COHESION POLICY AND SUSTAINABLE DEVELOPMENT

Supporting Paper 2

Cohesion Policy Performance

Institute for European Environmental Policy (IEEP)

Together with

CEE Bankwatch Network

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TABLE OF CONTENTS

1 INTRODUCTION

This is the Supporting Paper 2 to the final report[1] 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 drafted by the Institute for European Environmental Policy (IEEP) with CEE Bankwatch Network (hereafter Bankwatch), BIO Intelligence Service S.A.S, GHK, Institute for Ecological Economy Research (IÖW), Netherlands Environmental Assessment Agency (PBL) and Matrix Insight.

This report should be quoted as follows:

Ten Brink, P. Medhurst, J. Hjerp, P. and Medarova-Bergstrom, K. (2010) *Cohesion Policy and Sustainable Development-Cohesion Policy Performance*, Supporting Paper 2. A report for DG Regio, September 2010.

The aim of this supporting paper is to provide an overview of the integration of SD into Cohesion Policy, the impact of Cohesion Policy on the environment as well as the integration of SD processes and governance mechanisms. Its purpose is to understand how the current operation of Cohesion Policy (2007-2013) interprets the concept of sustainable development and how it reflects this understanding in both the design and implementation of national and regional programmes. The task focuses on the explicit or implicit purpose and approach currently taken by Cohesion Policy to the integration of environmental needs and objectives, with particular reference to the four environmental themes - climate change and clean energy; sustainable transport; sustainable consumption and production; and conservation and management of natural resources e.g. water and biodiversity.

The overall approach to this task includes three main steps:

1) Literature review on the environmental performance of Cohesion Policy;
2) Overview and adaptation of the Development Path Analysis (DPA) and four capitals approach; and
3) Analysis of the 2007-2013 financial allocations under the different development pathways

The literature review builds upon the findings from the literature review of Supporting Paper 1and further explores previous studies, evaluations and reports which have assessed what the impact of Cohesion Policy investments is on the environment, how the environment was taken into account so that impacts were mitigated and how sustainable development has been enhanced. This literature review on the impact of Cohesion Policy aims to provide a better understanding of the evolution of Cohesion Policy with regard to the environment and sustainable development, pinpoint the most important issues with regard to possible 'win-wins' and 'win-losses'(see later discussion for details) and bridge the available literature with our further analysis.

[1] Hjerp, P., Medarova-Bergstrom, K., Cachia, F., Evers, D., Grubbe, M., Hausemer, P., Kalinka, P., Kettunen, M., Medhurst, J., Peterlongo, G., Skinner, I. and ten Brink, P., (2011) *Cohesion Policy and Sustainable Development,* A report for DG Regio, October 2011

The literature review is followed by the theoretical overview and application of the development pathway analysis (DPA) and the four capitals approach. The DPA is applied in two ways:

1) A DPA has been applied in relation to the 2007-2013 financial allocations, in order to assess how much the 2007-2013 EU Structural and Cohesion Funds contribute to the different development pathways; and
2) The DPA will provide the analytical framework on which the analysis of environmental sustainability of the case studies (Supporting Paper 4) will be based upon and also creates a conceptual basis for discussions on focus, priorities, process and developments of the Cohesion Policy.

The theoretical overview of the four capitals approach is used by the evaluation team to identify the range of economic-environmental 'win-wins' and 'win-losses' under the four environmental themes[2]. This analysis will be further elaborated upon as the basis for identifying alternative ways of achieving win-wins or avoiding win-losses, as part of Supporting Paper 3.

This supporting paper also includes an analysis of the financial allocations of EU funds for the 2007-2013 programming period (see Section 4). This analysis aims to demonstrate the overall distribution of funding of the current period for different interventions. DPA will be applied in order to show what key priorities are encouraged and which interventions are underfinanced in the current period under the different development pathways. This creates an overview for the CP as a whole, and is complemented by additional case insights, where the (governance) process behind the OP development path choice is explored and how different interventions support which development path.

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[2] The main focus of the analysis is on economic-environmental trade-offs and synergies. In the case studies (Supporting Paper 4), where interesting insights are available on the wider trade-offs, eg economic, environmental, social, human and also with cohesion policy objectives these will be noted. In some cases social capital based interventions, such as capacity building, can have positive impacts both for economic and environmental dimensions. In general we use a short hand "win-win" to talk of synergies and "win-loss" to talk of trade-offs.

2 LITERATURE REVIEW ON THE ENVIRONMENTAL PERFORMANCE OF COHESION POLICY

This literature review has been built upon the literature review of Supporting Paper 1 with a focus on:

- Framework for environmental integration in 2007-2013 Cohesion Policy;
- Cohesion Policy process cycle and environmental integration;
- Impact of Cohesion Policy on the environment;
- Territorial Cohesion; and
- Use of proofing tools.

Section 2.1 examines the existing evidence on the approach to environmental integration in Cohesion Policy. Environmental integration has been defined essentially in terms of the process of integration (see Literature Review, Section 6.1.1). This places an emphasis on the methods used to ensure environmental objectives are reflected in all policy making and delivery.

The process of integration can be manifested through political, procedural and organisational/institutional tools that aim to improve overall policy delivery and outcomes in view of environmental sustainability. In this sense, for the analytical approach of this project it is essential to operationalise this definition in an analytical framework, which can then be applied in the relevant Tasks. This analytical framework is structured around the different stages of the Cohesion Policy cycle, as shown in Section 2.2.

The main impacts of Cohesion Policy on the environment are covered in Section 2.3. This chapter will also cover the role of territorial cohesion in environmental integration (Section 2.4) and proofing tools, which are used to ensure that an intervention mitigates particular adverse impacts, eg those on climate or biodiversity (Section 2.5).

2.1 Framework for Environmental Integration and the Current 2007-2013 Cohesion Policy

The 2007-2013 Cohesion Policy provides a policy framework for the use of EU funding instruments for regional development. It also contains provisions which ensure the strategic alignment of Cohesion Policy to sustainable development objectives but also the environmental objectives of the EU Treaties and environmental *acquis*.

Article 3 of the Treaty of the European Union states the objectives of the European Union and defines the principle of sustainable development with its three pillars – economic, social and environmental:

> *'It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance.'*

Article 11 of the TFEU further stipulates the principle of environmental integration:

'Environmental protection requirements must be integrated into the definition and implementation of the Union policies and activities, in particular with a view to promoting sustainable development.'

The Lisbon Treaty leaves the EU's core provisions on environmental policy substantively unchanged. A specific reference to combating climate change is included in relation to 'promoting measures at [the] international level to deal with regional or worldwide environmental problems' (Article 191 TFEU (former Article 174 TEC)). Article 191 (2) also stipulates the key principles of environmental policy: precautionary principle, prevention at the source of environmental problem and polluter pays principle.

Article 17 of the General EU Funds Regulation 1083/2006/EC explicitly stipulates that:

'The objectives of the Funds shall be pursued in the framework of sustainable development and the Community promotion of the goal of protecting and improving the environment…'

Historically EU Cohesion Policy has dealt with addressing regional disparities and bringing structural change to the economies of 'lagging behind' European regions. Therefore, Cohesion Policy and its funding instruments – the European Regional Development Fund, the European Social Fund and the Cohesion Fund – have traditionally focused on economic and social objectives. The principle of environmental integration in EU funding and the role of environmental investments in particular for regional development have gained more significant prominence on the cohesion agenda. This was reflected in the Regulations providing the legal basis for this policy in the 2007-2013 financial period (eg General Regulation 1083/2006/EC).

The current set of legal requirement embedded in the EU funds Regulations imposes the following obligations:

- to analyse the environmental situation of the programme area;
- to appraise the environmental impact of the proposed strategy based on the principles of sustainable development and in agreement with Community law;
- to make arrangements to involve the competent environmental authorities in the preparation and implementation of the proposed operations; and
- to comply with Community environmental policy and legislation.

The Community Strategic Guidelines on Cohesion[3] also call for strengthening the synergies between environmental protection and growth, through actions to:

- address the significant needs for investment in infrastructure (particularly in convergence regions) to comply with environmental legislation in water, waste, air, nature and species protection;
- promote land-use planning to ensure attractive conditions exist for businesses and skilled staff, such as through reducing urban sprawl and the rehabilitation of the natural environment;

[3] Council Decision of 6 October 2006 on Community Strategic Guidelines on Cohesion (2006/702/EC), OJ L291/11, 21/10/2006

- promote investments which contribute to the EU Kyoto commitments; and
- undertake risk prevention measures through improved management of natural resources.

These guidelines recognised that environmental investments have economic benefits - decreased external environmental costs; stimulation of innovation, and job creation. The provision of environmental services (eg waste and wastewater treatment), natural resource management, land decontamination and protection against environmental risks, were identified as being of priority, and emphasis was placed on tackling environmental pollution at its sources. They also call for improvements in energy efficiency and renewable energies.

The possible link between environmental interventions and economic gains is particularly important in the context of the renewed Lisbon Strategy for growth and jobs, which had significant influence on the design of the 2007-2013 cohesion policy investments. According to article 9 of the General Regulation 1083/2006/EC, the Commission and Member State shall ensure that 60 per cent of the expenditure in Convergence regions and 75 per cent of the expenditure in regional competitiveness and employment regions are 'earmarked' for projects which are in line with the objectives of the Lisbon Strategy. In this relation, Annex IV of General Regulation lists categories of expenditure, which have the potential to contribute to these objectives. Importantly, these include the following environment related measures – assistance to SMEs for the promotion of environmentally-friendly products and production processes (EMAS, pollution prevention technologies, clean technologies, etc.), energy efficiency and renewable energy, the promotion of clean urban transport as well as multi modal transport and intelligent transport systems.

Outside of this 'Lisbon' focused earmarking exercise, EU funds can finance a wider range of environmental interventions, which are linked to the implementation of EU *acquis* in the field of water, waste water and waste management as well as nature protection and risk prevention.

2.2 Cohesion Policy Process Cycle and Environmental Integration

It is crucial to understand the policy cycle of cohesion policy both at EU and national/regional levels as each stage of this cycle offers various opportunities to integrate environmental considerations in EU funds programmes and projects. There are a number of integration and coordination tools (procedural, substantive, etc.) and mechanisms (institutional, communicational, etc.), as reviewed in the Literature Review of Supporting Paper 1, which can ensure that different environmental concerns are taken on board throughout the entire policy cycle of EU funds. Some of these are already imbedded in the current Regulations, eg SEA, Monitoring committees, partnerships, compliance with environmental *acquis*, etc.

The stages of the Cohesion Policy cycle will be divided into:

- programming;
- ex-ante evaluations;
- implementation and institutional mechanisms;
- ex-post evaluation and monitoring; and
- reporting

For each Cohesion Policy cycle stage we will assess the process of integration based on type,

criteria and corresponding key questions, as shown in Table 1. This analysis will be used to address how different policy tools can best be integrated into the Cohesion Policy cycle in order to promote environmentally sustainable development, as part of Supporting Paper 5.

Table 1. Analytical approach to environmental integration

Processes type of Integration	**Criterion**	**Key question**
Strategic	Inclusion	To what extent are environmental and other policy objectives included in strategic and operational policy documents?
	Consistency	Have the contradictions and potential win-wins and trade-offs between the objectives related to environmental protection and enhancement and other policy objectives been decided and are there procedures for determining the relative priorities?
	Weighting	Have the relative priorities of environmental protection and enhancement compared to other policy objectives been decided and are there procedures for determining the relative priorities?
	Financial resources	What kind and scale of financial resources are allocated to achieve environmental objectives?
Procedural	Assessments	What kind of assessment procedures are there to assess ex-ante environmental impacts, costs and trade-offs, monitoring (eg SEA)?
	Reporting and evaluation	What kind of indicators and reporting mechanisms are applied?
	Proofing tools	What kind of 'proofing tools' are deployed to mitigate pressures on the environment and make other policy interventions more climate or biodiversity resilient?
Organisational	Institutional structures	What kind of governance structures exist to ensure policy coordination, communication and coherence across areas of interventions, identify win-wins and reconcile trade-offs?
	Partnerships (Article 11)	What partnerships and actor constellations have the potential to enhance integration?

2.2.1 Programming

Pursuant to Article 27 of the Structural Funds Regulation (EC) No 1083/2006, Member States have to 'present a national strategic reference framework which ensures that assistance from the funds is consistent with the Community Strategic Guidelines'. The purpose of the National strategic reference framework (NSFRs) is to specify the strategic orientations and priority interventions for the EU Structural and Cohesion Funds in the respective Member States/regions. The NSRFs should include, amongst other things, the following elements: an analysis of development disparities; the strategy chosen on the basis of this analysis; a list of operational programmes; a description of how spending will contribute to the EU's priorities of promoting competitiveness and creating jobs; and an indicative annual allocation from each Fund by Programme.

These NSRFs are prepared by the Member States as set out in Article 11 after consultation with relevant partners (including regional, local, urban authorities, socio-economic and environmental partners) and in 'dialogue' with the Commission with a view to ensuring a common approach. The NSRF defines the strategy chosen by the Member State and proposes a list of Operational Programmes that it hopes to implement. These NSRFs had to be submitted within five months following the adoption of the Community Strategic Guidelines on cohesion. After the receipt of the NSRFs, the Commission had three months to make any comments and to request any additional information from the Member State. The Commission validated certain parts of the NSRFs and, after a consultation with Member States, made a decision about the OPs and the indicative annual allocations from the Funds. The OPs present the priorities of the Member State/regions as well as its management and delivery mechanisms.

The ex-post evaluation of ERDF 2000-2006 (EC, 2009c), based on 10 case studies of OPs/NSRFs, found that while the process involves a wide range of actors, including those representing environmental interests, it is still the economic actors who influence the most the final shape of the programs. Clear definition of what sustainable development is (e.g. not limiting it to the environmental dimension) and ensuring participation of actors representing the full scope of interests would therefore be a prerequisite for successful integration of SD in programming.

2.2.2 Ex-ante Evaluations

The General Regulation sets out the requirement for Member States to conduct ex-ante and on-going evaluations, 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). Research has shown that the ex-ante evaluations of the 2007-2013 OPs have been an important tool to ensure that OPs are aligned with the Lisbon and the EU SDS Strategies (Nordregio 2009). In 2007, the Commission requested that Member States conduct an SEA as a parallel process to the ex-ante evaluations in line with the SEA Directive 2001/42/EC for the NSRF and OP. SEAs generally focused on potential synergies (win-wins) between economic development and environmental protection and less on trade-offs. However, there were few Member States where the choice of strategic decisions on the allocation of funding was influenced by considerations of associated environmental costs. (EC, 2009c)

ENEA (European Network of Environmental Authorities) and their Working Group on Cohesion Policy is conducting research on the relevance of SEA under the 2007-2013 funding period. A draft version of the report (ENEA, 2008) includes relevant information on specific aspects on SEAs and Operational Programmes on MS level and hence will contribute to the further analysis of case studies.

2.2.3 Implementation and Institutional Mechanisms

After the Commission agrees the OPs, the Member States and its regions then have the task of managing and controlling the implementation of programmes. That entails organising a call for proposals, the selection of projects, monitoring and evaluation. The management of the OPs is carried out by management authorities in each country and/or each region.

The European Commission has a co-decision power in appraising and approving 'major projects': for the 2007–2013 period, (major projects' refer to projects over €50 million). In a proposal of July 2009 (COM (2009) 384) the Commission proposed modification of the

General Regulation (EC) No 1083/2006 in order to introduce a uniform threshold of €50 million for all major projects as part of the anti-crisis measures package that DG Regional Policy has been putting forward since the end of 2008. For each major project, Member States must submit a series of information to the Commission, including a cost-benefit analysis, a financing plan and an analysis of the environmental impact. The latter should be in line with the EIA Directive (85/337/EEC).

