



COHESION POLICY AND SUSTAINABLE DEVELOPMENT

Supporting Paper 4: Case studies

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1.1 AUSTRIA: ECO-INNOVATION SUPPORT THROUGH CLUSTERS IN LOWER AUSTRIA

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1.0 Executive summary

- This case study focuses on the cluster programme in the Lower Austria region. The regional government applies the cluster approach to **achieve higher employment and create permanent jobs**.
- The main focus of the cluster programme is on strengthening co-operation between businesses and research institutes. For this purpose, ERDF as well as funding by DG RTD (ERA-NET and CORNET) and DG ENTR, and national funding are used.
- The funding agency (Department for Economy, Tourism and Technology at the Government of Lower Austria) is the main decision making body while Ecoplus, a business agency, implements the cluster programme. **The environmental authority has not been involved at any stage of the cluster programme planning and implementation.**
- With a total of €20m for the period 2007 – 2013, the cluster programme absorbs about **7% of the total budget** for the OP Lower Austria.
- Even though the cluster programme has clear economic objectives, **environmental aspects are considered as part of the selection process by the funding agency** (Department for Economy, Tourism and Technology at the Government of Lower Austria) that ensures that all measures are at least neutral to the environment. In this sense, the cluster programme creates favourable conditions for win-wins.
- The investments under the cluster programme fall under Development Path E (eco efficiency) and they can lead to **strong relative win-wins**.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	x
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and Context

Lower Austria is one of the less developed regions in Austria in terms of important economic indicators, despite positive economic development in the recent years. Globalisation and the 2004 eastern enlargement of the EU have presented challenges to the labour market in Lower Austria. The region borders two new Member States and became both a destination and transit area for migrant workers.

The main development objective of the Lower Austria region is to strengthen competitiveness of the regional economy by **promoting innovation and knowledge-based economy**. In order to do so, the region has focused its attention and resources on the small and medium enterprises (SME) that dominate its economy. Lower Austria has been banking on intercompany innovation for the last ten years in order to enhance overall competitiveness¹.

In line with these objectives, the Lower Austria region has put forward the so-called 'cluster programme' that provides pre-competitive support for mainly small and medium enterprises, in order to strengthen their **eco-innovation capacity** in six main areas:

1. **Green Building cluster:** to provide expertise on sustainable construction and housing; its focus is on energy efficient construction and refurbishment, healthy interior environments
2. **Plastics cluster:** to support, initiate and coordinate the cooperation across plastic enterprises in different Austria regions; its focus is on bio-plastics
3. **Mechatronics cluster:** to strengthen the innovation capacity and international competitiveness of companies in the field of machine and plant construction; its focus is on energy efficiency in production processes
4. **Food cluster:** to provide partners with expertise in high quality and safe products, innovative food processing, use of new food technologies, production and marketing and organic products; its focus is on food safety, regional and bio-products
5. **Logistics cluster:** to raise awareness through innovative logistics and cooperation projects, taking into account in particular climate change; its focus is on modal split
6. **Automotive cluster:** to provide its partner enterprises with a multitude of information, marketing, and co-operation services in its continuous effort to support their international competitive ability, market position, and innovative drive; its focus is on electric mobility

The Lower Austria cluster programme has been co-financed by ERDF under the Operational Programme "Strengthening Regional Competitiveness of Lower Austria 2007-2013", approved by the European Commission on 4 May 2007. This programme

¹ <http://www.kompetenznetze.de/service/nachrichten/2010/medien/proceedings-report-on-the-cluster-excellence-workshop>

involves Community support within the framework of the "Regional competitiveness and employment" objective. The total budget of the programme is around € 291.2 million and the Community assistance through the ERDF amounts to € 145.6 million. The Cluster Programme is one of the activities financed under Priority Axis 1 "Enhancing regional competitiveness through innovation and knowledge economy", which recognises the crucial role of small and medium enterprises for the successful application of the research and development outputs in practice.

2.1 Current investment context

The Lower Austria Operational Programme "Strengthening Regional Competitiveness of Lower Austria 2007-2013" has a total budget of approximately € 291.2 million and the Community assistance through the ERDF amounts to € 145.6 million. The **cluster programme** falls under priority axis 1 'Enhancing regional competitiveness', action field 1.1 'Economic and technology infrastructure, networking'. €5.6 million out of €145 million (entire ERDF programme of Lower Austria) is allocated to cluster operations; this corresponds to 3.9 % of the entire OP allocation.

