiplier effects than the current activity²⁵⁵. This may be explained by the nature of the capital goods purchased with the programmes (with a higher domestic component reflecting the high levels of construction) compared to current activity.

Climate change adaptation

Research has showed that there will be likely climate change impacts on agriculture, river floods, coastal systems, tourism and human health across European regions²⁵⁶. The number of people annually affected by sea floods in 1995 was estimated to be 36,000 in Europe. Without adaptation, the number of people affected annually by flooding in the 2080s increases significantly in all future analysed scenarios, ranging from 775,000 to 5.5 million people. Damage costs for the high rate of sea-level rise for 2085 are substantially higher than for a low rate of sea-level rise and both are considerably reduced if adaptation measures are undertaken²⁵⁷.

Most studies and reports dealing with the economics of climate change conclude that the benefits of adaptation generally outweigh the cost of adaptation strategies and measures. By 2020, the net-benefit of adaptation – defined as the damage cost without adaptation minus the cost of adaptation minus the residual damage cost with adaptation – ranges between €3.8 billion (low sea level rise) and €4.2 billion (high sea level rise). By 2080, this net-benefit is expected to further increase.²⁵⁸ The PESETA report estimates a cost of 0.2 per cent to 0.5 per cent of GDP, or €20 billion to €65 billion, for the EU as a whole. It is however noted that in GDP terms, damage would be underestimated, as activities prompted by repairs and recovery operations would actually contribute to GDP gains. Under all scenarios there would be a decline in welfare, with the exception of the Northern Europe region due to positive effects on agriculture.

Adaptation costing studies have tended to focus more on these ‘hard’ adaptation measures, as they are easier to cost than behavioural and policy measures. This may lead to a bias towards structural measures and a neglect of potentially critical ‘soft’ measures needed to facilitate adaptation such as better land use planning, and lead to inappropriate and costly adaptation

²⁵⁵ GHK, Ecolas, IEEP and CE (2006): Strategic Evaluation on Environment and Risk Prevention Under Structural and Cohesion Funds (2007-2013), No. 2005.CE.16.0.At.016, for DG Regio.

²⁵⁶ DG Regio. Background Paper on: Climate change. 2009, http://ec.europa.eu/regional_policy/sources/docgener/studies/pdf/challenges2020/regional_challenges_climate_change.pdf

²⁵⁷ JRC-IPTS, 2009, Climate change in Europe, Final report of the PESETA project

²⁵⁸ Policy Research Corporation, European Commission DG MARE, (date?)The economics of climate change adaptation in EU coastal areas

actions²⁵⁹. A growing body of evidence suggests that ecosystem-based adaptation can be a cost-effective strategy across the major adaptation sectors. One of the areas where there are real opportunities of identifying win-win solutions for human and natural communities is in building approaches that combine natural hazard mitigation and biodiversity, habitat and ecosystem conservation in coastal zones to preserve infrastructure, protect human communities and preserve their livelihoods²⁶⁰.

Energy Efficiency

Interventions to boost energy efficiency can realise a number of win-win solutions and benefits in key sectors such as buildings, enterprise and transport. It will have also considerable positive impacts on mitigating climate change and reducing resource use. While investment into renewable energy sources has the potential to generate incomes for both public entities and private operators of these installations the benefits of investments in energy efficiency can in large part be reaped by companies which will in the long run, after the initial investments have been paid off, see their production costs fall. This can potentially make certain regions more competitive and attractive to investors than others.

The EU Green Paper on Energy Efficiency estimates that energy savings measures could create up to 1 million new jobs in the EU by 2020. It is suggested that the majority of these jobs will be created in local installations and in manufacturing, while also benefiting the European transport, energy, and service sectors²⁶¹. A Hungarian study concluded that by 2020 between 43,000 and 130,000 net new jobs could be created in the country from a large-scale buildings efficiency retrofit programme based on several scenarios, ranging from energy efficiency improvements of 40 per cent for 150,000 dwellings to 75-90 per cent for 250,000 dwellings per year²⁶².

Energy savings in the housing sector could also have important effects on reducing energy bills for households and hence increasing disposable income. It has been estimated that the benefits from energy savings can amount to €1,000 per household annually thus improving living conditions and alleviating ‘energy poverty’. Reducing CO₂ emissions in the EU by 10 per cent by 2020 would generate health benefits estimated at €8 to €27 billion²⁶³. A study suggests that this could have a further multiplier effect to the economy as consumers are likely to divert savings on energy bills into general consumption (into the generally labour-intensive consumption sectors). Such indirect effects, however, will depend on the cost-effectiveness of the investments and the payment methods used²⁶⁴.

Energy savings can contribute to strengthening the EU’s energy security as the saved energy is likely to reduce the absolute amount of energy imported into the EU. Hence, the import dependency in 2020 would be reduced to 55 per cent, assuming that the total volume of

²⁵⁹ S. Agrawala and al., OECD, 2008, Economic aspects of adaptation to climate change

²⁶⁰ L. Zeitlin Hale and al, Renewable Resources Journal Volume 25-2009, No. 4, Ecosystem-based Adaptation in Marine and Coastal Ecosystems and also Nesshoefer C., Aronson J., Blignaut J., Eppink F., Vakrou A., and Wittmer H. Investing in Ecological Infrastructure. Chapter 9 in TEEB (2011) The Economics of Ecosystems and Biodiversity in National and International Policy Making. Edited by Patrick ten Brink. Earthscan. London.

²⁶¹ COM(2005) 265 final

²⁶² Urge-Vorsatz D. et al. (2010), Employment Impacts of a Large-Scale Deep Building Energy Retrofit Programme in Hungary, European Climate Foundation, 4 June 2010.

²⁶³ CEC (2007) Fourth Report on Economic and Social Cohesion. COM(2007)273

²⁶⁴ Ecofys and Fraunhofer ISI. 2010. Energy Savings 2020.

savings associated with the 20 per cent target is saved on fossil energy imports (oil, gas and coal)²⁶⁵.

However, when assessing the potential for CO₂ reductions resulting from improvements to energy efficiency, it is important to take account of the so-called rebound effect. This is due to the fact that improvements to a product's energy efficiency makes it cheaper to use, which in turn stimulates increased consumption of the product and therefore increased energy use. For household heating, household cooling and personal motorised transport, the effect has been estimated to be between 10 per cent and 30 per cent, although nearer the lower figure for transport²⁶⁶. Others estimate that avoiding rebound effects caused by cost effective measures requires an increase in energy costs equivalent to the improvement in resulting energy intensity²⁶⁷.

Renewable Energy

Innovation can occur in technologies, conservation of resources and energy, production patterns, and hence reduce the costs and provide competitive advantage to businesses and economies. Investment in energy efficiency and renewable energy sources can also take into account the natural endowment of regions (e.g. insolation levels, wind speeds) and therefore exploit competitive advantages certain regions might have compared to others. An example of GHG reduction investments, which requires coordinated action and a long-term perspective but is ultimately a source of both resource and economic efficiency, is combined heat and power generation.

Many of the technologies needed to reduce greenhouse gas emissions – technologies that use energy more efficiently and generate it from renewable sources – already exist. Their use could make an enormous contribution, while simultaneously promoting energy security and stimulating innovation. Other technologies require longer-term development, but for those nations and companies that choose to move quickly and have a strategic vision, there is a real opportunity to get ahead of the technological curve. Likewise, governments and companies that fail to realize these opportunities will soon fall far behind competitors already honing their strategies to compete in a carbon-constrained world.

In a study published in 2009, on *Improving the Climate Resilience of Cohesion Policy Funding Programmes*, ENEA (European Network of Environmental Authorities)²⁶⁸ comes to the conclusion that the new markets which will be created in low-carbon energy technologies and other low-carbon goods and services have good growth potential, and employment in these sectors should expand accordingly. According to this report, only a few countries currently have the vision of environmentally driven growth and the potential of energy and climate change has not yet been sufficiently recognised as a motor for regional economic development.

²⁶⁵ Ecofys and Fraunhofer ISI. 2010. Energy Savings 2020.