In some countries, further institutional mechanisms for an improved integration of the environment into Cohesion Policy have taken place, such as in the UK, where a Sustainability Manager post has been created with the aim of making EU funded programmes and projects more resilient and proofed from an environmental perspective. In Italy and Spain "*networks of national and regional environmental authorities*" are responsible for the management of various EU funded projects. The aim of these networks is to establish common approaches to environmental investments and integration (IEEP, 2010). In 2004, a European wide network of environmental managing authorities of EU funds programmes and projects was also 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 how to integrate environmental consideration in Cohesion Policy. The network also has set up Working Groups which for the 2008-2010 will include climate change, SEA and biodiversity. (CEC, 2009)

The ex-post evaluation of ERDF 2000-2006 (EC, 2009c) found that at the implementation stage, guidance for applicants regarding integration of sustainable development into their projects was identified as very useful in the countries which provided it – through booklets and brochures, but also directly by assistance from dedicated staff or training. Again, it was important not to limit sustainable development considerations just to environmental issues and compliance with environmental legislation. Sustainable development criteria were in many cases included in project selection, although their weight was usually not enough to actually influence the final outcome of the selection. Trade-offs and synergies between pillars of sustainable development were not dealt with at all or not sufficiently, partly also due to the one-dimensional interpretation of sustainable development.

2.2.4 Ex-post Evaluation and Monitoring

The General Regulation requires Member States to conduct ongoing and ex-post evaluations of the OPs. As with ex-ante evaluations, the evaluations have to take into account 'the objective of sustainable development and of the relevant Community legislation concerning environmental impact and strategic environmental assessment' (Article 47).

The ex-post evaluation of ERDF 2000-2006 (EC, 2009c) found that ex-post evaluations of programmes usually did not provide clarification of what is understood as sustainable development. However, in some cases, mid-term evaluations of programs provided valuable proposals for better integration of sustainable development (e.g. changes in application forms, environmental checklists).

Based on Article 63 of the General Regulation (EC) No 1083/2006 Member States have established monitoring committees 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 Commission are also members of these committees allowing it to monitor each Operational Programme alongside the Member States. The monitoring committees are tasked with deciding over 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. Interestingly, the monitoring committees might propose to the managing authorities' amendments or examinations of the OPs in view of attaining the Funds objectives.

The ex-post evaluation of the previous funding period found that at the monitoring stage, indicators applied to measure results of projects and programmes were mainly economic ones, though in all studied cases some environmental indicators were included as well. An integrated approach was practically missing, as there were no attempts to measure overall progress towards sustainable development – which was rather regarded as a horizontal priority focused on environmental sustainability.

2.2.5 Reporting

Managing authorities were 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 should also elaborate on the socio-economic 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 will be transmitted to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions.

The 2000-2006 evaluation found that in most cases project reporting did not refer to the integration of sustainability. However, positive examples were found in the ERDF evaluation study, namely in Brandenburg and East Scotland, were reporting was used to identify progress on project level in relation to sustainable development strategies or checklists. In general, reporting on sustainable development was found to be of limited value, as there were concerns regarding its quality. Alternatives and trade-offs were not taken into account in reporting in any of the studied programs.

In Supporting Paper 5 we build further upon the approach taken in **Table 1** by categorising the set of instruments which facilitate the integration of environmental objectives and concerns into the decision-making process of Cohesion Policy. This categorisation will be used to frame the review and analysis of the different tools for environmental integration.

According to the adopted approach, there are three broad categories that the integration can be captured by: strategic, procedural and organisational. **Strategic instruments** refer to tools which accommodate the *inclusion* of environmental objectives into Cohesion Policy regulatory framework and programmes, ensure the *consistency* with other overarching Strategies and policies, ensure appropriate *weighing* of environmental objective against economic and social ones and the allocation of adequate *financial resources* for environmental integration. These instruments often communicate visions, objectives,

strategies and the accumulation of knowledge that are supposed to frame reform efforts towards environmental integration, while leaving it to individual Member States to develop concrete pathways to operationalise them. Although these approaches could appear somewhat soft as they do not require explicit changes in existing routines, practices or structures, they are still important as they present an opportunity to coordinate other integration tools and communicate high level political commitment.[4]

Procedural instruments are the second category, which involves a set of assessment procedures, proofing tools and monitoring and reporting systems. Essentially, these instruments have the potential to strengthen common procedures, routines and practices in policy-making and according to some have the highest potential for policy innovation in terms of environmental integration.[5]

The last category – **organisational instruments** – refers to wider governance changes which involve changes in institutional structures, enforcement of the partnership principle and consultations. The potential of these instruments lies in the opportunity for strengthening the position of environmental actors, give spur to collaborative networks and engage with new environmentally driven stakeholders.

The three types of instruments are not mutually excusive. They should be seen as complementary and reinforcing each other. Therefore, a comprehensive strategy for environmental integration in Cohesion Policy would require a mix of the different types of instruments and a particular effort into implementing them in practice. Table 2 presents the three broad categories and corresponding set of integration instruments that are relevant to Cohesion Policy.

Table 2. Categorisation of instruments for environmental integration

Category of integration instruments	Criterion	Instrument
Strategic	Inclusion	Environmental objectives and measures SD as horizontal principle Pollution pays and prevention principles Conditionality
	Consistency	Alignment with EU SDS Alignment with Lisbon Strategy (environmental investments as economic driver) National/regional SD strategies Carbon neutrality Compliance with environmental acquis
	Weighting	Project selection criteria

[4] Jacob, K., Volkery, A. and Lenschow, A. 2008. Instruments for environmental policy integration in 30 OECD countries. In: Innovation in environmental policy? Integrating the environment for sustainability.

[5] Ibid.

	Financial resources	Earmarking Dedicated investments
Procedural	Assessments	SEA EIA Appropriate assessment Cost-benefit analysis
	Reporting and evaluation	Environmental indicators Thematic SD evaluation Reserve fund (linked to environmental performance)
	Proofing tools	NECATER
Organisational	Institutional Structures	Sustainability managers Working groups Monitoring committees Steering groups
	Partnerships (Article 11)	Environmental authorities Environmental networks

The analysis of the Cohesion Policy Cycle will be further elaborated upon in Supporting Paper 5, where we will assess in more detail where in the Cohesion Policy cycle the different instruments play a role. As part of Supporting Paper 5 we will also evaluate the different levels of governance as well as the delivery mechanisms for these instruments within the Cohesion Policy cycle.

2.3 Impact of Cohesion Policy on the Environment

The literature reviewed shows that there are few comprehensive evaluations of Cohesion Policy spending with relation to its impact on key environmental components – climate change, sustainable transport, natural resource use and biodiversity, and sustainable consumption and production. There are a few evaluations conducted for previous programming periods, which can be helpful in order to gain some insights on the evolution of Cohesion Policy in relation to environmental integration and its impacts on the environment.

With regards to the current 2007-2013 programming period, it is yet too early to assess any outcome or essentially impact of cohesion programmes on the environment. An external evaluation commissioned by DG Regio has been undertaken to assess the potential of the current 2007-2013 cohesion programmes to deliver the objectives as laid down in the EU SDS. Other grey reports looked into the scale of financial allocations and put forward propositions about the possible effect of current spending allocations in the future. Therefore, most of the evidence is based on grey literature.

2.3.1 Past Environmental Performance

A series of reforms in the EU regional policy were also undertaken to accommodate the integration of environmental objectives. Since 1988, Structural Fund programmes have taken

into account environmental requirements and from 1993 environmental sustainability became a necessary component of the development strategies of Member States. Analysis of the first 'greening' of regional policy in the 80s notes that 'procedural guidance' on EPI by the Commission (ie environmental profile, list of indicators, handbook on environmental impact assessment, etc.) played a crucial role (Lenschow 2002).

In the 90s, the Commission undertook a more 'indirect steering role' relying on active initiatives by Member States. This did not prove to be very effective approach and soon the Commissioner for Environment at that time, Margot Wallström, stressed she will play the role of a 'policewoman' towards Member States and warned that EU funding could be withheld in case of breaches of EU environmental *acquis* (Lenschow 2002).

Since 2000, Structural Fund programmes have been subject to a more systematic and comprehensive framework integrating environmental considerations into all aspects of programme development and implementation. In the ex-post evaluation of Cohesion Policy 2000-2006 regarding ERDF-funded programmes in the field of environment and climate change (EC 2009a), the main environmental improvement achieved is found to be the extension and modernization of waste water treatment and collection, with possibly as many as 40 million EU citizens connected to newly built infrastructure. Much smaller, but still tangible direct environmental benefits were noted in the waste sector, namely as a result of securing and closing old landfills, investing in composting and sorting facilities, as well as supporting the recycling system and treating high priority types of waste. At the same time, a direct link between ERDF interventions and improvements in water quality in general was difficult to establish, even though cases were found which could support this thesis e.g. in Spain. Investments in water supply were rather limited, but they did bring substantial improvements to populations of several European regions.

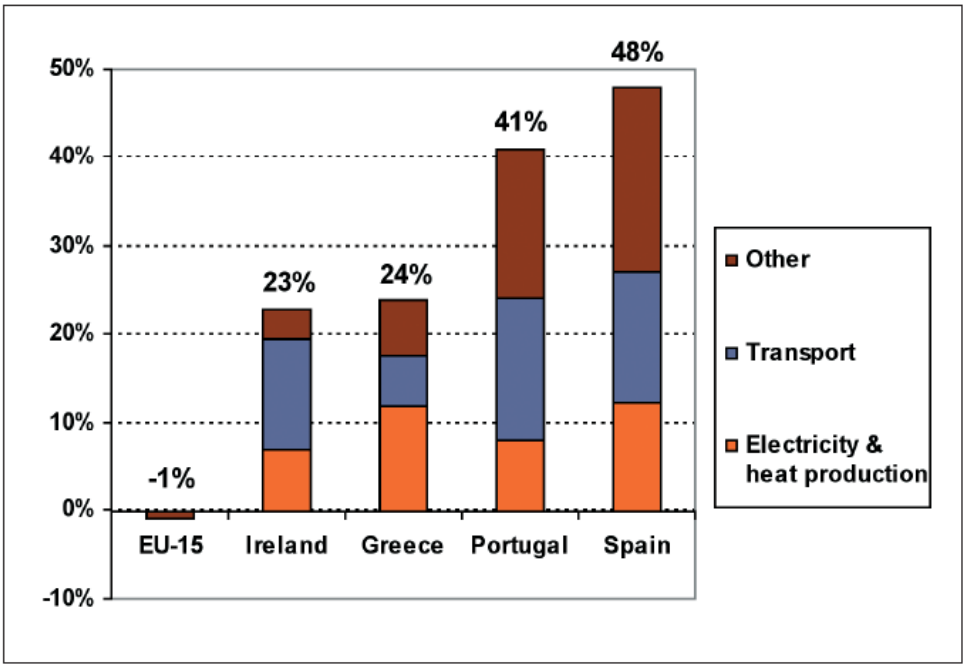
Interventions regarding renewable energy and energy efficiency, mainly due to their very limited scope, did not bring major environmental benefits, though some implemented projects (mainly at micro-level) were found to be interesting. Some cases of ERDF-funded projects contributing to the protection of natural resources were also identified, though it was not among the major priorities of the funding.

The European Environmental Agency (EEA) examined effects of implementing Structural and Cohesion Funds in Italy, Spain and Austria in the following sectors: wastewater treatment and sewage, biodiversity and energy (energy efficiency and renewable energy). The study concluded that links between investments in wastewater infrastructure and improvements in water quality are difficult to prove, despite the relative significance of this sector within Cohesion Policy and the leading role of this funding source in providing such infrastructure in many European regions. Similarly, cases studies indicated that there was generally no data or indicators which could prove any effects of Cohesion Policy on biodiversity. The study notes that allocations for investments regarding energy efficiency and renewable energy have risen significantly in the 2007-2013 period.

The EEA study reviews negative impacts of Cohesion Policy on environment as well. In particular, it reviews transport projects with negative impacts on biodiversity, such as the Egnatia Highway in the Pindos Mountains in Greece or the Via Baltica in Poland, as well as major water projects with negative impact on biodiversity, such as dams in Spain, Portugal and Czech Republic. A key issue identified as a reason for such impacts was the inappropriate application of EIA for projects or SEA for transport corridors.

Further negative impacts of Cohesion Policy can be attributed to increased greenhouse gas emissions. There are no comprehensive assessments of the impact of Cohesion Programmes on climate change in terms of greenhouse gas emissions. Several NGOs and think tanks have argued, however, that greenhouse gas emissions have been exponentially rising in the so-called 'cohesion countries' (Greece, Spain, Portugal and Ireland) which have been the biggest recipients of cohesion funding by 2007, as shown in **Figure** 1. Although, it is difficult to establish a direct link between EU funding in these countries and rising emissions, it can be argued that Cohesion Policy had a role to play in contributing to these trends.

Figure 1*:* Greenhouse gas emissions in 'cohesion countries' compared to average EU15



Source of data: "Annual European Community greenhouse gas inventory 1990-2004 and inventory report 2006. Submission to the UNFCCC Secretariat." European Environment Agency Technical report No 6/2006.

2.3.2 Environmental Performance of 2007-2013 Cohesion Policy

In the 2007-2013 period the concept of 'environment' and 'sustainable development' were articulated as 'horizontal principles' and environmental authorities were encouraged to actively participate in the full policy cycle of regional programmes (Wilkinson 2007). The result has been a greater emphasis in programmes on projects directly related to environmental sustainability, such as projects and partnerships to promote eco-industries and clean technologies, sustainable tourism activities, cleaner public transport, as well as the construction of large environmental infrastructure. The 'earmarking' of slightly more than 65 per cent of the regional funding to the Lisbon Strategy objectives however down scaled the integration efforts and again reaffirmed the relative importance of economic objectives over environmental ones.

In the Strategic Report on implementation of the programmes 2007-2013 (EC 2009b), 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 greater contribution of Cohesion Policy to the increase of GHG emissions from transport.

The Nordregio (Nordregio 2009) study points at governance processes which can be useful in ensuring better environmental performance of Cohesion Policy. Ex-ante evaluation has been highlighted as a useful tool to improve the integration of climate protection issues in Operational Programmes, with the example of West Wales and the Valleys, where the evaluation suggested mainstreaming sustainability concerns throughout all priorities of the programme (instead of just typical environmental priorities). Likewise, the SEA process was in some cases successful in improving the OP's – e.g. in the OP Eastern Poland the possibility to fund sustainable transport modes was added. Gothenburg objectives in the programmes were also strengthened at the stage of their negotiation between Member States and the European Commission.

The environmental impacts of Cohesion Policy have been the focus of environmental NGOs, such as Friends of the Earth Europe/CEE Bankwatch Network and WWF. These organizations have pointed at negative impacts of Cohesion Policy on the environment (in particular, probable contribution to increased greenhouse gas emissions from transport, as well as impacts of transport and other types of projects on biodiversity). Cooperation with environmental stakeholders at all stages of programming and implementation of Cohesion Policy, in line with the partnership principle included in Council Regulation (EC) 1083/2006, can contribute to better integration of sustainable development.

Absorption of EU Funds

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 December 2009, according to the Strategic report on Cohesion Policy, is 27.1 per cent (€93) billion and varies significantly across countries with some Member States experiencing significant delays in the funds' absorption. The report underlines that environmental investments are 'underperforming at this stage' utilising 21 per cent 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 (eg 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)

Scale and Focus of Investments

Large infrastructural projects in the environmental sector might often be favoured as these can have lower administrative costs but high political gains. There is already some evidence that even in the case of the newly negotiated housing expenditures under the ERDF Regulation in the Visegrad countries, regional and local authorities appear reluctant to apply the new measures as 'these are more difficult, long-lasting and complex than simply spending EU money on new Greenfield investments' (Tosics, 2008). Some of the consequences of this can be illustrated with an example from the 2000-2006 period, when a priority in the waste sector was given to large treatment facilities which resulted in oversized investments leading

to overcapacity and difficulties to ensure financial viability as well as lower consumer demand and unwillingness to pay for the services. (EC, 2010)

Impacts of transport investments on the environment
The transport sector has a significant, and to a large extent 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 ecosystem within the EU, leading to negative impacts on habitats and biodiversity (e.g. Kettunen *et al* 2007). In addition, air pollution caused by the transport sector can also have adverse affects on biodiversity. To some extent fragmentation of landscapes due to transport infrastructure can be avoided or mitigated by environmentally sensitive planning, at national, regional and local scales and by implementing specific measures (e.g. wildlife bridges and tunnels) that reduce the barrier effects of roads and railways. However, the true efficacy of the latter in providing necessary functional connectivity between habitats and supporting broader ecosystem processes remain unclear.

Investing in motorways projects, which consumes approximately 12% of the 2007-2013 allocations under Cohesion Policy, represents a major challenge in terms of environmental integration. In this respect the Barca report stresses that, if Cohesion Policy aims to promote a policy agenda seeking to reduce pressure on the environment and climate, it should revisit its funding of the transportation portfolio and consider phasing out motorway investment and shift funding towards measures stimulating mobility services and modal shift.

Biodiversity and nature conservation
From biodiversity and habitat preservation point of view the case of transport investments has been one of the most critical ones as noted. Better application of environmental assessment tools, improved land use planning techniques and biodiversity proofing tools were also noted above. 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 conservation of biodiversity has become a more prominent part of the Community framework supporting regional development and cohesion. In particular, actions promoting conservation and sustainable use of biodiversity (e.g. financing of the Natura 2000 network and prevention of ecosystem risks) form an integral part of the Structural and Cohesion Funds under the in the 2007-2013 budget framework (Miller et al. 2008). It is hoped that integrating the financing for biodiversity and Natura 2000 sites into the wider context of regional development will help to link conservation objectives with the broader management of land and natural resources, resulting in a more effective and mainstreamed implementation of Community's biodiversity policy.

2.4 Territorial Cohesion

2.4.1 Background

A potential policy concept that can assist in improving environmental integration and related win/wins is territorial cohesion. This concept has the unique position of being a new shared competence of the European Union by virtue of its inclusion in the Lisbon Treaty, whilst still being relatively open in terms of content (Evers, 2008, Evers et al 2009). A Green Paper on Territorial Cohesion (CEC 2008), has produced a surge 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 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.

This unusual situation opens up opportunities for using territorial cohesion for achieving balanced development of regional policy in general, and improving the sustainability of regional policy in particular. An interesting, although by no means accepted definition, is that territorial cohesion should be perceived as the counterpart of sustainable development. Whereas sustainable development seeks to achieve a balance between people, planet and profit (or economy, ecology, equity) over time, territorial cohesion seeks to achieve this over space (Camangni 2007). This definition transcends competing conceptualizations that focus more narrowly on the distribution of welfare across space (e.g. Nuts 2 regions), territorial specific policies (e.g. mountain or islands) and ensuring access to services of general interest (Waterhout 2008).

The EEA has argued that, in the discussions on territorial cohesion, such as the Territorial Agenda process and within the ESPON programme, the social and economic dimensions have been overemphasized at the expense of environmental or ecological considerations (EEA 2008). The more holistic definition of territorial cohesion continues in the tradition of promoting spatial cohesion and balanced development in Europe (e.g. CEC 1999), 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 (Wheeler and Beatley 2004).

2.4.2 Interpretations of Territorial Cohesion

The interpretation of Territorial Cohesion is relevant to understand the evolution of the concept and its relevance for Cohesion Policy and the integration of the environment as part of territorial cohesion.

In 2008, the Dutch ministry of VROM commissioned the Netherlands Environmental Assessment Agency to measure the potential territorial impacts of EU territorial cohesion policy for the Netherlands. The study (PBL 2009) first mapped out the differing discourses on territorial cohesion on the basis of EU policy documents and other relevant literature. Five interpretations were identified along with their proponents and argumentation (PBL 2009).[6] Although some changes have occurred since the publication of the study, these five interpretations still provide a window into the diversity of the debate. These will be discussed in brief and, where relevant, its consequences for sustainable development and impacts on the environment.

[6] Next, several policy options for each interpretation were considered, and the potential impacts these could have for the Netherlands. The report concluded, unsurprisingly, that it was too early to tell what the impact of territorial cohesion policy is, but that the Dutch should remain vigilant and active in the debate since not all policy options were favourable.

The first interpretation identified in the PBL report is **territorial cohesion as socioeconomic convergence**. This interpretation views disparities between EU regions as problems to be addressed by territorial cohesion policy. These disparities have a distinct geographic pattern (north/south and east/west), justifying an area-based approach to developmental policy. This interpretation has clear links with the main objective of regional policy. Since investments in transport infrastructure comprise a major part of the strategy for promoting development, one can expect that this interpretation will carry with it clear win/losses due to landscape fragmentation and increased carbon emissions.[7] Other policy options discussed, including funding towards climate change adaptation, will have more potential to produce win/wins.

The second interpretation is **territorial cohesion as economic competitiveness**. This interpretation has an affinity with the Lisbon Strategy and the 'regional competitiveness and employment' objective of regional policy. Adherents argue that regions should develop their territorial capital in order to help the EU remain competitive in the global marketplace. Territorial cohesion policies on the basis of this interpretation may increase disparities in GDP as regions specialize in different economic activities, some of which are more profitable than others. On the other hand, since many investments are targeted at innovation and education, there are potential win/win scenarios with respect to the environmental impacts (insofar as these promote a shift to a green economy).

The third interpretation is **territorial cohesion as rural perspectives**. This interpretation addresses the mutually reinforcing problems in rural areas of declining agricultural income and subsidies, depopulation and inadequate public services, both in more affluent (Scandinavia) and poorer (Romania and Bulgaria) countries. According to this interpretation, a 'one-size-fits-all' solution is insufficient to capture the diversity of these areas, reflected in the divergent and sometimes inadvertent impacts of EU policies. Territorial cohesion policy based on this assumption could produce both win/losses (e.g. emphasis on intensifying production) as well as win/wins (e.g. aid towards rural development and landscape protection).

The fourth interpretation is **territorial cohesion as spatial planning**. In this interpretation the Territorial Agenda process is viewed as the continuation of, and follow-up to, the ESDP process. In this view, territorial cohesion policy should seek to tackle problems of unbalanced development caused by agglomeration forces, lack of access to infrastructure and education, adaptation to climate change, urban deprivation and sprawl. As the notion of sustainable development is contained in this interpretation, it has the potential to deliver win/wins in the areas of sustainable urban development, transit-oriented development and the like.

The fifth and last interpretation is **territorial cohesion as policy coordination**. In this view, territorial cohesion is viewed as a means to resolve conflicts and create synergy between policy areas and tiers of government. One way to implement this is to introduce a requirement for ex-ante territorial impact assessments (TIAs) at the European and member-state level or by granting additional flexibility when policy conflicts arise in area-based developments. The implications of this interpretation for sustainable developments are mixed. On the one hand, TIAs could produce additional synergies, and therefore win/wins, by producing better legislation. On the other hand, more latitude regarding environmental

[7] This is assuming that policies promoting physical infrastructure between affluent and lagging regions are successful in reducing disparities, something which is debated in the academic literature. If this is not the case, this policy option could create loss/losses.

standards could become a potential win/loss if used as an escape clause rather than a means to achieve an optimal result.

These five interpretations were designed to present the full range of topics being discussed in the context of territorial cohesion for the purposes of estimating impacts, and not as scenarios or prognoses. The political process surrounding territorial cohesion is fluid: interpretations gain prominence in the debate, only to recede into the background later. Indeed, since the study was conducted, the first interpretation, which was seen as losing ground, and the fifth, which was seen as relatively esoteric, have both become more prominent in European discourse. Finally, it should be pointed out that when and if a definition and operationalisation does occur — for example in a White Paper — it will not be on the basis of just one interpretation, but include a mix of several.

2.4.3 Territorial Cohesion and Sustainable Development

Although a major objective of spatial planning is to promote sustainable development, in the territorial cohesion debate, this issue trails far behind that of the geographic distribution of socioeconomic welfare (EEA 2009). The fact that there is no interpretation of 'territorial cohesion as sustainable development' in the PBL study is telling.[8] Of the five interpretations discussed above, only spatial planning considers the environmental aspect explicitly as a primary concern, and then only as one of the three pillars to be balanced. It is also one of the most problematic of the interpretations in terms of political support, and hence legitimacy. This situation has led the EEA to warn that, "without a strong enunciation of the environmental dimension of territorial cohesion, this concept could represent a step backwards in terms of European efforts for sustainable development" (EEA 2010, p. 7).

The low status of sustainability in the territorial cohesion process is, however, neither endemic nor inevitable. Territorial cohesion is still in the process of being defined and no concrete policy has yet been established which excludes or downplays sustainability. On the contrary, current descriptions of the term are quite amenable: "the concept of territorial cohesion builds bridges between economic effectiveness, social cohesion and ecological balance, putting sustainable development at the heart of policy design" (CEC 2008). Similarly, Camagni (2007) described territorial cohesion as being the spatial counterpart to sustainable development, aiming to balance conflicting interests (i.e. pillars) geographically as the latter does temporally.

2.5 Proofing Tools

This section on proofing tools will be further developed in Supporting Paper 5 in relation to the findings from the case studies and the further analysis that has been undertaken.

The term 'climate proofing' is often associated with efforts to build resilience and capacities to adapt programmes and projects to climate change impacts. Others refer to 'climate proofing' in terms of ensuring that 'all measures integrate the best practices available, such as those concerning energy efficiency in infrastructure built with EU funds, preservation as part of environmental actions and even concerns about long-term impacts in *ex ante* impact evaluations of infrastructure (eg the effect of higher temperatures on specific infrastructure). (CEPS, 2009)

[8] This bias is reflected in the relative lack of projects on environmental topics within the ESPON programme, but understandable considering the priorities of its funding source (DG Regio).

In this report, we refer to climate 'proofing tools' more in this wider sense, which entails a range of instruments/mechanisms (substantive, procedural, institutional, etc.) that integrate both climate change mitigation and adaptation considerations at every possible stage of the policy cycle. For instance, they can assess the impact of investment projects and economic activities in terms of emissions of greenhouse gases. In this respect, they can constitute a useful tool to assess the ex-post impacts of projects but can also be used with an ex-ante perspective, as part of environmental impact assessments. In this context we will also assess information tools that are used to ensure that something is carbon proof.

The rationale behind 'climate proofing' is that climate change is inherently a horizontal phenomenon which affects all economic sectors and activities and therefore needs to be taken into account into sectoral planning and budgeting. From a purely economic point view, one needs to justify what the benefits of integrating climate change measures are compared to the costs. There are obvious benefits in terms of reduced greenhouse gas emissions in view of the decarbonisation of key economic sectors in general but also EU funding programmes/projects in particular. Furthermore, it has been argued that the cost of climate proofing at a design stage of a programme/project is lower than the cost of maintenance and repair in the case of damage due to climate changes (Asian Development Bank, 2005). Therefore, the cost of climate proofing a programme/project should be regarded as an investment, not a cost, with a high rate of return in terms public benefits such as emission reductions and adaptive capacity, as well as efficiency and security gains.

A multiple case study analysis (Mickwitz, 2009) across EU countries showed that:

- climate policy integration is efficient only when it is applied at multiple levels of governance (local, regional, national and EU levels);
- the opportunities and limitations for reframing climate change as an economic driver are fully identified and utilised;
- proper institutions and resources are deployed; and
- monitoring, assessment and retrospective evaluations are rigorously and systematically undertaken.

Climate proofing tools have been developed relatively recently throughout Europe, as a result of the changes in the regulatory environment at all levels of governance (EU, MS and local) on greenhouse gas emissions. Various tools have been developed and are used by Member States, regions as well as the private sector. ENEA-REC with contributions from Member States published a report which explores different approaches to climate proofing cohesion policy programmes and projects in the 2007-2013 financial period. The report is limited to the Member State level and does not provide a clear definition of what 'climate proofing' is. However, it provides a first overview of good practices across Member States of 'climate proofing' approaches and tools along the entire policy cycle of Cohesion Policy programmes (eg formulating climate change related priority themes in the NSRF and reflecting them in priority axes in the OPs; taking climate change into account during identification, preparation and design, project selection and scoring, and monitoring of projects. (REC-ENEA, 2009)

In France, a tool named Bilan Carbone, developed by the French Agency for Environment and Energy Management (ADEME) is used on a regular basis by local authorities (and other

entities). Different in its approach, Necater, a tool developed by the French Delegation for Land Planning (DIACT) is particularly relevant for Cohesion Policy because it has been designed to assess the impacts of multiple regional investment projects on aggregate greenhouse gas emissions, in order to help authorities achieve a target of global carbon neutrality. A detailed presentation of Bilan Carbone and Necater is given in this section (and these tools are explored in more depth in the case studies in Supporting Paper 5).

2.5.1 Bilan Carbone

Context and presentation of the tool

Bilan Carbone is a tool originally designed for the accounting of direct and indirect greenhouse gases emissions related to industrial activity. Bilan Carbone has been extended to account for the emissions generated by public sector activity and projects, national, regional or local. Its use has now become widespread among regions and municipalities.

The development and diffusion of this model is the result of the decisions agreed upon under the "Grenelle 1", an environmental forum involving multiple private and public stakeholders, that translated it into national legislation ("Grenelle 2"). One of the decisions related to the obligation for companies employing over 250 employees to establish a Bilan Carbone by 2013. In addition to establishing a clear picture of the overall pressure of the business sector/region on climate, Bilan Carbone helps identifying the potential of reduction in GHG emissions of various investment measures.

Examples at the local level

The City of Paris has to assess the emissions of GHG generated on its territory as part of its climate plan. Bilan Carbone has been used recently by the Council of Paris to evaluate GHG emissions in 7 different facilities representing various municipal activities (a town hall, two different types of schools, a kindergarten, a library, an administrative centre and a centre for horticultural production). Based on this tool, a global estimate for the city of Paris has been produced: 11 million tons of equivalent carbon in 2007. This assessment has improved the knowledge of the Parisians on the environmental impacts of their activities and shed light on the policies to implement in order to fulfil the city's commitments in terms of GHG emission targets. These estimations have lead to a tightening of local regulation on major emitting sectors (building and individual transport).

Another interesting example is the assessment conducted for 10 mountain resorts by the National Association of Mayors of Mountain Resorts (ANMSM), in partnership with ADEME. They show the importance of transport (57%) and housing (27%) in aggregate GHG emissions of these resorts (800 000 tons of equivalent CO2 in 2008). Skiing, which is the main source of income, represents only 2% of this total.

2.5.2 Necater

Context

In a context of climate change, tension in energy supply and ambitious commitments to reduce greenhouse gas emissions, the French government decided that climate change concerns should be taken into account at every stage of the design and implementation of regional investment projects supported by national funds (Contrats de Plan État-Régions, CPER) for the 2007-2013 period. The objective that has been agreed upon is that planning or development programmes co-financed by the state have to be at least neutral with respect to GHG emissions. Within a given investment program, emissions of greenhouse gases generated by specific projects have to be offset by increased efforts in terms of control of energy demand, investments in renewable energies, energy efficiency and in alternative

transportation modes. This is the principle of "carbon neutrality" of regional investment projects. This objective has been extended to European programs funded by ERDF.

Presentation of the tool

Necater has been developed to assess the "carbon neutrality" of regional projects co-funded by the State and by the EU in the context of Cohesion Policy.

This tool is designed to assess the overall carbon emissions of a set of projects at every stage of their life-cycle. It is different from Bilan Carbone in the sense that it does not assess individual projects but a set of multi-sectoral investments. Necater takes into account regional specificities and distinguishes 70 actions (specific investments) according to 5 themes (domain of investments).

Necater is currently used by each of the 22 metropolitan areas. Regional results can be compared and aggregated to obtain national figures, as a precise definition of the relevant perimeter avoids double counting of emissions.

It is a rather straightforward tool with its main inputs being the amount of the funding and the nature of projects. The choice of the relevant geographical scope (especially at sub-regional scale) is made according to the following criteria:

- Existence of reliable data
- Possibility to implement offsetting investments.
- Consistency between different scales and possibility of integrating sub-regional assessments to higher territorial scales.
-

The Auvergne region has made an evaluation of its 2007-2013 CPER using Necater: the investments made under this investment scheme result in an overall reduction of GHG emissions of approximately 100 ktons Eq. CO2, when all the investments are taken into account over their expected lifetime.

2.5.3 Climate proofing the transport portfolio of South West of England

A case study of climate proofing as part of the transport investment portfolio of South West of England, a region which received EU funds under Objective 2, demonstrates the benefits which spill over the environmental domain such as: new technologies, new ways of doing business, new services, new infrastructures and more efficient ways of using regional assets. The aim of the transport portfolio for this region is to stimulate the development of a new mobility culture by three step investment approach: 1) focusing on investing in reducing the need for mobility (new generation broadband); 2) investing new infrastructure (new train development, pool bridge) and 3) investing in innovation (energy efficient engines). An evaluation (Huke 2009) of the investments that the South West of England achieved by investing in new generation broadband (£100 public/private investment) led to the following benefits:

- 15 per cent average increase in business productivity;
- 70 per cent of business reduced business travel;
- 76 per cent of businesses made a saving in fuel; and
- 84 per cent improved work life balance.