²⁶⁶ UK ERC (2007) *The Rebound Effect: An assessment of the evidence for economy-wide energy savings from improved energy efficiency*, A report produced by the Sussex Energy Group for the Technology and Policy Assessment function of the UK Energy Research Centre, ISBN 1-903144-0-35

²⁶⁷ Breakthrough Institute (2011) *Energy Emergence: Rebound and Backfire as emergent phenomena*, Oakland, California

²⁶⁸ http://ec.europa.eu/environment/integration/pdf/enea/climate_resilience_cfr_pr.pdf

The same is true for investments aimed at facilities allowing the effective exploitation of energy produced with locally sourced biomass. A US report on the *Economic Benefits of Investing in Clean Energy* (2009)²⁶⁹ illustrates that spending on clean energy will create a higher net source of job creation relative to spending the same amount of money on high-carbon fuels because of the three sources of job creation associated with any expansion of spending – direct, indirect, and induced effects.

The report illustrates that a combination of clean energy investments creates in excess of three times more jobs per a given amount of spending than, for example, the fossil fuel industry. Three main factors are considered responsible for that: the relative labour intensity, which means that relative to spending within the fossil fuel industries, spending on clean energies utilizes far more of its overall investment budget on hiring people, and relatively less on acquiring machines, supplies, land and energy itself. The second factor is the domestic content, which means that investment into clean energy relies much more on economic activities taking place regionally – such as retrofitting of homes or upgrading the electrical grid system in communities locally. Finally, the last factor is the pay levels; clean-energy investments producing far more jobs at all pay levels. The Commission's own estimates in the 2005 *Green Paper on Energy Efficiency of doing more for less*²⁷⁰ suggest that energy end-use efficiency investments can create three to four times the number of jobs created by comparable energy supply investments, i.e. coal-fired and nuclear power plants.

Energy Efficient Transport Systems

Transport, whether passenger or freight, contributes to the economic and social development of society. Investment in transport infrastructure and, to a lesser extent, services enables transport, but requires the use of resources to construct, operate and maintain this infrastructure. Additionally, the provision of infrastructure enables mobility and trade, which requires vehicles that need to be manufactured and disposed of at the end of their useful life, and which use energy and emit pollutants in the course of being used.

Hence, in the context of the win-wins and win-losses within this study, investment in transport infrastructure delivers economic and social benefits, while using environmental resources, including land, energy and other resources, emits pollution, such as carbon dioxide (CO₂), and affects habitats and biodiversity. In the language of the development path analysis, investing in transport infrastructure develops manufactured capital, which enables the development of human and social capital, while consuming natural capital. Consequently, there are no pure win-wins from investment in transport infrastructure. Rather, it is a question of maximising the economic and social wins, while minimising the environmental losses.

Hence, with respect to climate change, the construction of infrastructure leads to the emission of CO₂, e.g. resulting from the extraction and transport of resources, the construction itself and its subsequent operation and maintenance. Generally, the provision of infrastructure will stimulate its use, which will in turn (with the current energy mix used by transport) lead to the emission of CO₂ from the combustion of fossil fuels. It is also important to note that these conclusions are applicable to some extent to all modes of transport. Even the construction of cycle paths requires resources and the use of energy, and thus will lead to emissions of CO₂ and other pollutants.

²⁶⁹ http://www.americanprogress.org/issues/2009/06/pdf/peri_report.pdf

²⁷⁰ http://eur-lex.europa.eu/LexUriServ/site/en/com/2005/com2005_0265en01.pdf

However, from the perspective of climate change some modes will be preferable to others where these directly compete, i.e. they offer similar types of service to similar locations. Currently, different modes have different average CO₂ emissions and this is also likely to be the case in 2020, which is likely to come within the next programming period (see *Supporting Paper 3: Role of non-Cohesion Policy Instruments* for more discussion of the relevant win-wins for transport).

Eco-innovation and Environmental Technologies

‘Resource productivity’ is of growing importance in a world economy facing increased resource scarcity, upward pressure on raw materials prices, and the constraints of climate change and energy security. Reductions in resource use lead to lower production costs, placing downward pressure on prices. This in turn stimulates domestic demand and makes EU exports more competitive in world markets. Policies to encourage resource efficient production also have the potential to generate innovation, help maintain natural capital, create jobs, and improve national self-sufficiency and energy security²⁷¹.

The SCP agenda recognises that environmental impact reductions of products through efficiency gains or reduced emissions do not always lead to an overall net reduced environmental impact; when efficiency gains lead to reduced costs we may experience the so called ‘rebound effect’ (e.g. more efficient lighting leading consumers to leave them on longer - see the SCP section of *Supporting Paper 3: Role of non-Cohesion Policy Instruments*, for further elaboration).

Production, markets and consumption form a regime of an interdependent and coevolving set of technologies, services, consumer practices, rules, interests, financial relations and expectations, making it difficult to change one part without the rest (i.e. technological lock-in) (see Tukker²⁷² et al.). An appreciation of the inter-dependencies should be integrated in sustainable development strategies.

EU Cohesion Policy is missing opportunities to deliver smart and inclusive growth

Notwithstanding the economic benefits of environmental investments, the failure of Cohesion Policy to maximise opportunities to minimise win-losses and enhance win-win not only has implications for the achievement of sustainable growth, it also undermines the achievement of smart and inclusive growth as envisaged by Europe 2020. This stems from the fact that environmental costs are to large extent the result of market failure, which undermines the achievement of economic efficiency, including at the regional level. At the same time environmental costs have major social impacts, with disadvantaged communities more likely to suffer from poor environments.

The failure to adequately internalise the environmental costs of economic activity means that the benefits of smart and inclusive growth in terms of social welfare are reduced. The development paths are less economically efficient than they should be. This is not an

²⁷¹ Rocholl, M., Giljum, St., Schlegelmilch, K. (2006). Factor X and the EU: How to make Europe the most resource and energy efficient Economy in the World. A Guidebook to Policies 184 and Legislative Initiatives within the European Union. Retrieved 16 June 2009

²⁷² Tucker, G., Wiltshire, J. and Fendler, A. (2008). Carbon footprint of British food production. *Food Science & Technology*, 22(4), 23-26.

academic point; rather the scale of environmental costs is very substantial²⁷³, and the continuing failure to internalise these costs therefore represents a serious loss of economic efficiency. At the same time there are substantial resources invested in the provision of environmentally harmful subsidies that contribute to the level of environmental cost.

In this context the principal rationale for Cohesion Policy intervention in support of transition lies in the market failures that give rise to the inadequate provision of environmental assets and the over consumption of environmental resources. Also as noted in the same section, Cohesion Policy action is also required to navigate and deliver structural changes across European regional economies. Escalating environmental and climate change problems are predicted to pose significant impacts on a number of key sectors in different European regions and thereby imposing threats to their potential for economic development and ensuring social cohesion. It has been demonstrated that the cost of early action is going to be more than offset by the long-term benefits it can generate²⁷⁴⁻²⁷⁵. Here, issues of path dependency and technological lock-in effects should be identified as obstacles not just to the improvement in productive capacity but also as barriers to transition. Failing to invest now in environmental sustainability, resource efficiency, natural capital and climate resilience will only increase the cost in the long run.

The failure to fully integrate environmental objectives also means that low income and economically disadvantaged regions continue to have poor physical environments – exacerbating the problems of attracting new investment opportunities and perpetuating social disadvantage and undermining social cohesion.

These equity and solidarity considerations, which underpin EU Cohesion Policy, are critical because environmental impacts and the move to a green economy affect regions differently depending on their economic, social and environmental characteristics; with some regions needing more assistance, including financial, than others. This reflects both the vulnerability of certain regional economies to the transition, as well as the concentrated exposure of certain communities to environmental pollution and the degradation of environmental quality.

This rationale is recognised in the requirement of Cohesion Policy to assist in meeting the costs of regions' compliance with the EU *acquis*, where the implementation of EU environmental, climate and energy legislation is associated with a disproportionate cost to the national or regional level.

²⁷³ Recent estimates suggest that the EU social cost of environmental externalities may be in the order of 10% of EU GDP – see unpublished analysis by GHK et al as part of the LIFE Impact Assessment (DG Environment)

²⁷⁴ Stern (2006) Stern Review on the Economics of Climate Change.

²⁷⁵ Kettunen, M., Genovesi, P., Gollasch, S., Pagad, S., Starfinger, U. ten Brink, P. & Shine, C. (2009). Assessment of the impacts of IAS in Europe and the EU (final module report for the European Commission). Institute for European Environmental Policy (IEEP), Brussels, Belgium.

ANNEX 3: Development Pathway Analysis and Cohesion Policy

Annex 3a - Development Paths

This annex presents the full set of development paths as developed for and applied in this study.

At a strategic level, Development Path A (Figure 21) essentially represents business as usual, continuing to use natural capital as in previous periods. The general implicit assumption is that business as usual development will be able to continue with economic growth even as natural capital is eroded – i.e. the simplified straight line presented in the figures. This of course needs to be questioned as natural capital is limited and ecosystems have thresholds.