3 THEORETICAL OVERVIEW OF FOUR-CAPITALS MODEL AND DEVELOPMENT PATH ANALYSIS (DPA)

Based on this review of the concepts in the literature review, the Development Path Analysis and four-capitals approach have been selected as the most relevant for the aims of this study. The DPA is the main analytical framework for both the analysis of 2007-2013 financial allocations and the case studies. Therefore, paper provides a detailed description of the theoretical underpinnings of this type of analysis and its methodological implications to the study.

As shown in the previous section, the EU funds Regulations do not contain a comprehensive approach to environmental integration especially with regards to ensuring policy coherence and reconciling trade-offs. Therefore, we propose a more systematic approach to measuring the process of improving environmental integration which could accommodate the four capitals approach and at the same time include procedural and governance issues in the analytical framework.

3.1 Four-Capitals Model

The concept of 'win-wins' and 'trade-offs' is formalised in the 'Four-capitals model' of sustainable development and an assessment of synergies and trade-offs across the capitals - man-made capital, environmental capital and human and social capital (as was done in GHK et al, 2005; see **Box 1** for definitions) (GHK, 2005).

Box 1. 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.

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 the ecosystems which perform ecological 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. (2005) building on Ekins (1992)

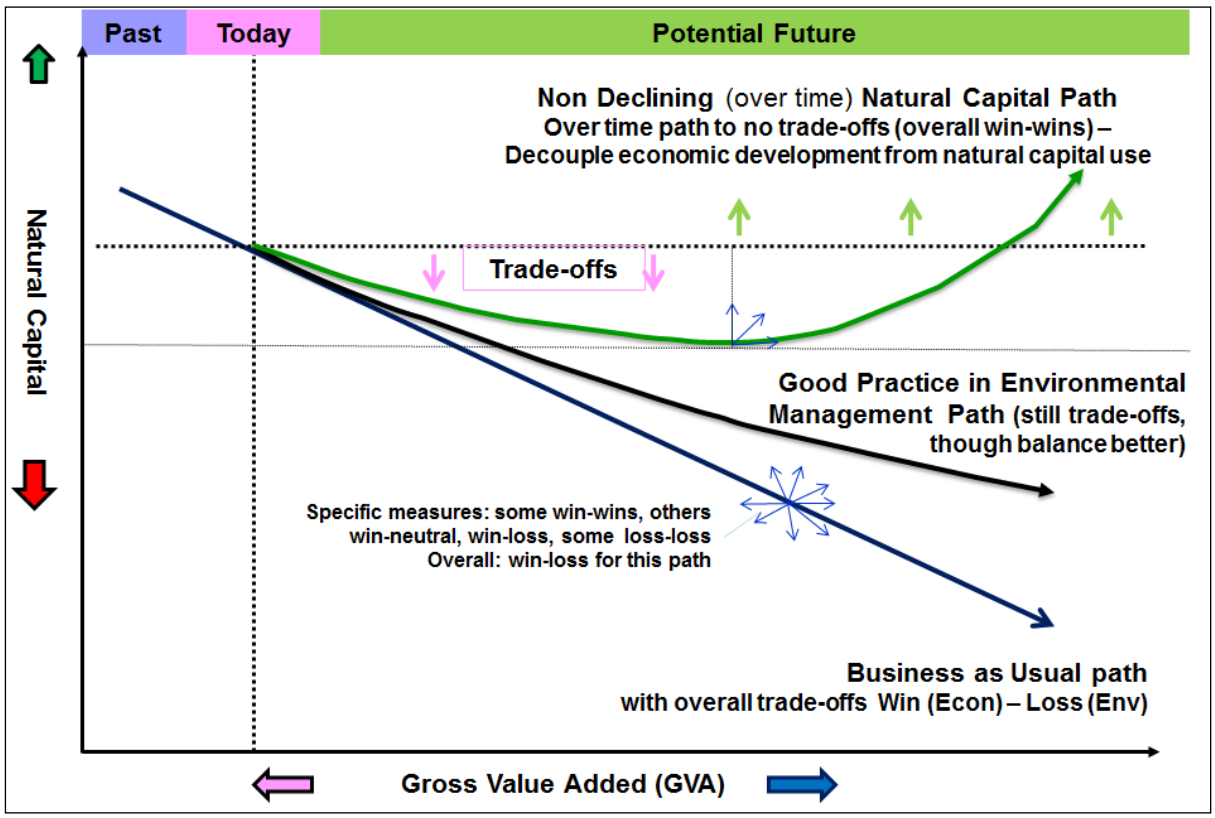
'Four-capitals model' of sustainable development and trade-offs: in summary, the model provides a tool for looking at the impacts of different interventions or policies - eg will a given investment lead to a win-win or win-loss (this is shorthand for assessment of impacts across each of economic, environmental, social and human capitals) or will an intervention be able to change a potential win-loss into a win-win. As noted below there can also be different scales of win and loss and again the choice of investment or intervention can have material effect on this (eg using EIA properly can reduce an environmental LOSS into and environmental loss, or in cases make it neutral or even a win). The assessment of win and losses is not just a qualitative and conceptual one, but also one where specific indicators or performance can be attributed (eg economic win in terms of gross value added of the intervention, or stimuli to the local economy, eg environmental loss in terms of habitat area loss or environmental pressures in terms of water pollution levels). The ToR underlines that the prime focus of the work is on the economic and environmental aspects; we therefore focus primarily on economic and natural capital aspects, though the team fully recognise the importance also of the social and human dimensions (and where clear social and / or human benefits are apparent these will be mentioned in the case studies).

The four capitals model also 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. 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 result in an unacceptable loss of sustainability.

The relationship is illustrated in **Figure 2**, which shows that over time different development paths might occur, each embodying a different loss of natural capital. This is a useful simplification for both the trade-off analysis and the development path analysis (developed further in subsequent sections).

The Path BaU (business as usual) 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 'decoupling' and typically a (Win-"Large Loss"); The 'Good practice' path shows a much greater improvement in resource efficiency, but still a loss of natural capital (Win-"Smaller Loss"), and a fair amount of decoupling; and 'Non-declining capital…' shows an effective decoupling in the absolute use of natural capital (Win-Win), and in places going further and investing in natural capital which is a source of regional economic development in itself through the range of ecosystem services it provides. There is a clear need to use resources efficiently and start decoupling growth from resource use-environmental impact and ultimately the aim will need to be to work within the boundaries of resource availability, regenerative and assimilative capacities as well as work within the ecological (and social) critical thresholds, and recognising the potential for natural capital to provide value for regional economic development.

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



The four-capitals approach seeks to examine, at programme, sub-programme and project level, how trade-offs have been explicitly or implicitly recognised and taken into account. It will also review the types of potential impacts – what 'win-win' measures have been launched and which 'win-loss' trade-offs have been implemented. This builds on the approach used in the GHK, PSI, IEEP et al 2005 study (GHK, 2005) and fine tuned in the subsequent DG Research 6th Framework funded project (GHK, 2006), where programmes, investments/projects were assessed.

The analysis looks at classifying areas where 'win-wins' (economic/social cohesion and environmental) are likely to be achieved as well as looking at the potential for encouraging greater 'win-wins' (including reference to the use of proofing tools, conditional or complementary instruments etc, to be examined in other tasks). It would also look at where 'win-loss' trade-offs are likely to occur and explore whether there is scope for avoiding these and how (again with links to later tasks).

This is elaborated in more detail in **Figure 3** – which shows that there are a range of win-win and win-loss possibilities, including different scales of win and loss – and **Figure 4** which illustrates the point that different interventions can have different levels of value added/value lost for economic and environmental capital. This heuristic framework provides the basis for the subsequent operation of the Development Path Analysis.

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

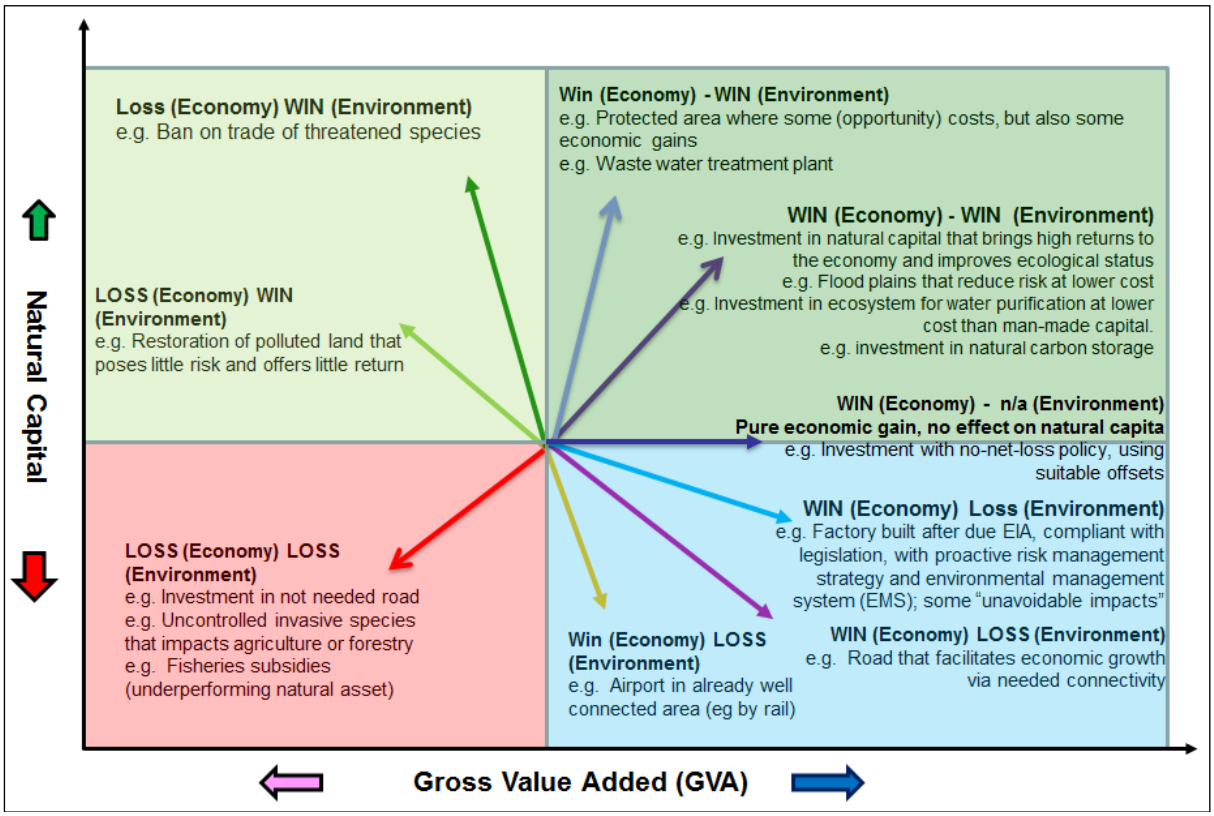
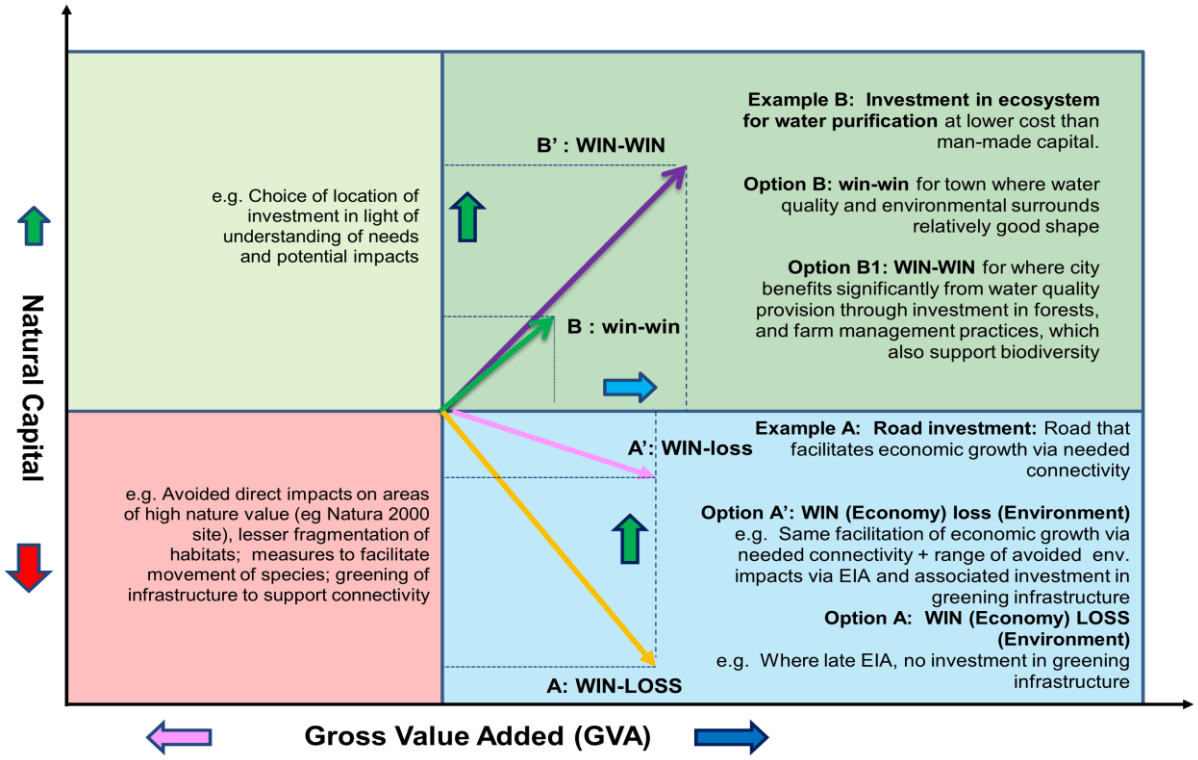


Figure 4: Scale of Wins and Losses and factors influencing scale



The approach of characterising and quantifying win-wins and win-losses and looking at what tools, measures, process can improve the sustainable development of Cohesion Policy will be explored further in the case studies and Supporting Paper 5.

3.2 Development Paths Analysis

We have developed a set of 6 development paths as summarised in **Table 3** and in **Figures 5 to 11**, which revises and extends those described in existing guidance (see **Box 2**). This is partly because the Paths in the previous guidance were essentially concerned with environmental expenditure, whereas the revised paths seek to capture all programme activities and also widen the range of 'paths' considered to capture wider development potentials. They 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.

Box 2. Existing Commission's Guidance and development Paths (CEC, 2008)

Path A: Actions that promote activities that simply meet environmental regulations (eg promote changes in construction sector to help meet building energy standards);

Path B: Actions that clean up the mess from past activities or actions that promote physical regeneration (eg 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. (eg waste water and waste infrastructures);

Path D: Actions that help organisations to meet increasing environmental standards (eg 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);

The development paths can be understood in terms of the likely scope each provides for the generation of synergy (win-win) and trade-off (win-loss). This requires a judgement as to the likely economic and environmental impacts against the stock of capitals at the beginning of the period. The focus is on the environmental impacts and needs to recognise that Programme activities can reduce the loss of natural capital compared to what might have occurred (a relative win), but fail to prevent an absolute loss over the programme period. An absolute win is no further loss or an increase in natural capital over the Programme period.

Table 3: Revised Description of Development Paths

Strategic Approach	Development Path	Description of the types of intervention	Nature of Synergy / Trade-off with Env. Impact	Reference to Paths (A to F) in Previous Guidance
Business as usual	**No Nat Cap impacts**	Interventions with no direct natural capital impact and no obvious indirect impact – eg pure social capital investment	Win-irrelevant NC	Not included in previous guidance
	A: Declining sustainability	Interventions leading to obvious loss of natural capital (eg motorways and habitat fragmentation, conventional energy systems and pollution))	Win – Absolute Loss	Not included in previous guidance
	B. Environmental compliance and man-made capital / environmental infrastructures	Interventions that help to meet environmental legislation (regulation & standards and to mitigate environmental impacts (eg environmental infrastructure, mitigation measures)	Win - Relative Win (but Absolute Loss)	*Path A: Actions that promote activities that meet environmental regulations Path C: Actions that put in place environmental infrastructure Path D: Actions that help organisations to meet increasing environmental standards*
Active environmental management	**C. Risk management**	Interventions to reduce hazards and manage risks (eg climate change adaptation, eg invasive alien species response coordination)	Win – Avoidance of Relative / Absolute Loss	Not included in previous guidance
	D. Clean-up, restoration, conservation and investment in natural capital	Interventions to clean-up pollution and contamination from previous activities (eg land remediation/restoration, brownfield redevelopment) as well as conserving natural and cultural assets, including proactive investment in these assets	Win – Absolute Win	*Path B: Actions that clean up the mess from past activities or actions that promote physical regeneration*
Pursuing environmental sustainability	**E. Eco-efficiency**	Interventions to improve resource efficiency of existing activities (strong relative wins) (eg modal shift, energy efficiency)	Win – Some Relative and some Absolute Wins	*Path E: Actions that improve the resource efficiency ('eco-efficiency') of existing activities*
	F. Decoupling	Interventions that have the	Win –	*Path F: Actions*

		potential to decouple economic activity from pressures on the environment/natural capital (absolute wins) (eg new industrial activities / technologies (eg renewable energy), reduced consumption patterns)	Absolute Win	*that support, as well as encourage, new types of activity or behaviour using fewer environmental resources than existing activities in the area*

The figures below present the 6 development paths. The general trend historically has been for economic growth to be accompanied by a loss of natural capital. 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. In practice, there is a wide range of possible interventions within and along each development path, some representing significant win-wins, others relate gains (compared to status quo) and others represent win-losses. In practice, there is a range of interventions that can shift from the historical trend to new development paths, depending on the nature and objective of the intervention.

At a strategic level, Development Path A (**Figure 5**) 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 a economic growth even as natural capital is eroded – ie 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 5: Development Path A

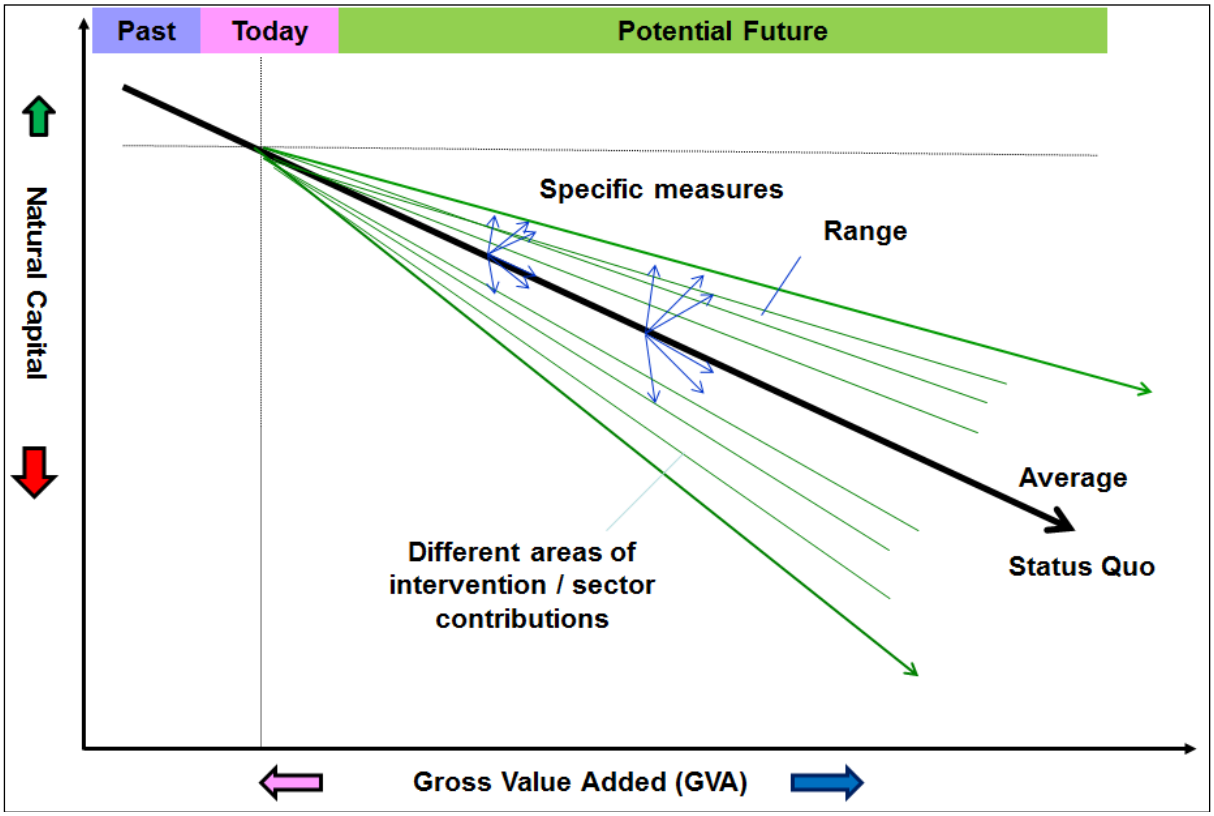
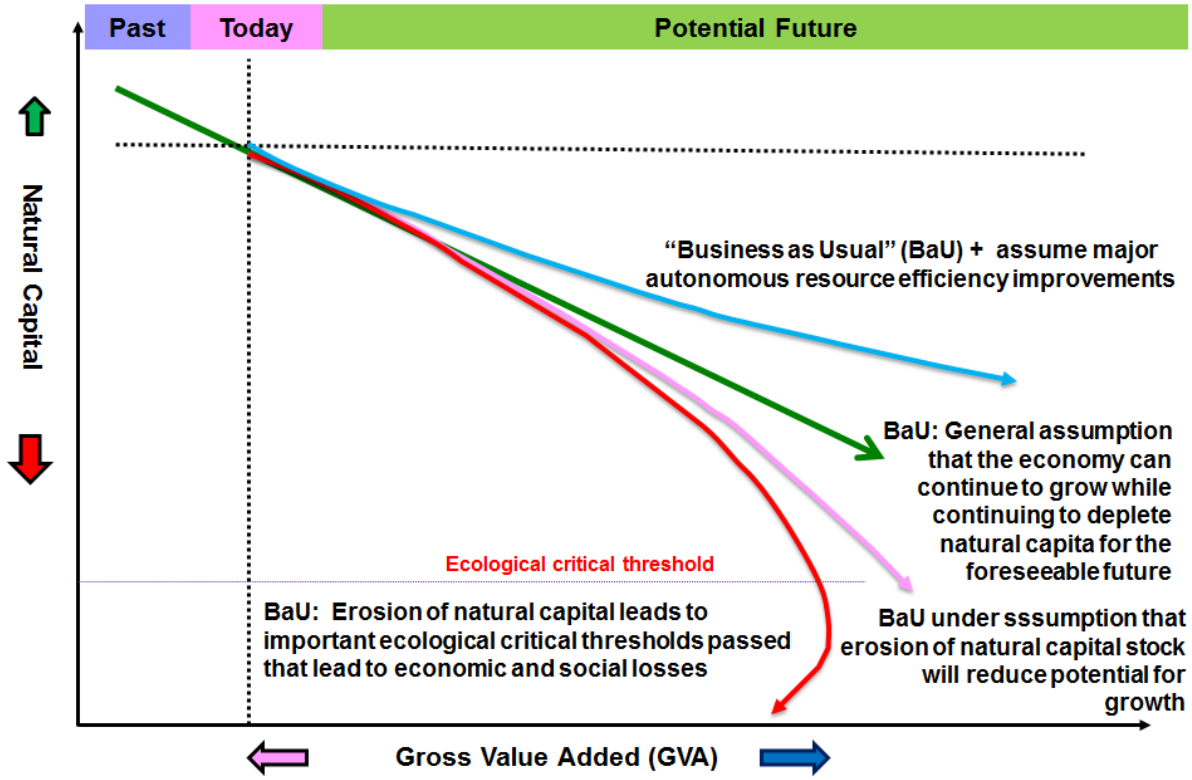


Figure 6 presents alternative BaUs. This should be borne in mind in the wider thinking on the question of the move to a green economy. At this stage little research has been done as to the likely profile of BAU for economc growth and natural capital loss. Analysis of this is needed and TEEB (www.teebweb.org) is contributing to this process.

Figure 6. Variants of Business as Usual



Development Paths B (**Figure 7**) and C (**Figure 8**) 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 7. Development Path B

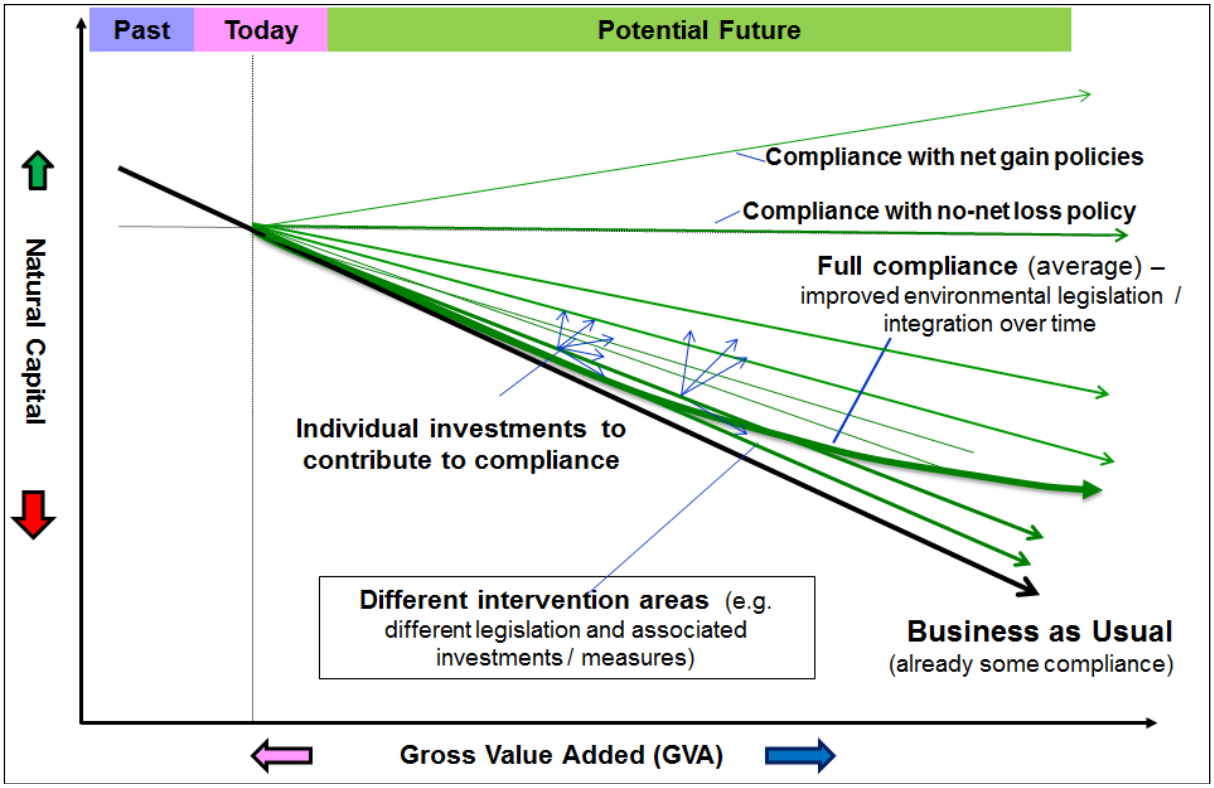
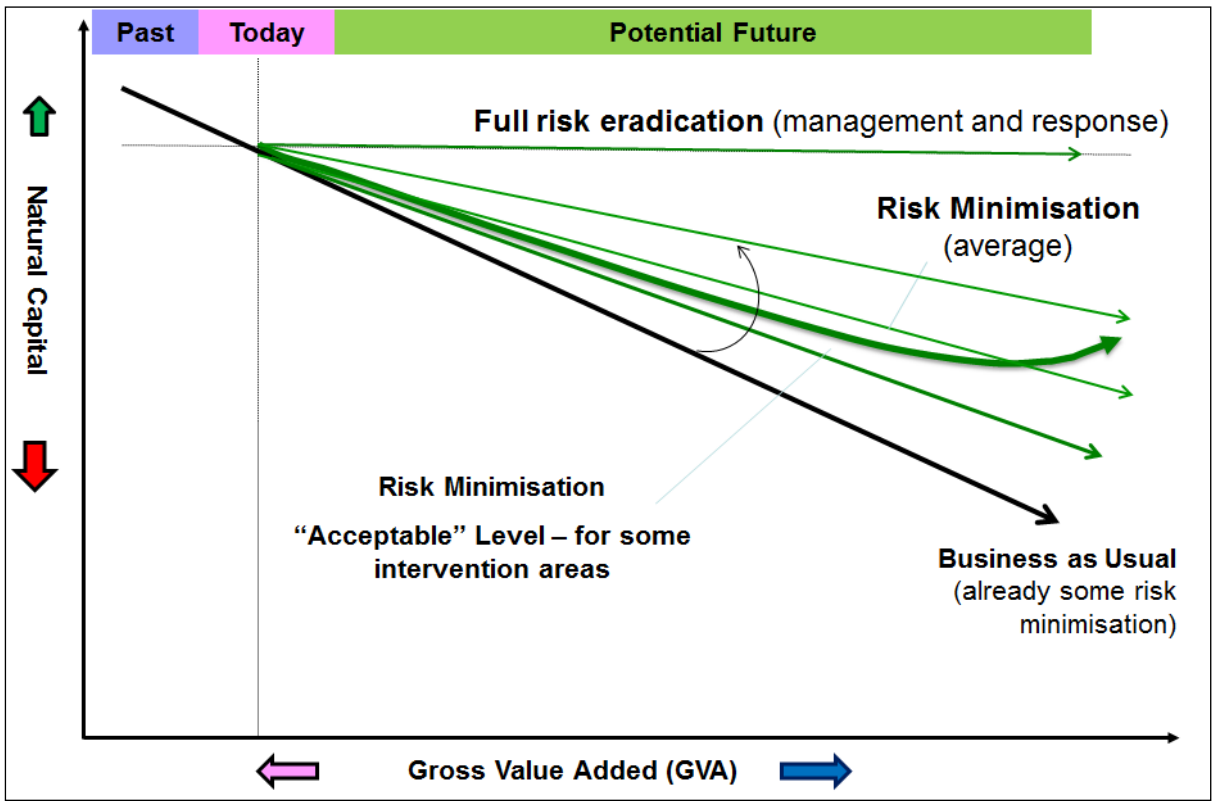


Figure 8. Development Path C



Development paths D (**Figure 9**) and E (**Figure 10**) 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 - ie 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.[9]

[9] 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'. For ease of analysis we have kept to 6 development paths. Clearly in the case studies the nuance of the development path and strategic direction and the links to interventions can be explored in more detail. Similarly in Supporting Papers 3 and 5 the policy measures to encourage a 'migration' of investment towards more sustainable pathways will be looked at.