Figure 21: Development Path A: Declining Sustainability

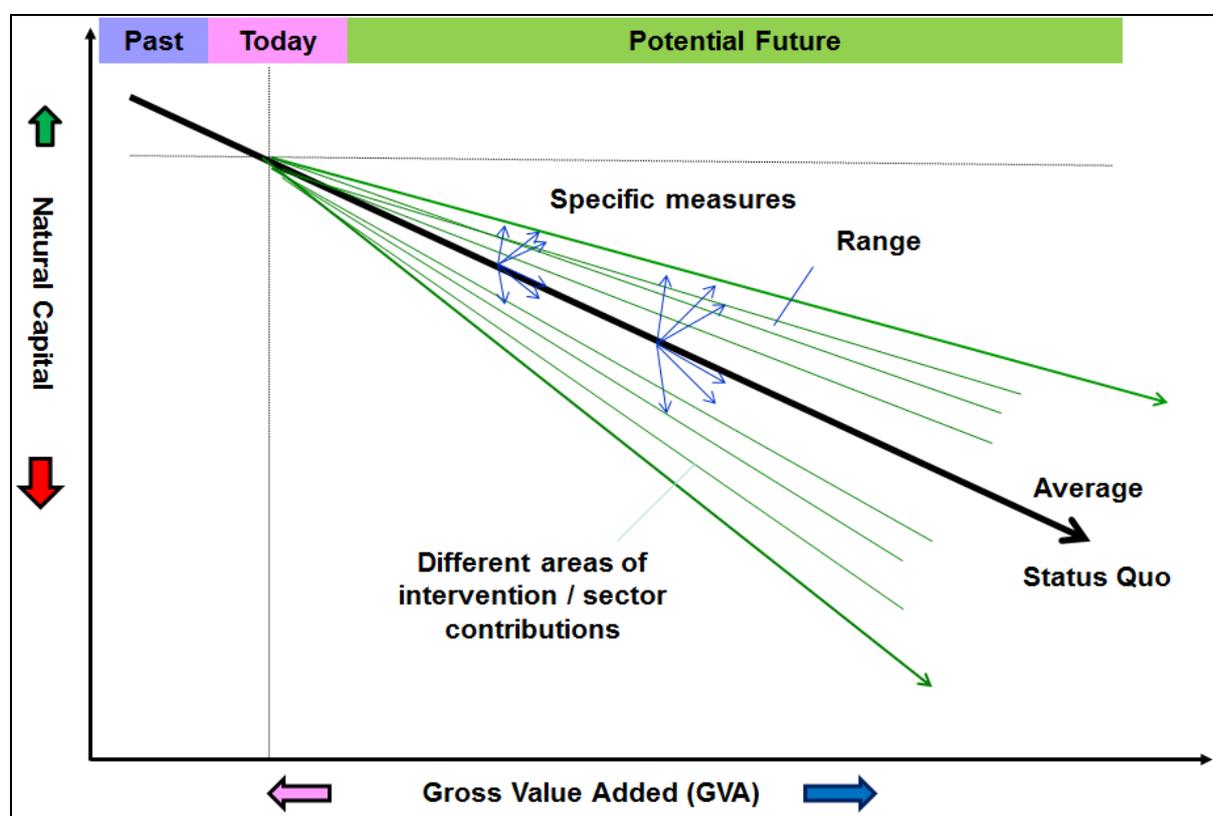
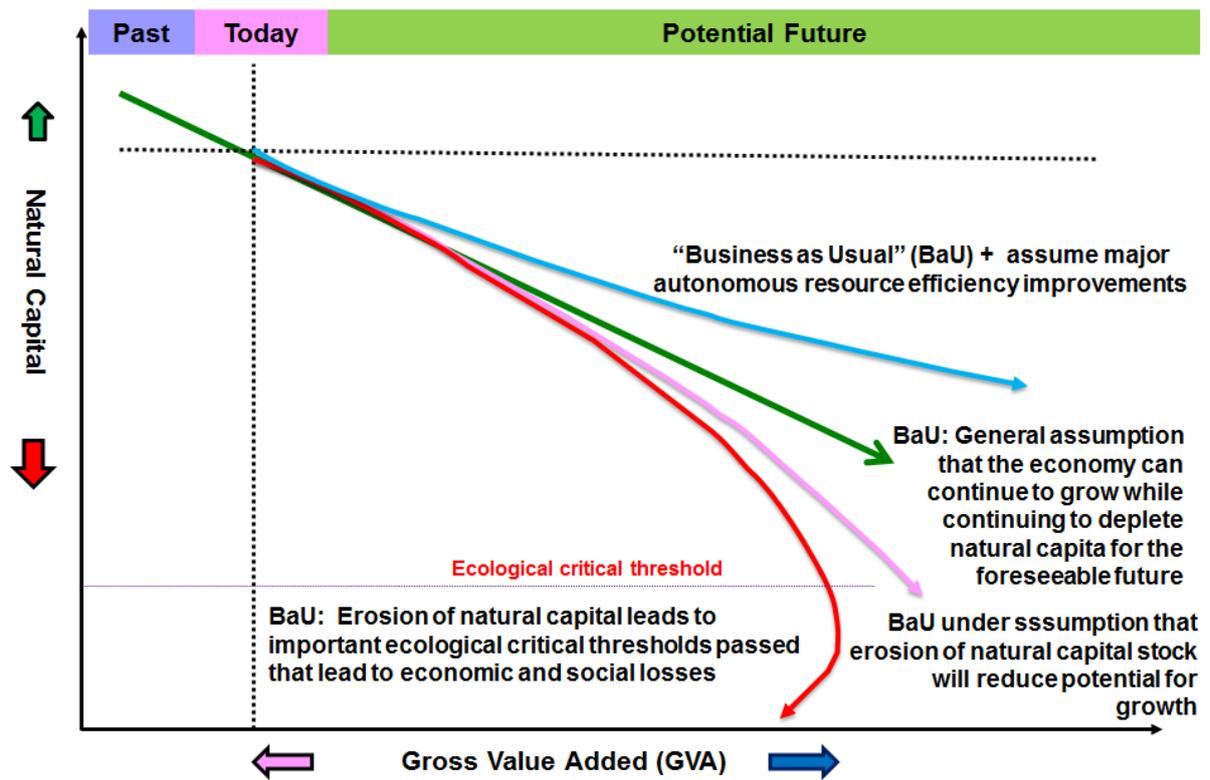


Figure 22 presents alternative BaUs. This should be borne in mind in the wider thinking on the question of the move to a green economy. At this stage little research has been done as to the likely profile of BAU for economic growth and natural capital loss. Analysis of this is needed and TEEB (www.teebweb.org) is contributing to this process.

Figure 22: Variants of Business as Usual



Development Paths B (Figure 23) and C (Figure 24) essentially represent a more active approach to environmental management – with Path B representing greater compliance with regulation, improvements in standards, and investment in environmental infrastructure (via man-made capital: water and waste water supply, waste infrastructure etc) and with strengthened risk management under Path C (precautionary principle, risk based regulation, improved planning) to reduce or avoid risks of further loss. Given the different nature of policy tools and philosophies – investment and risk management - they are allocated different pathways.

Figure 23: Development Path B

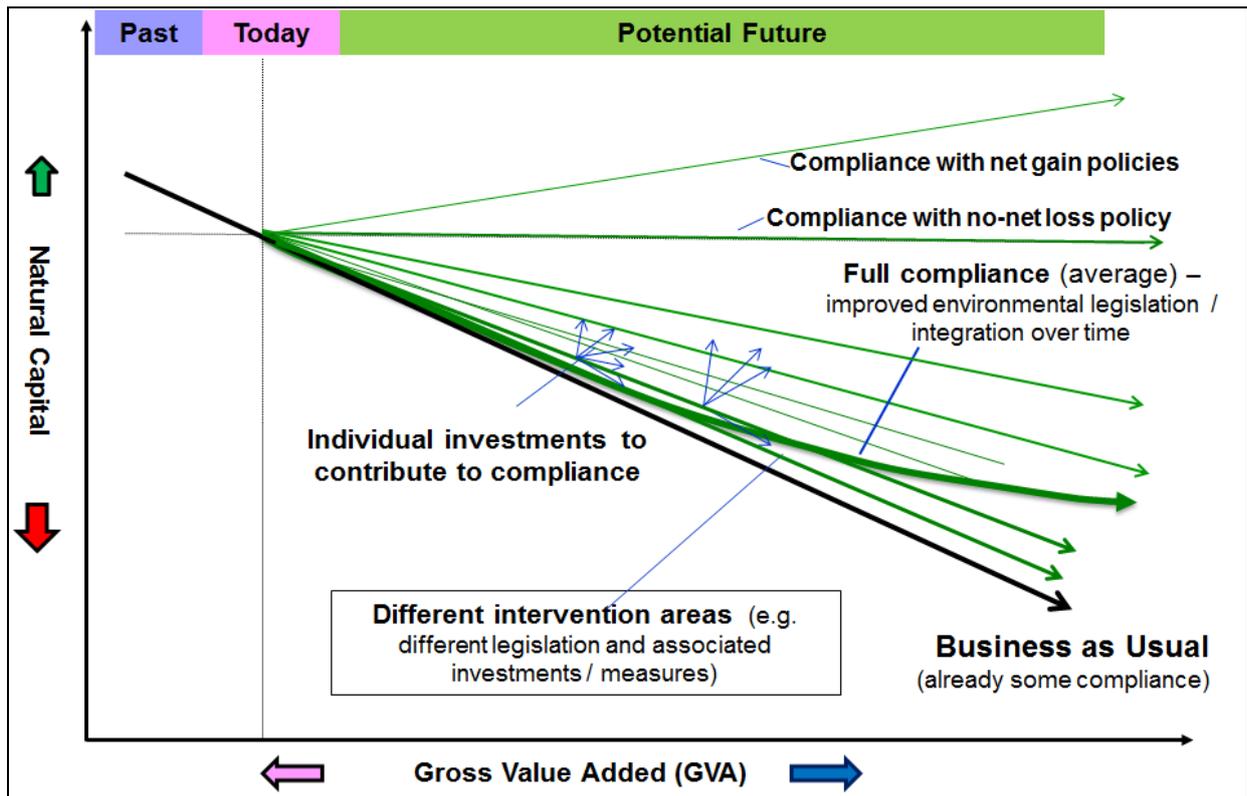
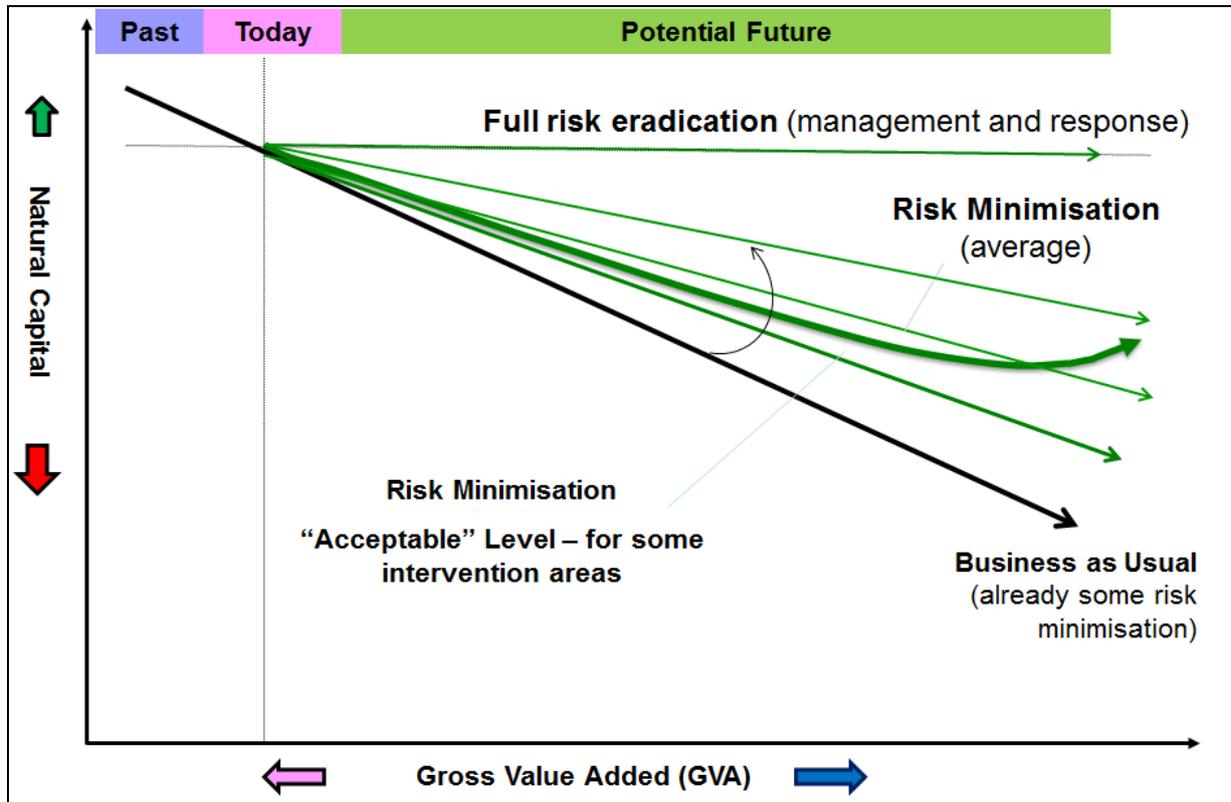


Figure 24: Development Path C: Risk Management, Risk Minimisation and Eradication



Development paths D (Figure 25) and E (Figure 26) represent a more holistic approach designed to pursue environmental sustainability as part of the OPs, with Path D focusing on clean up, restoration, conservation and other investments in natural capital - i.e. focusing on working with nature rather than man-made infrastructures. Path E in turn focuses on eco-efficiency, combining approaches that encourage decoupling economic growth from resource use and natural capital erosion. These will be linked to the case studies through reducing the use of natural capital per unit of economic output through resource efficiency (but generally still with an absolute loss in natural capital) and investment in new industrial technologies and economic and social behaviour.²⁷⁶

²⁷⁶ There will of course be cases where interventions can contribute to different development paths ways and strategic directions – eg investment in natural capital can play an important role also in the ‘pursuing environmental sustainability’ and go beyond ‘active environmental management’.

Figure 25: Development Path D: Clean up, restoration, conservation and investment in natural capital