Figure 9. Development Path D

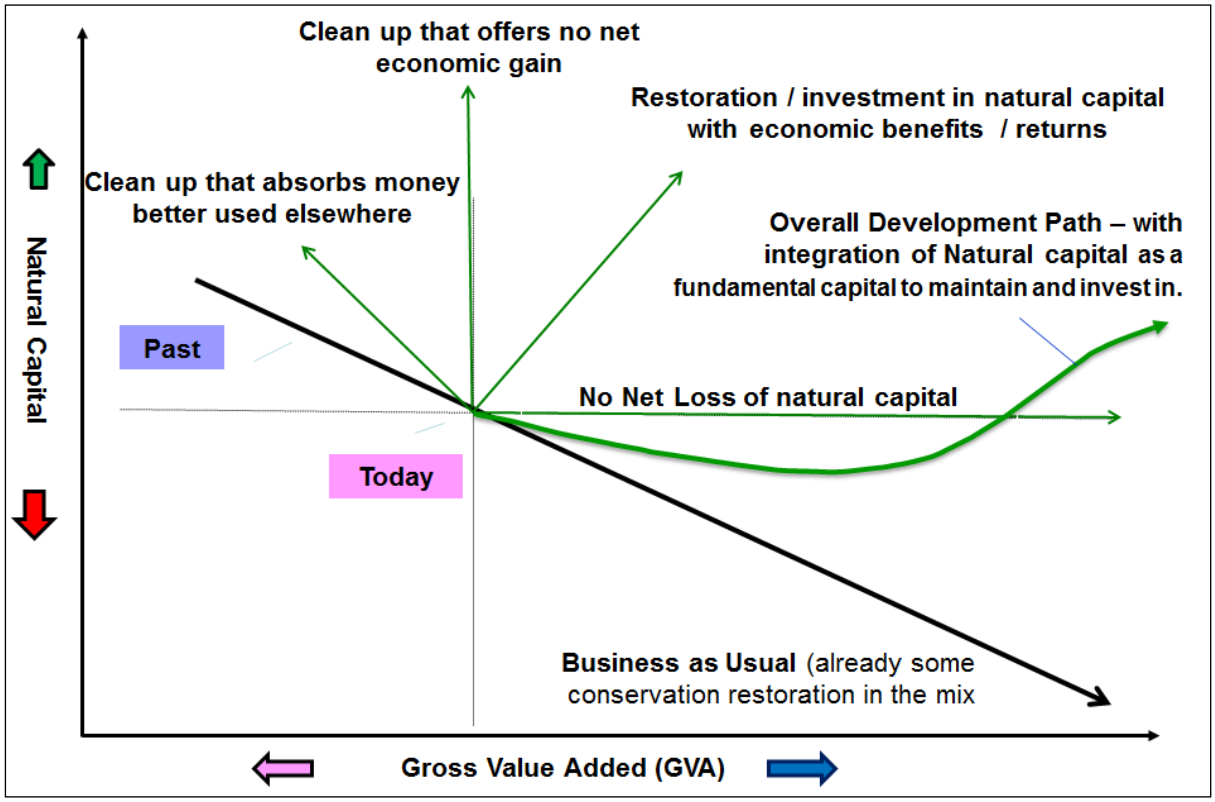
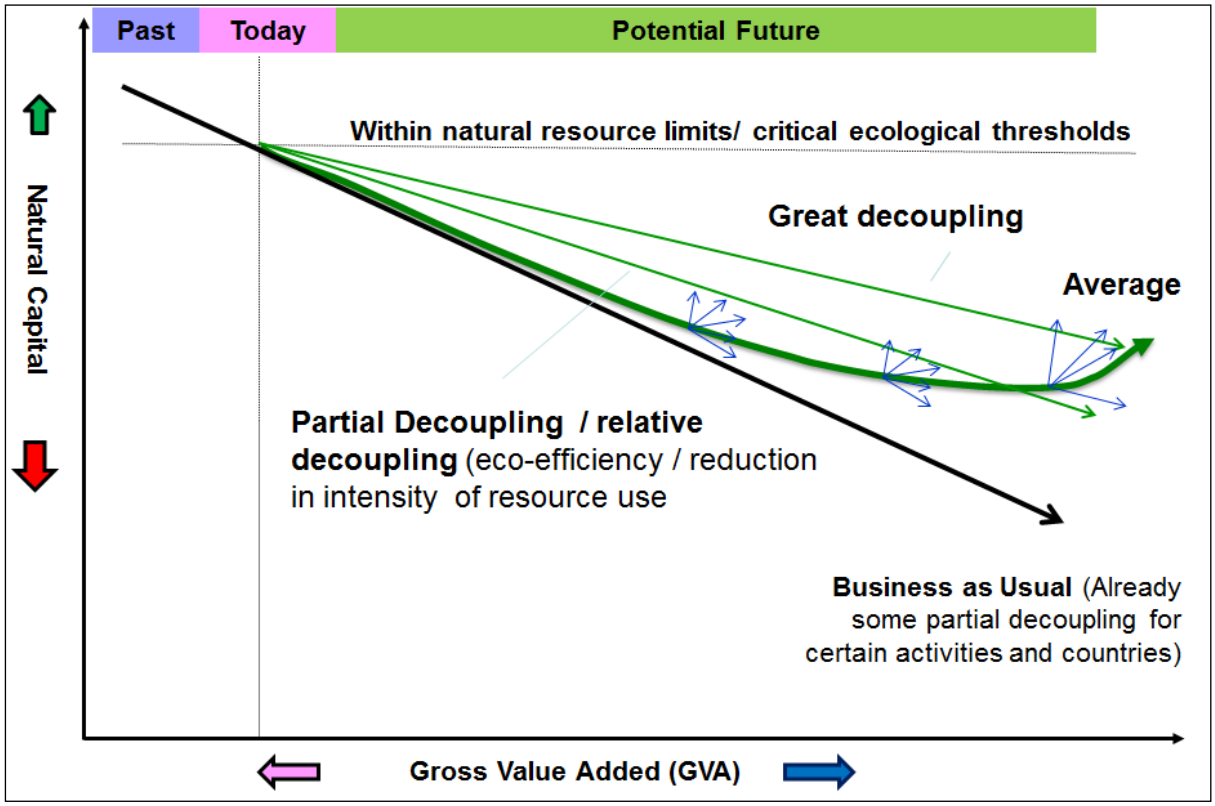


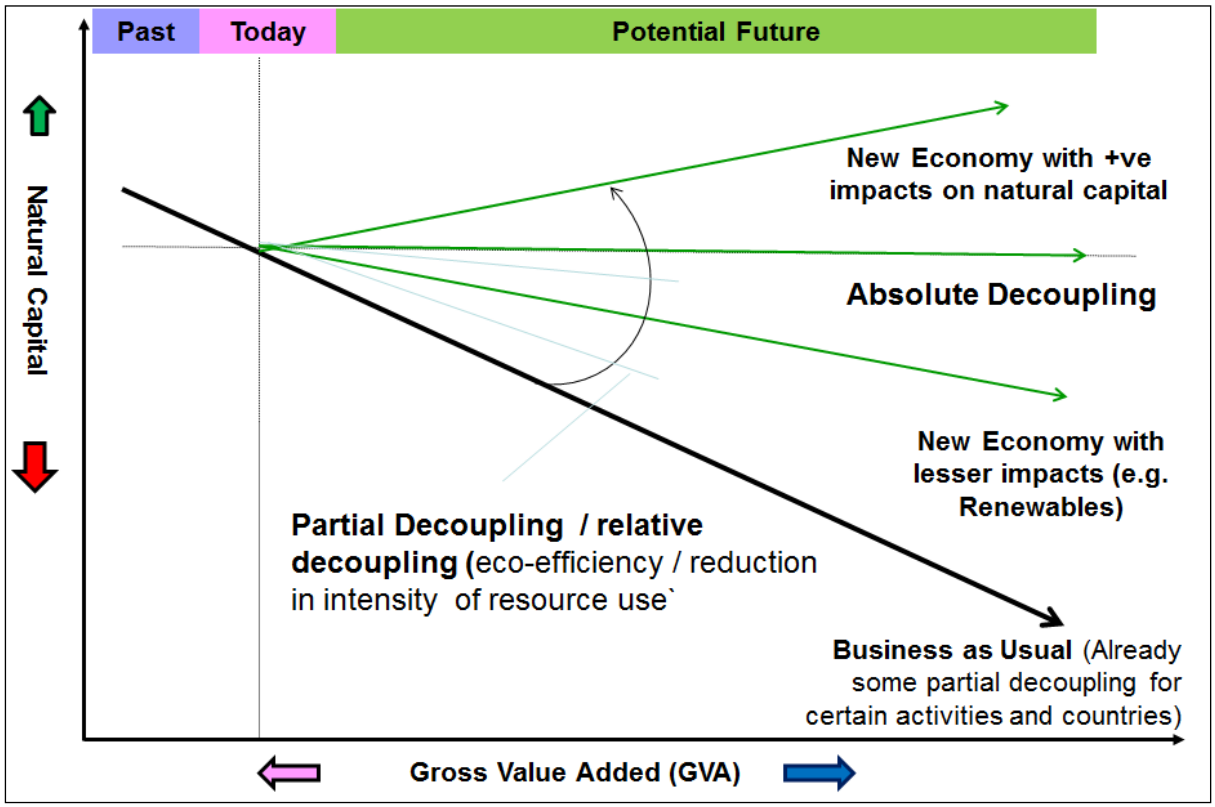
Figure 10. Development Path E



Finally, Path F (**Figure 11**) presents the absolute decoupling/new economy development path. This includes a fundamental move away from the current lock in to some environmental

harmful practices and a move towards working with not just little or no impact solutions (eg for energy provision, zero emissions systems) to working with and investing in natural capital (eg for water purification and provision) and also taking ecological thresholds and tipping points into account.

Figure 11. Development Path F



3.3 Implementation of Four-Capitals Model and DPA in this study

Development Path Analysis will be used in categorising different EU funding interventions. **Table 4** provides an overview of different EU funds interventions and the different development pathways they fall under. The Table will be used as a guiding document in the analysis of 2007-2013 financial allocations done within this task, and also used in the analysis of OPs which are linked to the case studies.

Table 4: Possible Interventions under the Different Pathways

Type of intervention	**Development Paths**					
Project involves:	A SD decline	B Env. Compliance	C Risk management	D Clean-up; Restoration	E Eco-efficiency	F Decoupling
Non-environmental investments having significant environmental impacts with limited scope for mitigation	X					
Meeting minimum environmental regulations		X				
Training or cross-border networks to help others meet minimum regulations		X				
New / improved environmental infrastructure (man-made)		X				
Raising awareness of environmental obligations		X				
Reducing costs (eg initial investments) of meeting environmental regulation		X				
Planning, monitoring & early warning systems			X			
Building defences, new construction designs & methods			X			
Environmental clean-up activities				X		

Regeneration activities (including restoration of natural infrastructure)				X		
Protection / promotion of natural and cultural assets				X		
Improving resource efficiency of existing activity					X	
Replacing less efficient infrastructure					X	
Research & innovation						X
New industrial technologies						X

Note: proofing / integration tools/ conditionality / and also governance mechanisms conducive to integration are covered under Supporting Papers 3 and 5. They will be important in encouraging a due use of increasingly pro-SD intervention choice and move to pro-SD development paths.

The assessment will show what level of funding (allocation and spending) has focused on which development path, giving a broad aggregate monetary picture of ongoing (de facto) priorities as regards CP and development pathways. The assessment will also take note of the need and potential for refocusing activities to be able to make a greater contribution to more sustainable development paths as well as considering investments that have no natural capital impacts and hence no development path. It will also look at whether (as far as programme documents allow) the current contribution is due to (a) explicit intent as a consequence of the programme design and appraisal process or due to (b) the way environmental assessment tools are applied or (c) if conditional or complementary instruments have been used to help integrate the activities better (eg requirement for full cost recovery from industry in water process).

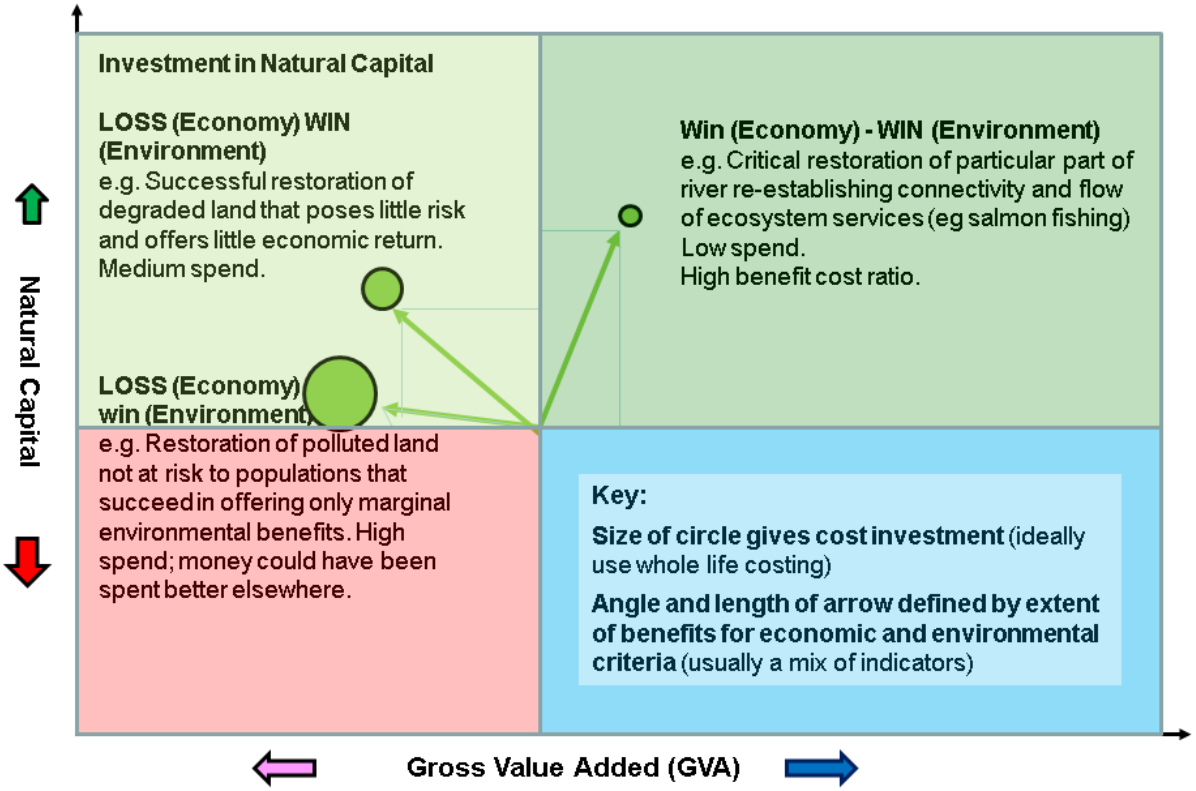
Attention will also be given to the methods taken to integrate each of the four environmental themes within programme activity. The task will review the particular role of environment, transport and energy programmes[10] (with reference to overall development strategies and the objectives and activities of the specific programmes) in recognising and responding to the issues raised.

The work on the development paths and the win-win / trade-off analysis has also been taken forward in the case studies. For some of the priorities in the assessed OP it is possible to evaluate what type of activities/measures/EU funding categories they cover. Therefore some of the case studies have provided further evidence on the impacts of investment categories and these have been taken into considerations when adjusting the categorisation of investment categorisation to DPAs in Annex I. This might also require a quick overview of

[10] As these have the clearest link to the environmental themes selected for the study and hence more scope to provide answers to this task, and also create inputs for subsequent tasks.

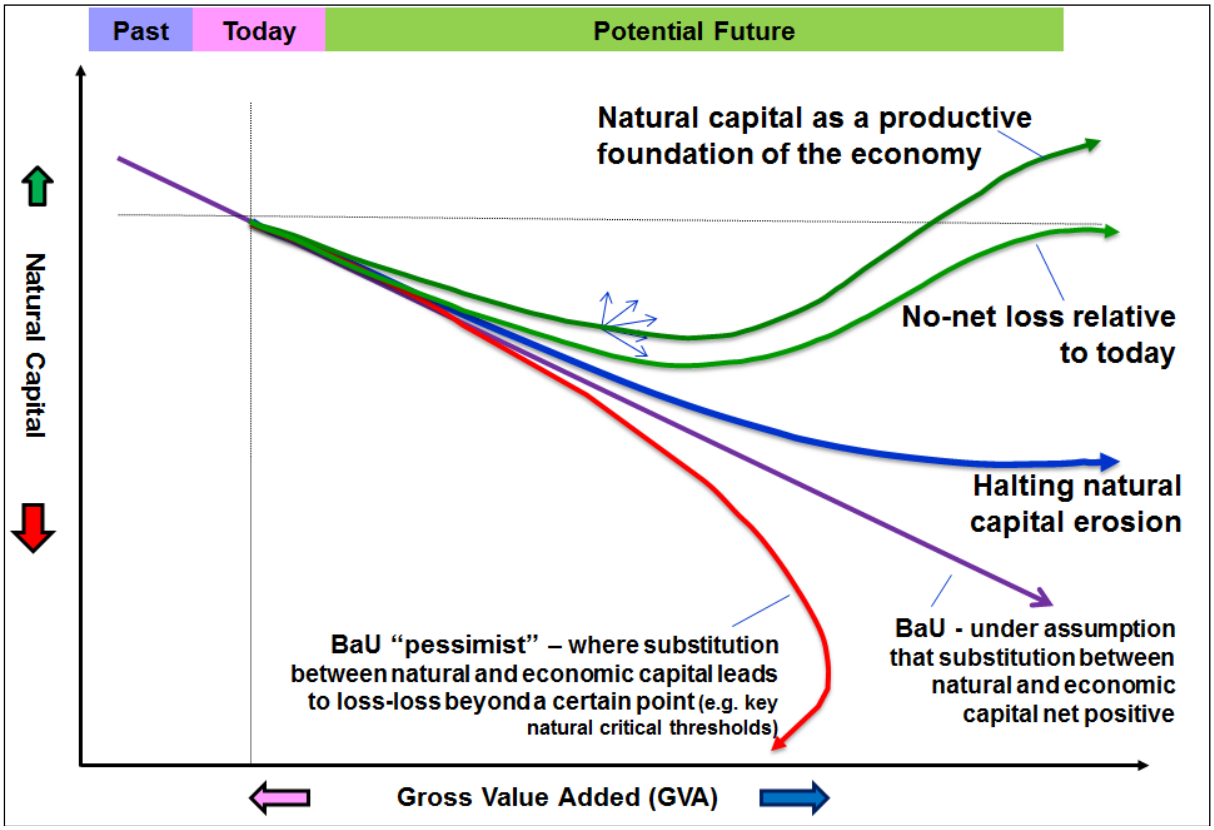
the type of projects that have received funding from the priority. Based on this information one can develop a visual presentation of the OPs environmental performance (see **Figure 12**).