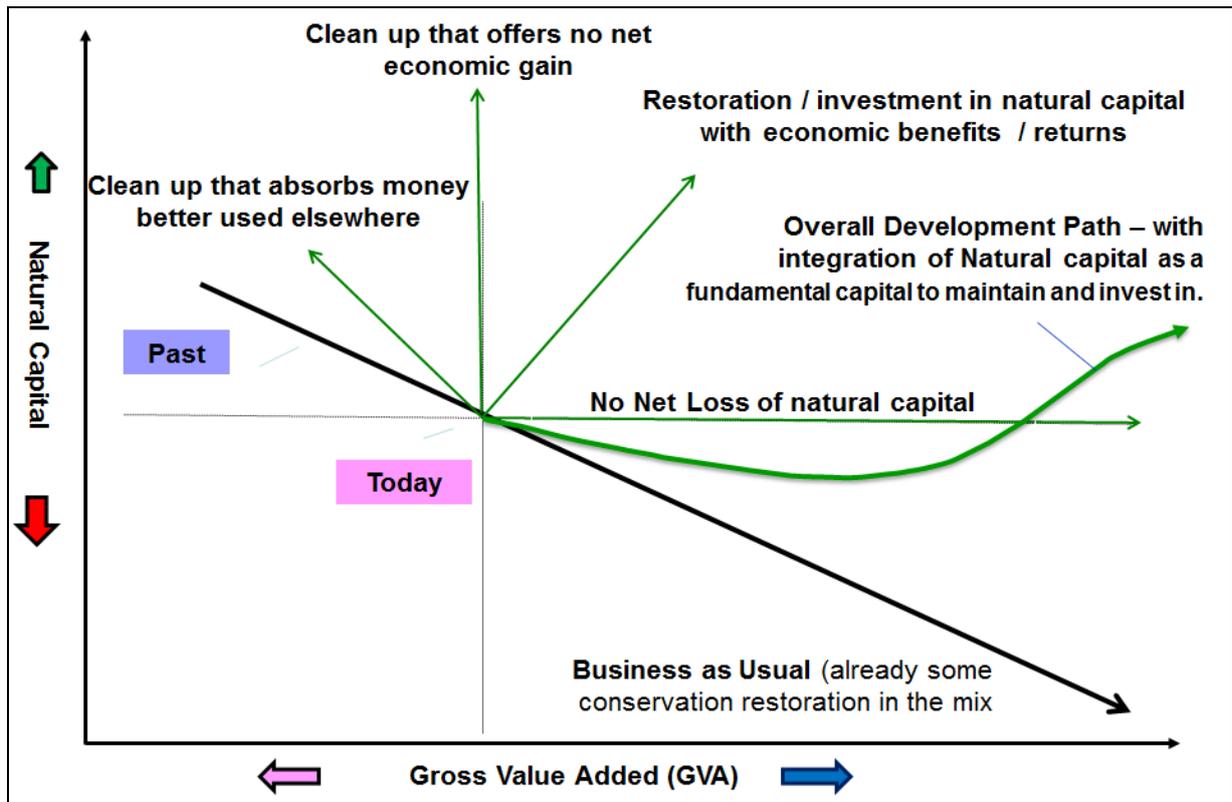
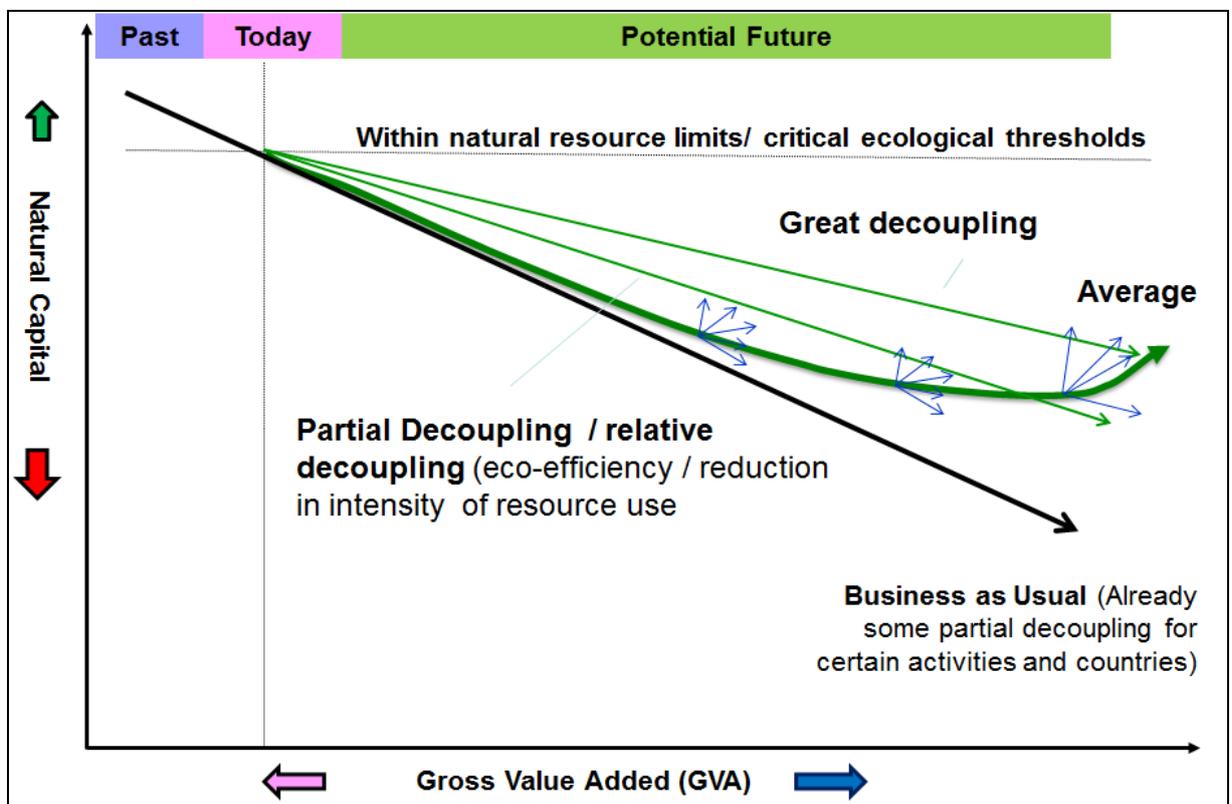


Figure 26: Development Path E: Eco-Efficiency



Finally, Path F (Figure 27) presents the absolute decoupling/new economy development path. This includes a fundamental move away from the current lock in to some environmentally harmful practices and a move towards working with not just little or no impact solutions (e.g. for energy provision, zero emissions systems) to working with and investing in natural capital (e.g. for water purification and provision) and also taking ecological thresholds and tipping points into account.

Combining these development paths can lead to different outcomes, depending on the mix and the level of emphasis/focus. Figure 28 presents different potential outcomes depending on the level of ambition for a transition to a resource efficient, equitable green economy.

Figure 27: Development Path F: Absolute Decoupling / New Economy

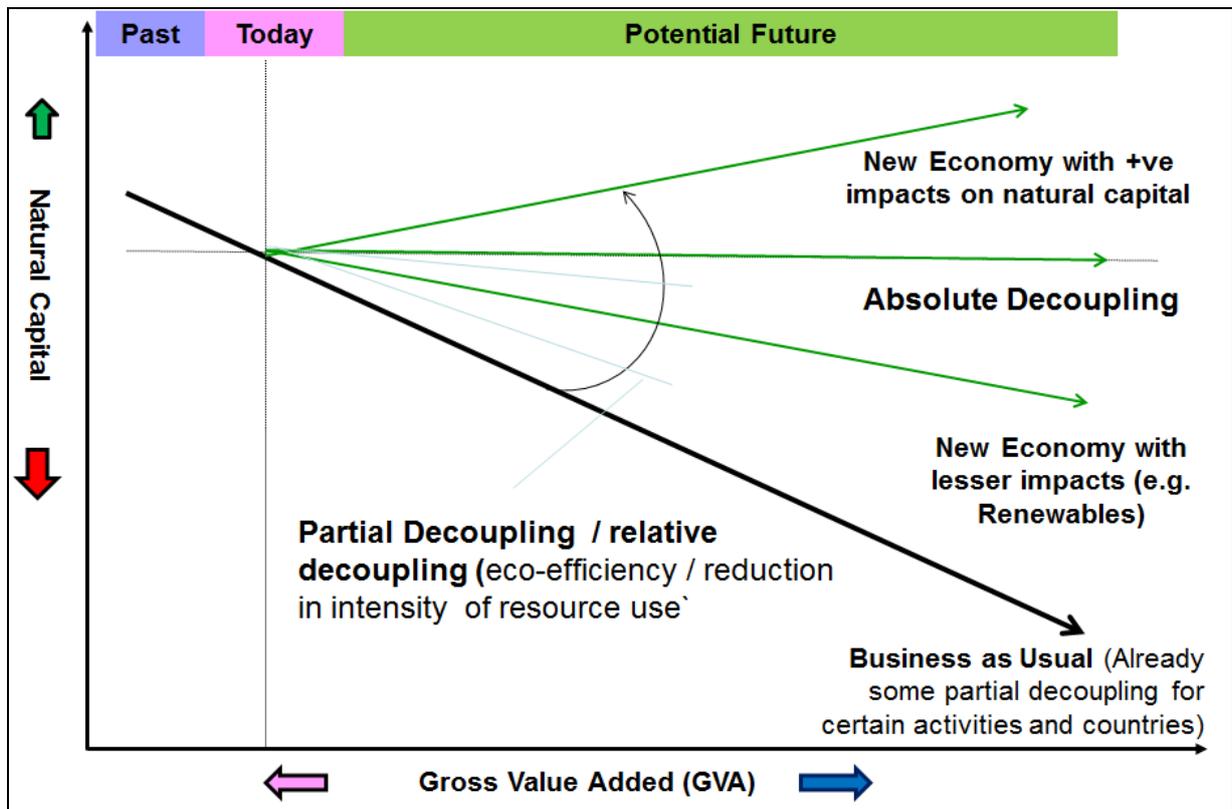
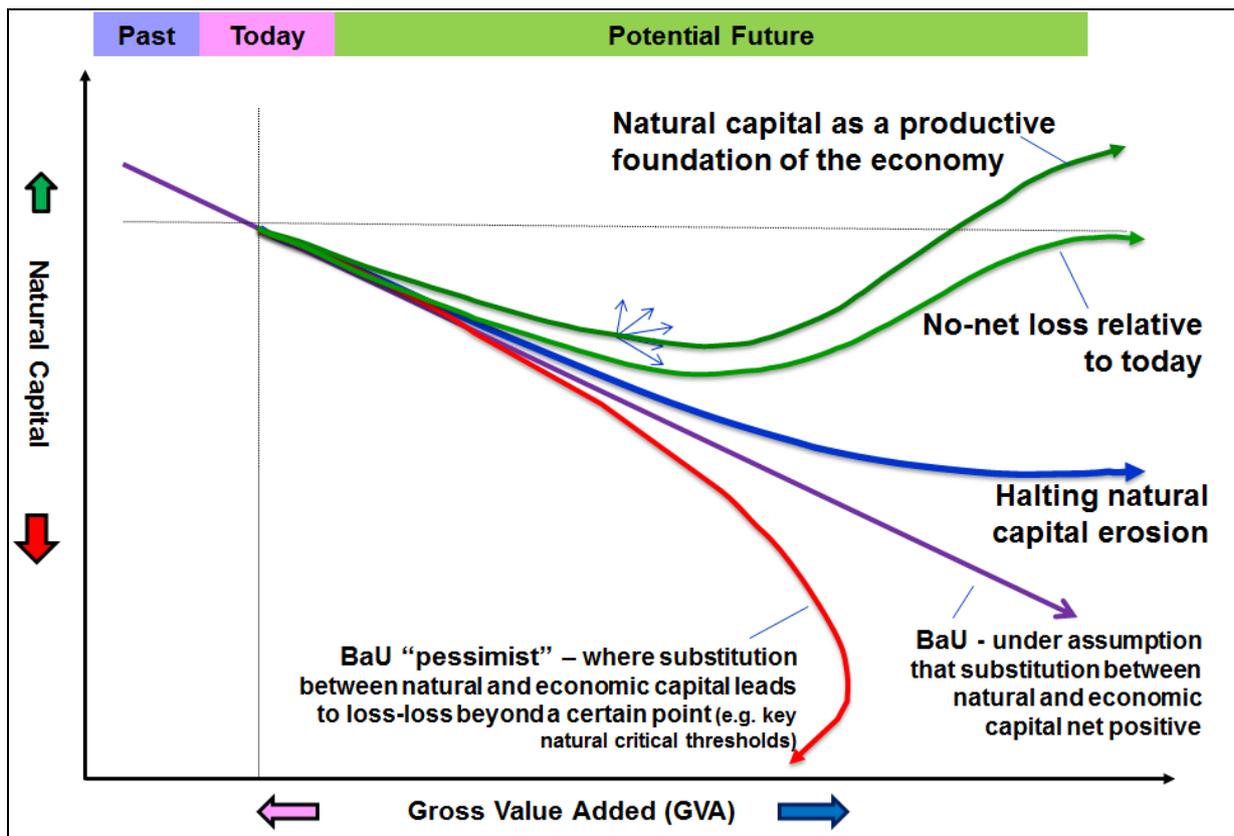


Figure 28: Overall Development Path choices that combine Development Paths A to F



Annex 3b: Development Paths and Descriptions of Cohesion Policy Categories

Development Path A: Business as Usual

Category cd	Category description
20	Motorways
21	Motorways (TEN-T)
22	National roads
23	Regional/local roads
29	Airports
30	Ports
33	Electricity
34	Electricity (TEN-E)
35	Natural gas
36	Natural gas (TEN-E)
37	Petroleum products
38	Petroleum products (TEN-E)
76	Health infrastructure
78	Housing infrastructure
82	Compensation of any additional costs due to accessibility deficit and territorial fragmentation
83	Specific action addressed to compensate additional costs due to size market factors

Development Path B: Environmental Compliance

Category cd	Category description
44	Management of household and industrial waste
45	Management and distribution of water (drink water)
46	Water treatment (waste water)
47	Air quality
48	Integrated prevention and pollution control
57	Other assistance to improve tourist services

Development Path C: Risk Management

Category cd	Category description
49	Mitigation and adaption to climate change
53	Risk prevention (...)
54	Other measures to preserve the environment and prevent risks
84	Support to compensate additional costs due to climate conditions and relief difficulties

Development Path D: Clean-up, Restoration, Preservation, Investment in Natural Capital

Category cd	Category description
50	Rehabilitation of industrial sites and contaminated land

51	Promotion of biodiversity and nature protection (including Natura 2000)
55	Promotion of natural assets
56	Protection and development of natural heritage
58	Protection and preservation of the cultural heritage
59	Development of cultural infrastructure
60	Other assistance to improve cultural services
61	Integrated projects for urban and rural regeneration

Development Path E: Eco-efficiency

Category cd	Category description
05	Advanced support services for firms and groups of firms
06	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...)
08	Other investment in firms
09	Other measures to stimulate research and innovation and entrepreneurship in SMEs
10	Telephone infrastructures (including broadband networks)
11	Information and communication technologies (...)
12	Information and communication technologies (TEN-ICT)
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)
15	Other measures for improving access to and efficient use of ICT by SMEs
16	Railways
17	Railways (TEN-T)
18	Mobile rail assets
19	Mobile rail assets (TEN-T)
24	Cycle tracks
25	Urban transport
26	Multimodal transport
27	Multimodal transport (TEN-T)
28	Intelligent transport systems
31	Inland waterways (regional and local)
32	Inland waterways (TEN-T)
39	Renewable energy: wind
40	Renewable energy: solar
41	Renewable energy: biomass
42	Renewable energy: hydroelectric, geothermal and other
43	Energy efficiency, co-generation, energy management
52	Promotion of clean urban transport
79	Other social infrastructure

Development Path F: Decoupling

Category cd	Category description
01	R&TD activities in research centres
02	R&TD infrastructure and centres of competence in a specific technology
03	Technology transfer and improvement of cooperation networks ...
04	Assistance to R&TD, particularly in SMEs (including access to R&TD)

	services in research centres)
07	Investment in firms directly linked to research and innovation (...)
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)
74	Developing human potential in the field of research and innovation, in particular through post-graduate studies ...

Categories that have not been allocated to a Development Path

Category cd	Category description
62	Development of life-long learning systems and strategies in firms; training and services for employees ...
63	Design and dissemination of innovative and more productive ways of organising work
64	Development of special services for employment, training and support in connection with restructuring of sectors ...
65	Modernisation and strengthening labour market institutions
66	Implementing active and preventive measures on the labour market
67	Measures encouraging active ageing and prolonging working lives
68	Support for self-employment and business start-up
69	Measures to improve access to employment and increase sustainable participation and progress of women ...
70	Specific action to increase migrants' participation in employment ...
71	Pathways to integration and re-entry into employment for disadvantaged people ...
72	Design, introduction and implementing of reforms in education and training systems ...
73	Measures to increase participation in education and training throughout the life-cycle ...
75	Education infrastructure
77	Childcare infrastructure
80	Promoting the partnerships, pacts and initiatives through the networking of relevant stakeholders
81	Mechanisms for improving good policy and programme design, monitoring and evaluation ...
85	Preparation, implementation, monitoring and inspection
86	Evaluation and studies; information and communication

ANNEX 4: ON THE PATH TO A RESOURCE EFFICIENT ECONOMY

A summary of the recommendations with respect to development path analysis (DPA) and on applying conditional and complementary instruments “outside” of Cohesion Policy can be found in Section 6.3 of the main report. A fuller version of these recommendations can be found below.

Recommendations: Changing the way in which Cohesion Policy invests - Development Paths and investment choices, win-wins and trade-offs (win-losses)

A green economy will require better synergy between economic, environmental and social capitals, that opportunities for resource efficiency and for working with natural capital are seized and that trade-offs that erode natural capital, which can also erode social capital, are avoided. In reality, there is no single ‘development path’ but rather a mix of paths, with different paths followed by different regional economies, depending on their existing level of development and the respective national and regional political frameworks and capital bases. However, it is possible to identify that some development paths are preferable to others from the perspective of a green economy.

Cohesion Policy: Development Paths, declining sustainability and compliance

Cohesion Policy can contribute to the shift to the green economy by funding or encouraging projects that are consistent with the more sustainable development paths and encouraging a move away from investments that may risk damaging the environment and hence contribute to **declining sustainability** – our ‘development path A’. In some cases, such investment might still be justified, if the economic and social benefits of the investment significantly outweigh the costs of environmental damage. However, in the cases of such ‘win-losses’, the trade-offs need to be explicitly recognised and care must be given in order to ensure that such investment does not become an environmentally harmful subsidy. Recommendations are given in the box below.