Figure 12. Assessment of win-wins and win-losses for OP priorities



In practice, a mix of the different development paths will be supported by Cohesion Policy, and it is a question as to which mix of development pathways are supported to what extent by which interventions. Hence the 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 13**.

Figure 13: Aggregate Development Path



4 ANALYSIS OF THE USE OF EU COHESION POLICY FUNDING TO SUPPORT DIFFERENT DEVELOPMENT PATHS

4.1 Analysis of 2007-2013 financial allocations

The development path approach, developed in the methodology report, has been used with data on the breakdown of the planned and currently allocated Community contribution by category of activity. The approach is based on a simple but fairly crude assumption that each category of expenditure can, in the abstract, be allocated to one of the six Development Paths. The allocations of expenditure categories to certain Development Paths have been reviewed in light of the analysis of OPs in the case studies. We have included a "no DPA" category (marked as X) to capture the whole spending under the OP. The relevant DPA for these items of expenditure are judged to require more context specific information before being able to assess the relevant Development Path.

This analysis sets the background for establishing which development paths the OPs linked to the case studies are designed to emphasise. This is done by comparing planned interventions and activities as described in the OPs against the different development paths aided by the indicative relationship between the standard typology of interventions and the development paths (see Annex III) and by applying related criteria (**Table 4**) to classify activities into one of the development paths.

This analysis provides some background to the likely development paths supported by the OPs linked to the case studies. Once selected, the analysis can be applied to the allocated expenditure of the OPs.

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 current financial period. However, it can give an overall picture of what the potential of the current funding portfolio is to bring Member States from development path A towards development path F.

The analysis has been conducted by type of Objective (convergence, competitiveness, territorial cohesion) and by MS. For MS, an analysis to compare the Development Paths of planned/allocated spending in the old EU15 with the newer MS12 has been carried out. The analysis is applied to:

The total **planned** Community contribution for 2007-2013 of €344.3 billion, of which 87% (€299.1bn) is distributed across the 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% (€81.6bn) is distributed across the Development Paths.

4.2 Planned and Allocated Community Contribution by Objective

The analysis of planned and allocated[11] spending by Development Path is summarised in Figure 14 and Figure 15. 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 and B (37%) when compared with the Competitiveness and

[11] Note: data on actual expenditure is not yet available

Territorial objectives (11% and 18% respectively. This is not surprising given the investment in basic transport and energy infrastructure associated with this objective. Conversely the share of total spending under the Competitiveness objective (of €55.2bn / €14.8bn) is substantially higher under Development Path E and F (51%). 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 measure of absolute decoupling. The distribution of the allocated spending under the territorial co-operation (of €7.8bn / €1.9bn) is focused on Development Paths C, D and E (58%).

Figure 14. Distribution of Planned Spend by Objective

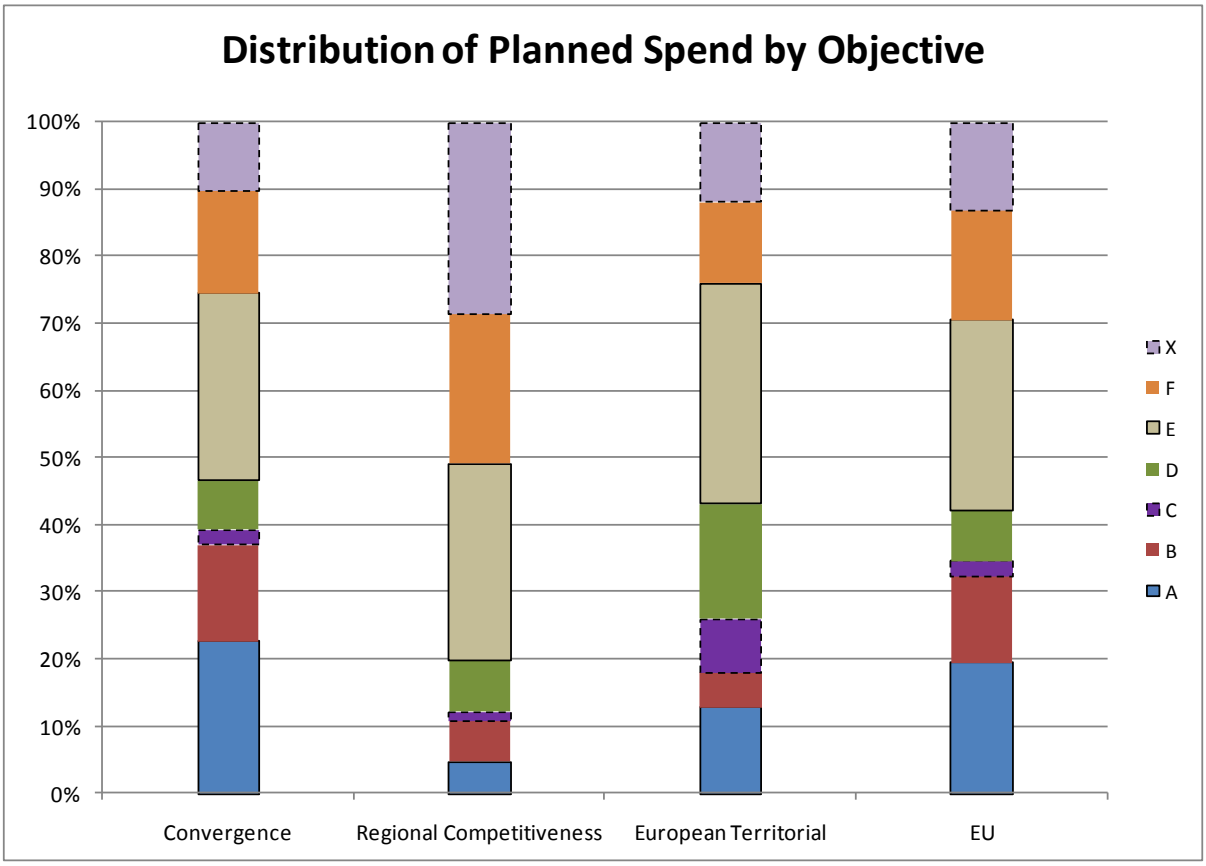
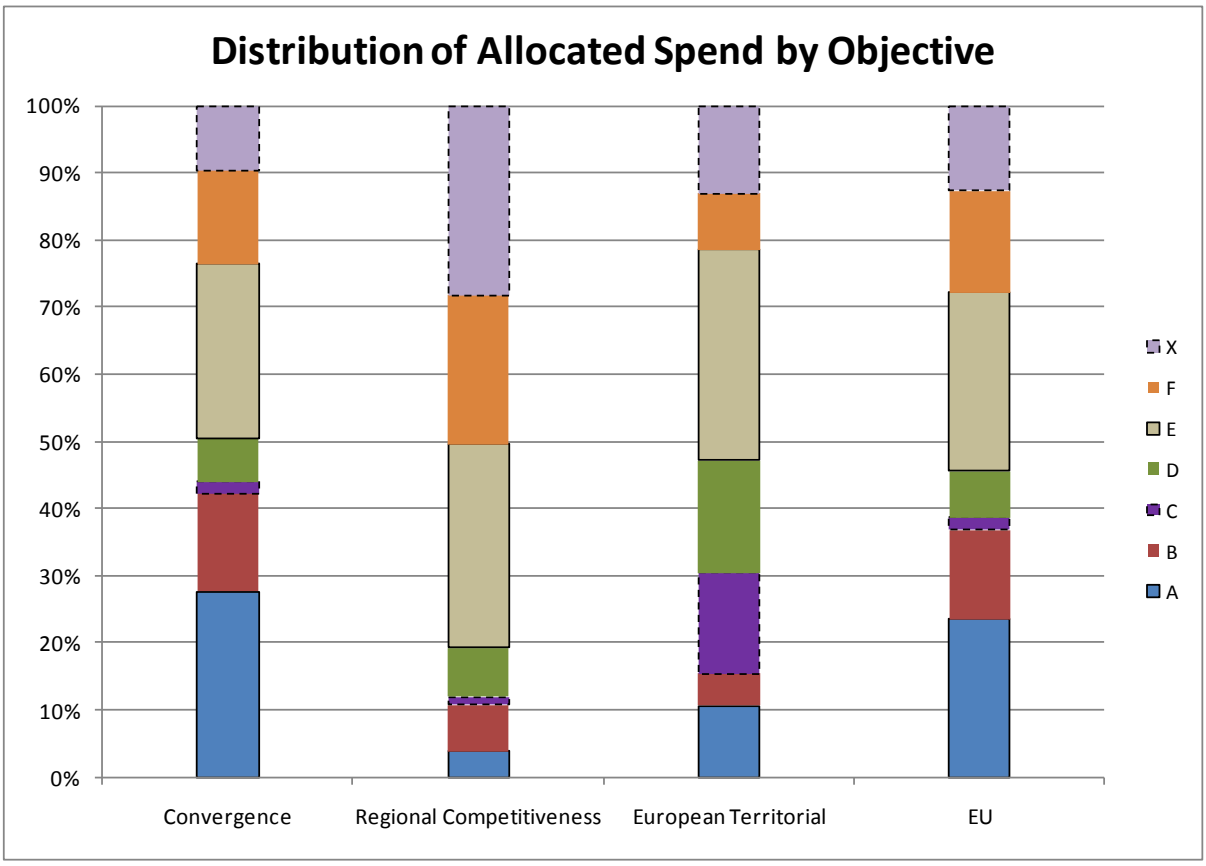


Figure 15. Distribution of Allocated Spend by Objective



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

4.3 Planned and Allocated Community Contribution by Groups of Old 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 (EU15) and new (EU12) Member States. There is little difference between the distribution of planned and allocated spending. EU15 spending is €162.5bn (planned) and €47.5 (allocated). The respective spending for the EU12 is €174.0bn and €44.1bn). Since the newer MS tend to be funded under the convergence objective and the older ones under the Competitiveness objective one would expect to see a stronger emphasis on Development Paths D, E, and F in the EU15 (Figure 16 and Figure 17). Some 56% of allocated expenditure supports Development Paths D, E and F in the EU15 compared with the 40% in the EU12.

In contrast the allocated spending in the EU12 on Development Path A (33%) is double that in the EU15 (16%)

Figure 16. Distribution of Planned Spend by Old and New Member States

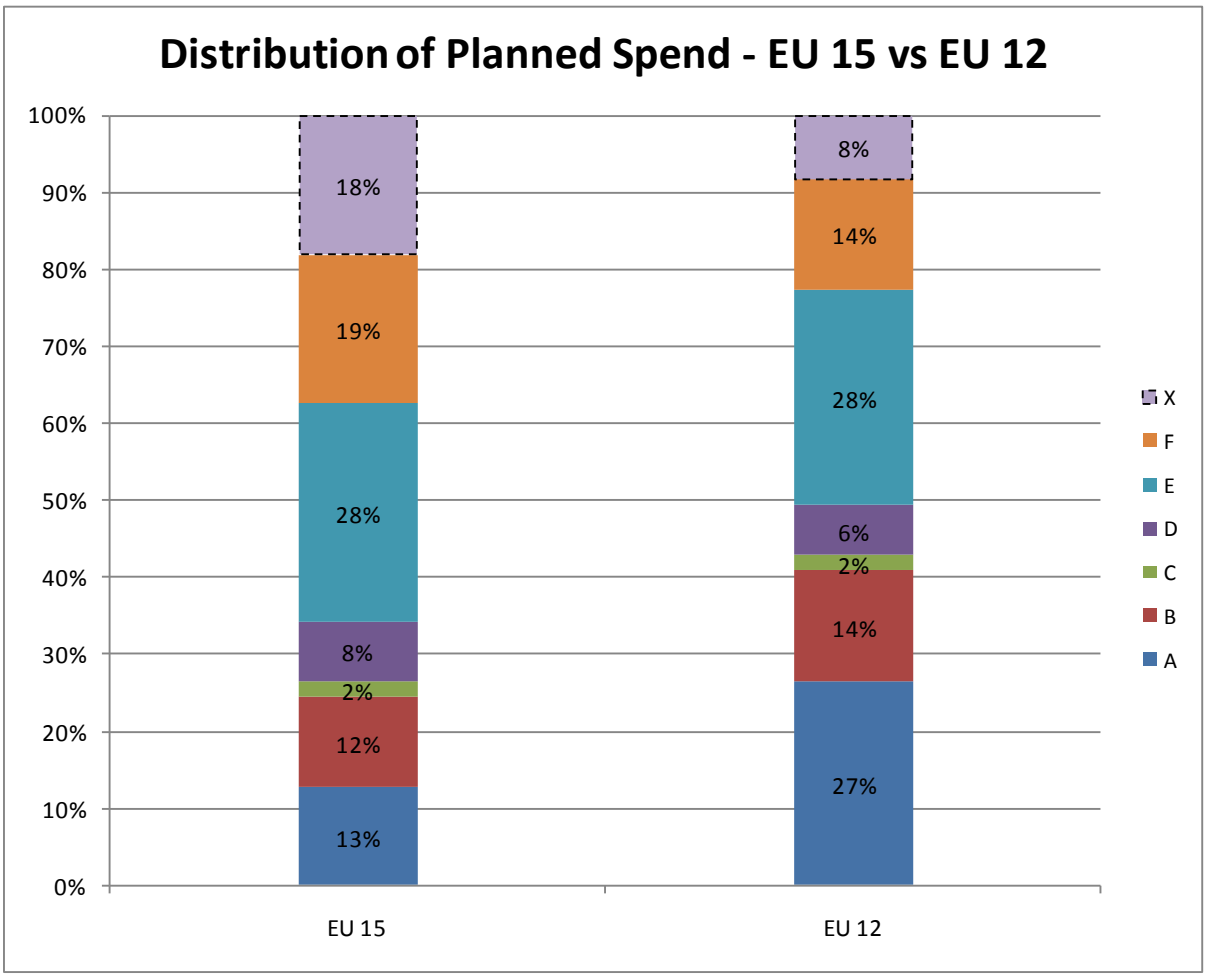
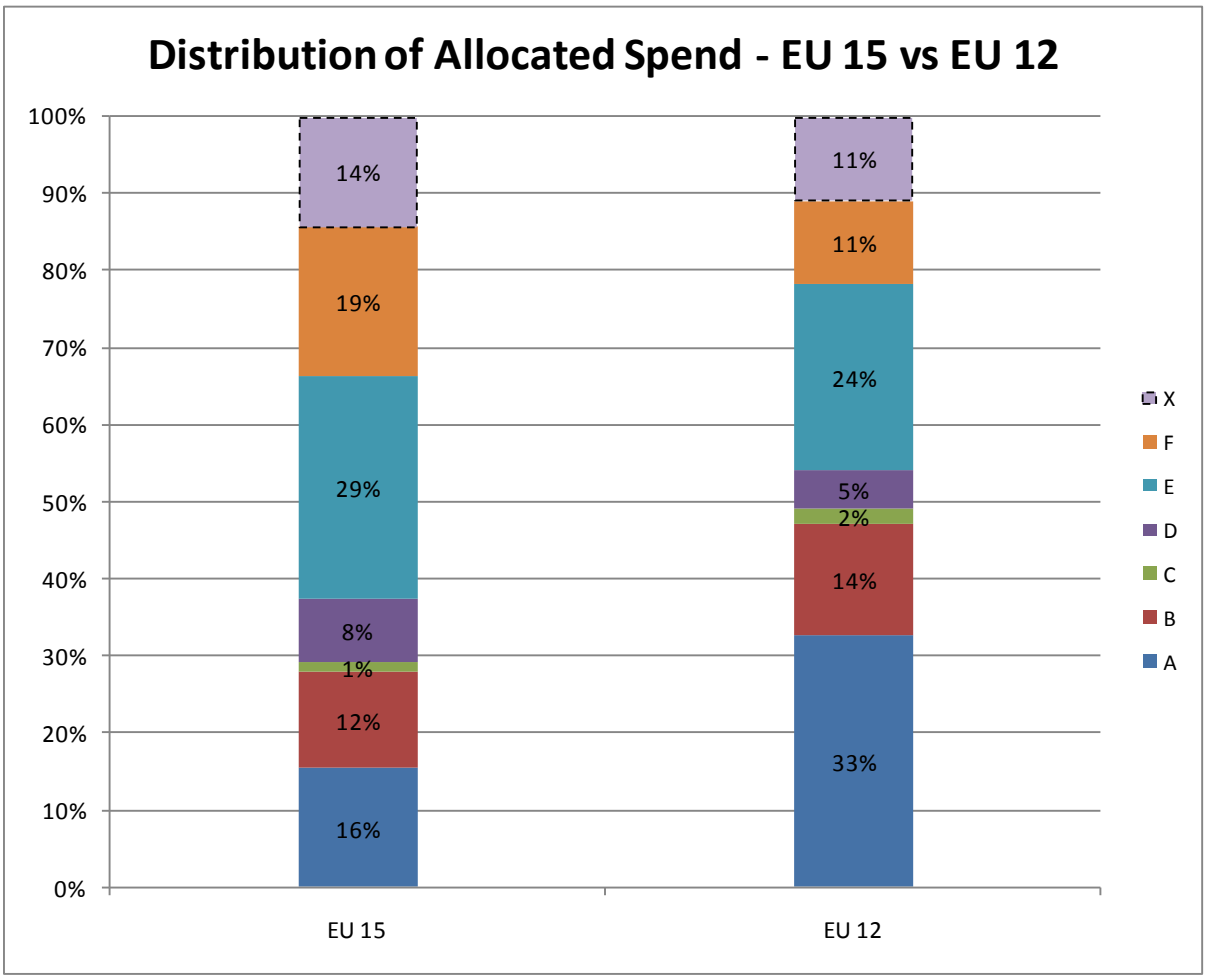