Recommendations to avoid investment risks contributing to *declining sustainability (Path A)*:

- **Explicitly and transparently identify and acknowledge trade-offs** in order to **mitigate win-losses** and ensure that lose-lose options, which might at first sight appear as acceptable win-lose trade-offs, are not taken forward;
- For win-losses, **consider whether conditional or complementary instruments might be applied** to mitigate the potential losses (see later section on conditional instruments);
- For certain types of investment (i.e. those that are most likely to deliver environmental harm), **require that there be a burden of proof on the project applicant to demonstrate the need for the investment**, including demonstrating the value added. This is particularly important for roads; and
- **Improve the use of tools** to minimise or halt losses in natural capital. The use of procedural instruments, such as EIA and SEA, is critical here, as are the proofing tools that are being developed, e.g. to deliver carbon neutrality and no net loss for biodiversity (see also later section on integration).

Compliance with EU law has been a core commitment in the Cohesion policy and an explicit focus of funding historically - through investments in environmental infrastructures (e.g. water and waste treatment), generally using manufactured capital to address the problem, and the provision of the necessary services (e.g. water and waste management services). Such an approach could be characterised as development path B, i.e. **environmental compliance, including man-made capital and environmental infrastructures**.

Recommendations with respect to investment that focuses on development path B, *environmental compliance*:

- Where there remains a need to support environmental compliance, **investments should encourage cost-effective solutions**, e.g. by due project prioritisation and requiring charging where relevant. For such investment, there will be important geographic differences, e.g. for water supply, waste water treatment and waste management, as some countries have mature and complete infrastructure, while others require significant additional capital expenditure.
- In order to maximise the potential benefit of such investments, **parallel measures should be taken to free up Cohesion Policy funds**. For example, as soon as it becomes affordable, users should be charged for larger proportions of the costs of use, particularly the costs of operation and maintenance. The aspiration should be that user charging also covers the cost of the infrastructure and, if and where possible, also the resource price (e.g. water) and external costs of use (e.g. for transport). Project applicants would have to justify the level (or absence) of user charging.

Cohesion Policy and investment in Sustainable Development Paths

The recommendations in the previous two boxes are of particular importance in order to ensure that Cohesion Policy funding does not adversely affect the environment, and reflect the discussions on minimising trade-offs and realising win-wins as discussed earlier. However, following these recommendations, even those to improve the way in which investment consistent with the *environmental compliance* is implemented, will not on its own contribute sufficiently to the structural changes that are called for by Europe 2020 and are needed for a transition to a green economy.

The remaining four development paths each have an important contribution to make towards the transition to a green economy. To some extent, elements of the more sustainable development paths are already being taken forward in some countries and supported by Cohesion Policy funds, but within a green economy, these paths need to be supported systematically rather than only by the front-running countries and regions.

There is a clear need for a more systematic and rigorous approach to **risk management** which is an important element of delivering a climate resilient economy (Development Path C: Risk Management). Currently, some risks are addressed within EU legislation, such as those relating to industrial pollution and existing and future flood risks²⁷⁷. However, in the context of moving towards a green economy in the face of the existing environmental challenges, there is a wide range of other risks that need to be taken into account, including risks

²⁷⁷ Directive on the assessment and management of [flood risks](#) [2007/60/EC](#) (OJ L20 288)

associated with climate adaptation, invasive alien species²⁷⁸, ecological critical thresholds (e.g. eutrophication and ‘dead zones’) and other resource limits and resource scarcity issues. In order to address these, Cohesion Policy should support actions such as the following:

- Risk mapping, including the integration of projected changes of natural hazards related to climate change;
- Step up investment beyond responses to natural and technological hazards onto preparedness, early warning systems and adaptive capacity through a balanced mix of ‘grey’ (i.e. infrastructure), ‘green’ (ecosystem-based) and ‘soft’ capacity building’ measures;
- Capacity building, while generally relevant for Cohesion Policy, has a specific application for risk management given the growing challenges – it should be made a priority in order to raise awareness of risks, develop skills and management capacity to improve the ability to plan and respond to risks. At the same time this will help contribute to a change in the mind-set towards a more ‘proactive risk minimisation’ and ‘precautionary principle’ approach rather than being reactive which can be less cost-effective; and
- Cross-border coordination, communication and collaboration on risks, e.g. flooding and on invasive alien species which have risks for many productive sectors of the economy as well as infrastructure.

The next development path - *investment in natural capital (including clean-up, restoration and conservation)*, that is development path D - has the potential to offer significant (social) return on investment, which often offers better value for money than alternative (e.g. man-made, technological) solutions (e.g. restoration of wetlands and carbon storage; water purification and supply costs²⁷⁹, as well as in some cases adaptation to climate change and natural hazards management). This will require a vastly improved understanding of the extent, state and changes in natural capital, which will require investment in knowledge on ecosystem service indicators, as well as natural capital accounts and links to GDP via systems of environmental-economic accounting²⁸⁰. Actions that should be supported by Cohesion Policy include:

- Increase investment for the restoration and development of **green infrastructure** where this offers important ecosystem services, e.g. watersheds for water provision/purification for cities; protected areas for recreation and tourism; river restoration; and combating fragmentation;
- Increase investment in **greening man-made infrastructure**, particularly rail and roads, in order to help reduce impacts and facilitate additional connectivity;

²⁷⁸ The new Biodiversity Strategy - COM(2011) 244 final - Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions - Our life insurance, our natural capital: an EU biodiversity strategy to 2020 and also Shine, C., Kettunen, M., Genovesi, P., Essl, F. Gollasch, S., Rabitsch, W., Scalera, R., Starfinger, U. and ten Brink, P. 2010. Assessment to support continued development of the EU Strategy to combat invasive alien species. Institute for European Environmental Policy (IEEP), Brussels, Belgium. Kettunen, M., Genovesi, P., Gollasch, S., Pagad, S., Starfinger, U. ten Brink, P. & Shine, C. 2009. Technical support to EU strategy on invasive species (IAS) - Assessment of the impacts of IAS in Europe and the EU. Institute for European Environmental Policy (IEEP), Brussels, Belgium. 44 pp. + Annexes.

²⁷⁹ TEEB 2009, 2010, 2011 Op Cit.

²⁸⁰ See, for example, www.beyond-gdp.eu/download/bgdp-ve-seea.pdf

- Invest in **regional natural capital accounts, ecosystem services indicators and capacity** to understand the interactions and synergies between natural capital and economic and social activities. The Necater case study has shown the benefits of carbon emissions indicators and accounts; it would similarly be useful to have carbon storage and sequestration accounts from natural capital.
- Invest in measures that go beyond legislative requirements but that offer important benefits, e.g. natural waste water treatment via reed beds to complement man-made waste water treatment plants. This can, for example, lead to downstream waters reaching quality appropriate for recreation.

Development Path E, which focuses on *eco-efficiency*, is crucial in delivering Europe 2020's objective of a resource efficient economy. This covers a number of issues, including the use of materials for production, management systems, product efficiency and the wider use of natural capital. The issue of subsidy reform (within Cohesion Policy and using Cohesion Policy funds as leverage) is critical here. Measures to promote eco-efficiency directly are also important, including the application of whole life costing (WLC; linked to green public procurement support for investment in infrastructures that encourage eco-efficiency), investment in energy efficiency and support for eco-efficiency measures that have previously often fallen outside of Cohesion Policy (e.g. facilitating renewable energies). Each of these will contribute to the relative decoupling of the economy from resource inputs and pollution.

Relevant critical Cohesion Policy initiatives include:

- Systematic use of **Whole Life Costing (WLC)** and **Green Public Procurement** in Cohesion Policy procurement, e.g. vehicle purchase (as per regulation) and for all other suitable investments (e.g. roads and rail) and purchases;
- Support **R&D** activities and innovation for environment-friendly technologies; and
- Applying **EMAS and Ecolabel**, or at least equivalent systems and standards, as a **conditional requirement** of Cohesion Policy investments, where appropriate (see also discussion on conditional and complementary instruments).

Finally, if economic growth is to be able to continue unabated, there will be a need to move towards Development Path F, the *absolute decoupling* of economic growth from environment impacts, pollution, resource use and natural capital erosion²⁸¹, which would be a truly green economy. This builds on many of the above development paths. Some of the approaches implied by the above may be sufficient to achieve absolute decoupling in many areas (e.g. regulation has led to economic growth being decoupled from ozone generation and from SO₂ emissions). However, it is likely that in other areas consumption changes and procurement choices will also need to change, which is linked to awareness raising and labelling, management systems and also an evolution in social norms. In other areas, a mix will be required, for example legislative requirements for the energy efficiency of buildings, labelling/energy passports, Cohesion Policy support via investments in building insulation. Some examples of actions that Cohesion Policy could support include:

²⁸¹ Jackson, T. (2009) *Prosperity without growth? The transition to a sustainable economy* Sustainable Development Commission, UK

- Investment in the **energy efficiency of buildings** and associated **skills** and **capacities** (energy audit, energy management systems). This has major potential for savings, improved levels of disposable income and comfort, increases in the value of the housing stock, as well as contributing to emissions reductions and help job creation.
- Support for **labelling/certification schemes** to help improve the supply of information and products/services that can encourage the due evolution of social norms (e.g. product labelling, building standards and associated labels/passports).
- Encourage the adoption of objectives and targets such as “**carbon neutral**” or “**no net loss of biodiversity**” or “**net gain**” (as well as fair trade issues for sustainable procurement).

A transition to a resource efficient, equitable green economy will require a move away from the ‘traditional’ development path of substituting natural capital for other capitals with associated erosion of natural capital stock, and towards a world which supports policies and actions that encourage development in the direction of the five other development paths – of improved compliance with legislation (including implementation), improved pro-active risk management attitude, approaches and measures, investment in natural capital as an equal capital, encouragement for innovation and other resource efficiency measures and encouragement of new green economies.

While the Cohesion Policy can act as an important driver and catalyst in the transition to a green economy, this role can be enhanced through the use of a range of conditional and complementary instruments (see section below) as well of course as the wider toolkit of integration tools within Cohesion Policy (see final section of this chapter)

Applying conditional and complementary instruments – using tools “outside” of the Cohesion Policy to help with Cohesion Policy objectives

The instruments that can be used in parallel to Cohesion Policy in order to improve its environmental performance can be either conditional (i.e. be a requirement of Cohesion Policy) or complementary (i.e. be proposed alongside Cohesion Policy). Such instruments should be used in conjunction with, rather than instead of, existing instruments within the Cohesion Policy cycle. Many of these instruments are consistent and coherent with wider principles of EU policy making and are already being used within the Member States or the regions, or at the European level. The following discussion is undertaken in accordance with the key environmental themes set out in the EU SDS i.e.: sustainable consumption and production; transport; climate change clean energy; and resource use, which focused on water and biodiversity.

Promising policy instruments for the enhancement of environmental sustainability into Cohesion Policy under **sustainable consumption and production** (SCP) are Green Public Procurement (GPP), EMAS and Ecolabels. The inclusion of **EMAS** and/or **Ecolabels** under schemes for GPP could potentially generate synergies improving the incentives for registration under EMAS and Ecolabel schemes through creating a market for the companies. Incorporating EMAS, Ecolabel and GPP into the Cohesion Policy would provide a policy-mix that would improve the effectiveness and efficiency of the investment instruments under the Cohesion Policy by coordinating supply-side (EMAS and Ecolabel) and demand-side instruments (e.g. GPP). Applying EMAS and Ecolabel, or at least equivalent systems and standards, should be a conditional requirement of Cohesion Policy investments, where appropriate.

For **water** there are two principal instruments, enabled under the terms of the Water Framework Directive (WFD), which could be used to deliver some elements of the win-wins: **improved appraisal** of the needs generated by existing EU legislation; and the implementation of full cost recovery through **water pricing**. These have the potential to deliver a reduced need for funding of water supply and wastewater treatment investment, as well as to resource efficiency; it will also liberate Cohesion Policy funding by moving financing to private individuals. However the ability of some of the newer Member States to use these instruments may be limited. This is because substantial investments are needed in order to meet the requirements of legislation, especially in the light of lack of affordability household incomes. In many instances it is likely that Cohesion and Structural Fund investment will be required irrespective of non-investment policy instruments. Such investments would be consistent with Development Path B.

Overall, the coherence of the EU policy framework would benefit if both the assessment of regulatory compliance needs with reference to the appraisal of water investment needs (and opportunities to address needs using natural assets) and water pricing were applied in Cohesion Policy funded programmes; both mutually reinforce the effectiveness of each other and any additional instruments applicable in the water policy field. In particular the use of the appraisal tool would take into account the operation of other Directives that affect water pollution, since the WFD seeks to coordinate water quality specific directives to ensure good water quality across Europe (such as the Nitrates Directive and Urban Waste Water Treatment Directive). It could also extend to, for example, the Industrial Emissions Directive. The principal that these instruments need to be applied should be set out in the Common Strategic Framework (CSF), while the Member State specific requirements should be set out in the respective Development and Investment Partnership Contracts. These frameworks would then govern the application of water investments at the regional level.

For **biodiversity**, the focus is on delivering an environmental win, i.e. protecting or benefiting natural resources, which delivers an increased economic benefit as natural resources that are supplying ecosystem services are protected or enhanced. The ‘win-win’ interventions for biodiversity can be supported by a range of non-investment policy instruments. These include, for example, a range of regulatory instruments targeting both biodiversity and the environmental sustainability of sectoral policies, e.g. those of energy and transport. Furthermore, several market based instruments, such as reform of subsidies, introduction of taxes and fees and the establishment of payments for environmental services (PES) can be used to create long-term benefits for both biodiversity and regional socio-economic development. Several voluntary mechanisms can play a significant role in enabling the uptake of win-wins in practice (e.g. providing information, (voluntary) standards or codes and training and capacity building).

The biodiversity instruments should mainly be used in conjunction with, not replace, the existing tools and instruments currently in place within the Cohesion Policy cycle. In general, the biodiversity related EU Regulations should be more systematically applied throughout the entire Cohesion Policy cycle to create clear biodiversity standards for Cohesion Policy investments. In this way, win-losses, or even loss-losses caused by the degradation of ecosystem and their services in the long run, between socio-economic development and biodiversity should be avoided, e.g. by conditionality and applying biodiversity proofing. Biodiversity Regulations could be used as a legislative basis on which to build, when proactively seeking win-wins between biodiversity and Cohesion Policy. The market-based

and voluntary instruments on the other hand are anticipated to be best placed to complement the existing / future Cohesion Policy investments to biodiversity conservation.

For **transport**, in addition to the application of GPP (see above), the application of **user charging for transport** would be beneficial in terms of the coherence of the EU policy framework within projects funded by Cohesion Policy. The application of road user charging would make Cohesion Policy consistent (or at least more consistent given the restrictions set by the revised Eurovignette Directive) with the Polluter Pays Principle. As with water pricing, there is an argument that in some Member States the application of user charging might not be affordable. The application (or not) of user charging could be assessed as part of the SEA where a justification of any proposed non-application of user charging would need to be developed. In undertaking this assessment, consideration would also need to be given to the potential adverse social impacts that might result from charging, which should lead to the identification of the mitigating instruments that could be applied to reduce such adverse impacts.

For **climate change and the delivery of clean energy** the most promising instruments that can be used in Cohesion Policy are **standards for the thermal insulation of buildings and associated labelling and enforcement** and **feed-in tariffs**. Since the building sector accounts for 40 per cent of energy consumption and 36 per cent of CO₂ emissions at the EU level, the integration of **standards for the thermal insulation of buildings** in Cohesion Policy would be coherent with the EU policy framework. It would help achieve the targets of 20 per cent reduction of the Greenhouse gases emissions and 20 per cent energy savings by 2020.

Recommendations for the application of conditional and complementary instruments:

The following policy instruments should be applied as conditional instruments with Cohesion Policy:

- Applying *GPP* generally and to the transport sector in particular;
- Applying *EMAS and Ecolabels*;
- Applying *standards* for the *thermal insulation of buildings* in a systematic way when buildings are constructed;
- Strengthening the *implementation of the Water Framework Directive*, including the greater use of *water pricing* to assist *full cost recovery* and the development of guidelines for undertaking the proposed appraisal for water investment;
- Strengthening the use of *existing EU biodiversity Regulations* and the application of market based mechanisms for nature conservation; and
- Applying *user charging for transport* infrastructure.

For each of these instruments, the necessary strategic framework needs to be set out at the EU level, while Member State specific requirements should be set out at the Member State level, e.g. in the respective Development and Investment Partnership Contracts. These frameworks need to be reflected in lower level of governance.

SUPPORTING PAPERS

[Separate Electronic Files]

Supporting Paper 1: Literature Review

Supporting Paper 2: Cohesion Policy Performance

Supporting Paper 3: Role of non-Cohesion Policy Instruments

Supporting Paper 4: Case studies (as an separate Annex to this report)

Supporting Paper 5: Tools for Sustainable Development