Figure 17. Distribution of Allocated Spend by Old and New Member States



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

4.4 Planned and Allocated Community Contribution by MS

The detailed analysis by Member State is presented in Figure 18 and Figure 19. There are some but not major differences in the distribution of between the planned and allocated spending. The main differences are in a reduction in allocated spend to Path A compared to planned, (especially in LV, CZ, RO), and an increase in spending allocated to Path F (especially, LU, IE, SK).

The allocated spending indicates that the Member States with highest share of Community contribution to Development Path A (of over 40%) are Latvia and Greece. In the case of Estonia, Greece, Latvia and Romania over half of allocated spending is on Paths A and B. Romania has the highest share allocated to these two Paths (68%).

In contrast Denmark, Ireland, Luxembourg, Netherlands and Sweden have over 65% of spend allocated to Paths E and F.

Figure 18. Distribution of Planned Spend by Member State

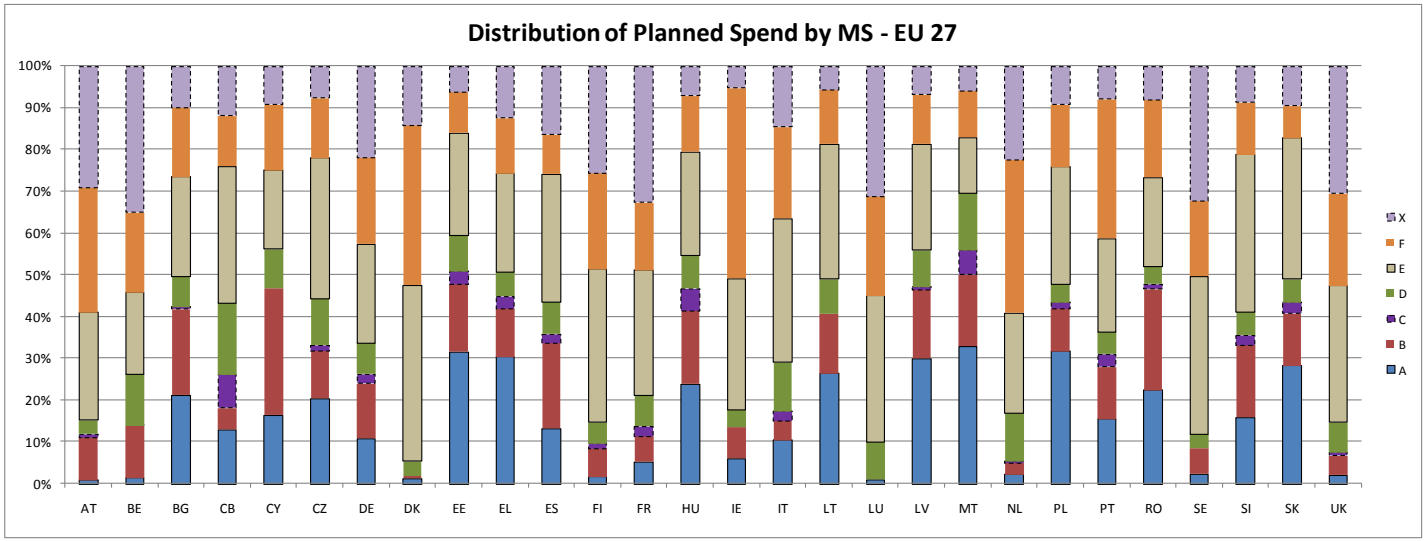
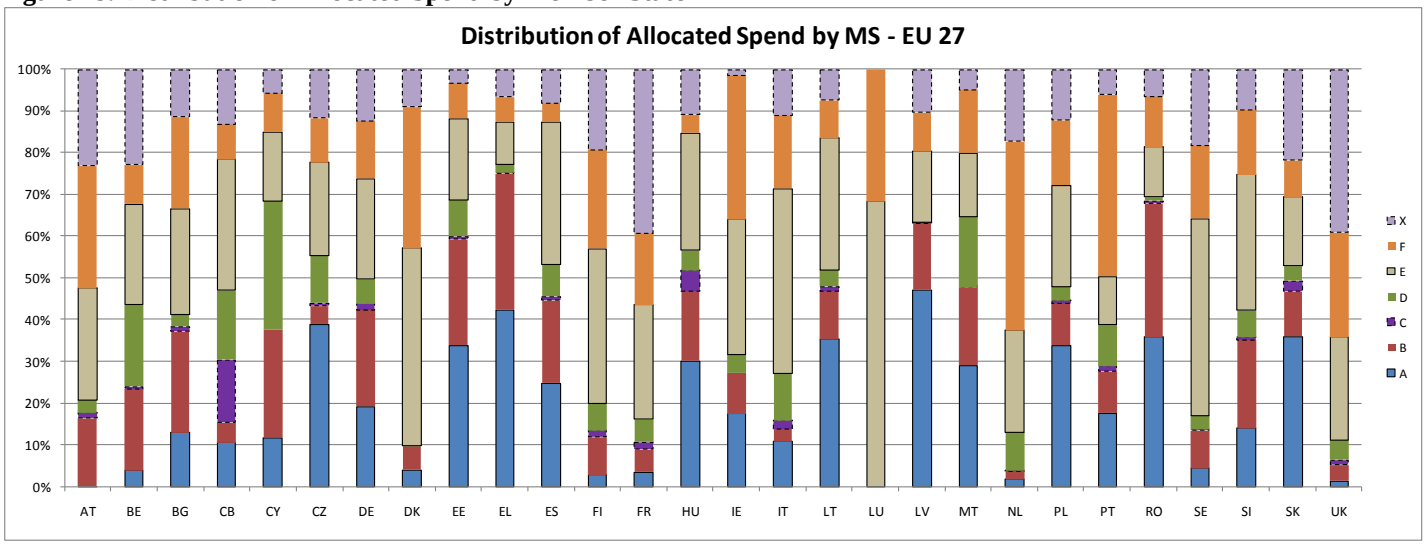


Figure 19. Distribution of Allocated Spend by Member State

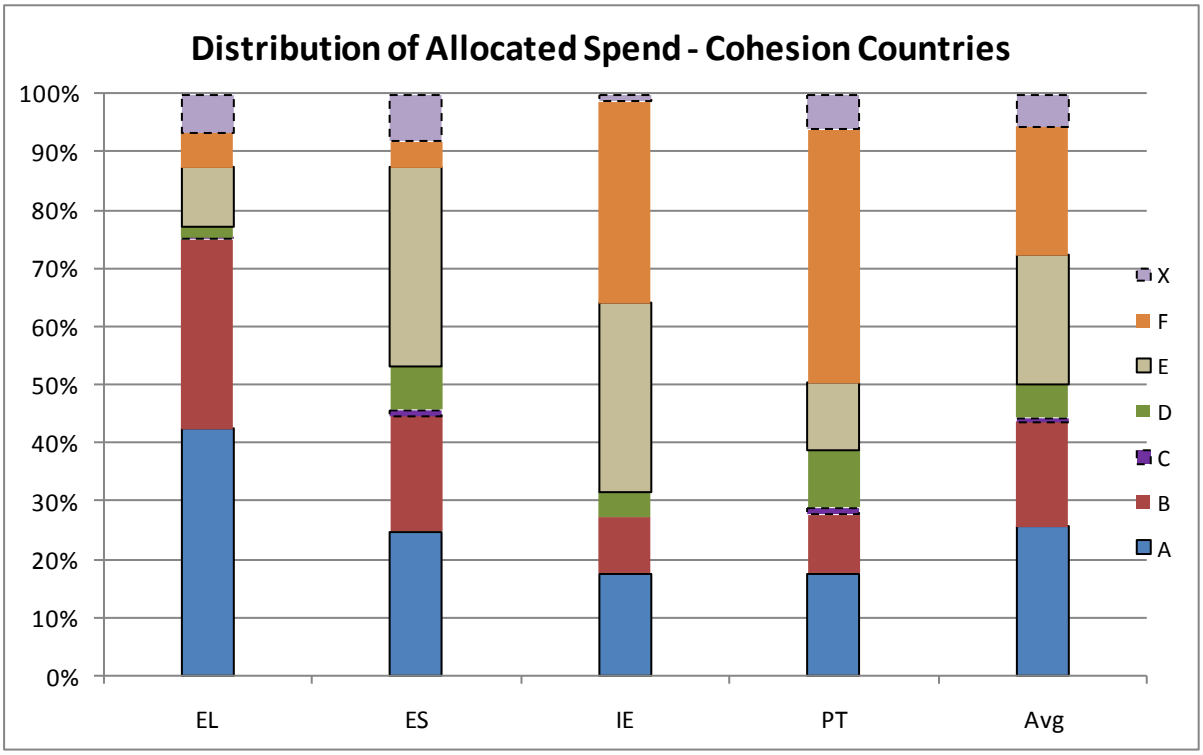


Source: Development Path assumptions applied to DG Regio data on the allocated Community contribution (2007-13)

4.5 Planned and Allocated Community Contribution by Cohesion Country

The allocated spend for the four cohesion counties (EL, ES, IE, PT) has been separately collated to illustrate the differences in the allocated spend (Figure 20). 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% to Path A and 44% to Path F Ireland has a similar distribution to Portugal, except with more spending ion Path E and less on Path F. Over half of allocated spending in Spain is on Paths A to D, with the largest share (34%) on Path E.

Figure 20: Distribution of Allocated Spend by Development Path for each Cohesion Country



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

4.6 Planned and Allocated Community Contribution by NordRegio Paths

The Nordregio report[12] grouped the Member States into one of six 'development paths', based on an examination of the strategic priorities and budgets of regional policy programmes. These are summarised in Table 5 below.

Table 5. Nordregio Country Groupings

Grouping (N-R)	Development path and characteristics	MS
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

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

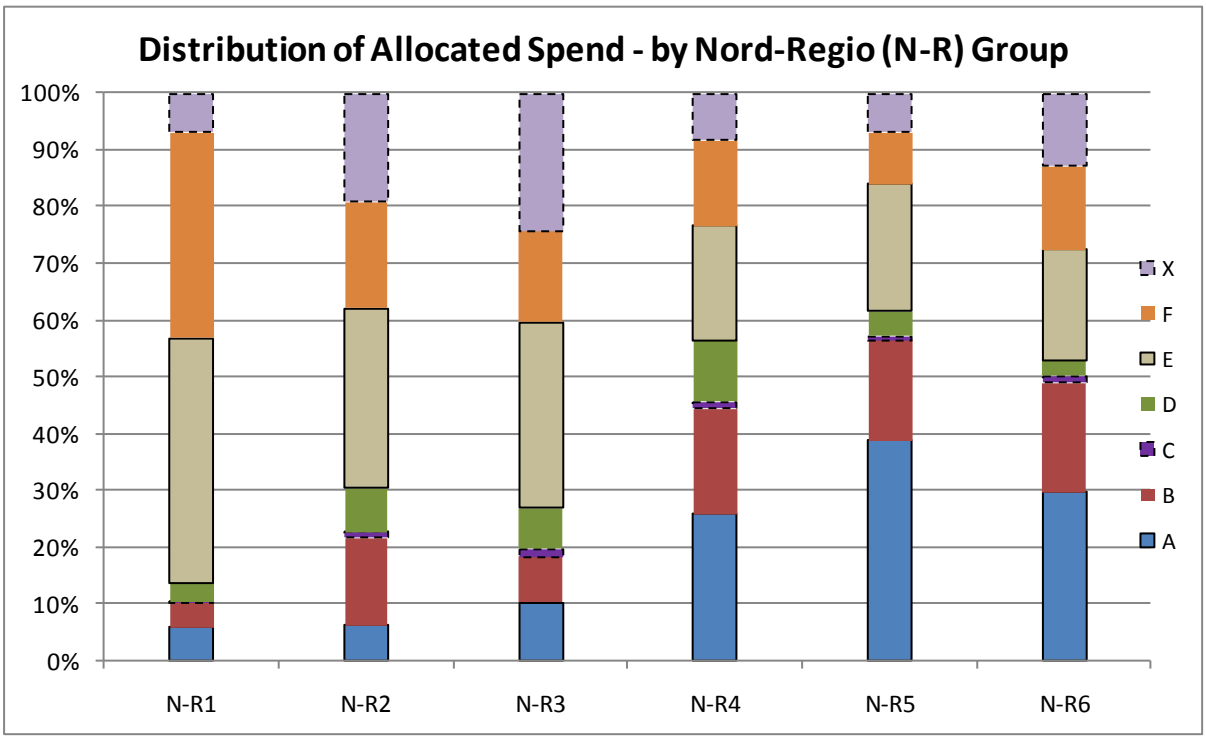
2	**Regional challenge and potential** – regionally diverse countries, with large domestic programmes and above average GDP per capita	BE, SE, FI, AT, DE
3	**Economic and environment synergies** – larger, territorially diverse countries with large domestic programmes and around average GDP per capita	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 allocated spending for the respective MS, by development paths, the distribution of spend in each Group by development path has been calculated. The results are shown in Figure 21.

The greatest allocation of spend to Development Paths E and F is greatest in Group 1 (Innovation, TRD and entrepreneurship), accounting for 79% of spend. The spending in these two development paths declines progressively through Groups 2 to 5. In Group 5 (the Baltic states) spend in these two paths is 32%, with another 39% allocated to Path A. Group 6 is similar to Group 4, but with a greater allocation to Path A and less to Path D.

This distribution is mainly explained by the inclusion of older MS in Groupings 1 to 3 and new MS in the other Groups.

Figure 21. Distribution of Allocated Spend by Development Path for each Nordregio Group



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ANNEX I
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