Table 1: Composition and allocation of funding 2007 - 2013

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
Enhancing regional competitiveness through innovation and knowledge economy	99,540,000	99,540,000	199,080,000
Strengthening of regions and sites through mobilisation of endogenous potentials, competitive tourism, better environment, energy use and risk prevention	44,750,000	44,750,000	89,500,000
Technical assistance	1,356,798	1,356,798	2,713,596
Total	145,646,798	145,646,798	291,293,596

The **total budget for the cluster programme is € 20.588 208**; a third of which comes from ERDF. Funds allocated to this priority axis generally support activities such as networking among cluster companies, cluster-specific cooperation, knowledge transfer and exchange between research institutes and companies. Each cluster receives an equal share (€3,431,368) from the programme budget. The composition of the budget is outlined below.

Table 2: Composition of funding for the cluster programme 2007 - 2013

Funding source	Budget
ERDF regional competitiveness and employment objective	€ 5,624,235.48
National public	€ 12,298,972.50
National private	€ 2,665,000.02
Total	€ 20,588,208.00

Significant additional funding instruments are used for co-operation activities in particular. Each instrument focuses on specific aspects as explained below:

- Other European funding is received from DG Enterprise and DG RTD. **DG ENTR** co-finances cooperation activities between companies and research institutes in Lower Austria, knowledge exchange, international trainings and the development of policy recommendations. The budget is around €200 – 300,000 over a period of 3 years.
- **DG RTD** (under the ERA-NET and CORNET instruments) co-funds joint projects of industry and research with international participation. The main focus of this funding is technology transfer. The budget varies and can reach sizes of up to € 1m for projects that involve 25 partners or more.
- At national level, two funding instruments exist. The **Common Framework for Research and Development** supports for example the project “Future buildings” under the Green Building cluster which addresses sustainable construction activities. The total budget for this project with 20 participants is €3.8m over 3 years. Two thirds of the budget is covered by the federal budget (60%) and the Land Lower Austria (40%). The other third is born by the research institutes and companies.
- The **General Block Exemption Regulation** supports co-operation activities of SMEs. Between 2007 and 2010, 51 projects have been funded with a budget of € 1.9 m.

3.0 Governance mechanisms

At OP level, a wide range of assessment instruments has been used in the governance process that underpinned the planning of the Operational Programme. A **SWOT analysis** has been carried out to identify strengths, weaknesses, opportunities and threats. The SWOT analysis (and the ex ante evaluation) has been carried out by an external evaluator, Convelop: evaluation and policy design. It was the result of a very articulated and complete process, which included field and topic specific analysis and also suggestions on specific objectives and strategic orientations to effectively respond to some of the conclusions drawn. The SWOT analysis was followed and taken into account during the drafting of the **ex ante evaluation**.

The ex ante evaluation comprised a scoping phase, a meeting of the coordination and working platform ‘evaluation’ hosted by ÖROK (the Austrian coordinator for EU policies), two feedback workshops and three rounds of written feedback before the final report was submitted in September 2006. The ex ante evaluation report provides clear recommendations to be taken into account in the programming phase. It also reports some of the comments and responses to these recommendations, which have been provided to the evaluator by the programme creators. However, the ex ante evaluation

seems to focus on governing and management issues rather than on the evaluation of the possible impacts of the programming. Thus, it does not provide relevant material for the evaluation of the environmental impacts of the programme.

The **Strategic Environmental Assessment (SEA)** started with a screening and scoping phase during which the scope of the assessment was defined. The SEA report, which was compiled by the Institute for Technology and Regional Policy, took into consideration feedbacks from the environmental authority and the public. The SEA concluded that the main objectives of the OP ‘Strengthening regional competitiveness of Lower Austria’ are ‘environment friendly’². It also recognised that economic development and competitiveness are pursued taking into early consideration environmental issues and protecting environmental standards. This is ensured primarily by the fact that the likely environmental impacts of the measures promoted under the programme have been examined by neutral and independent evaluators. An iterative feedback process has then ensured that the SEA results have been integrated in the OP. The environmental authority thus did not submit any objection.

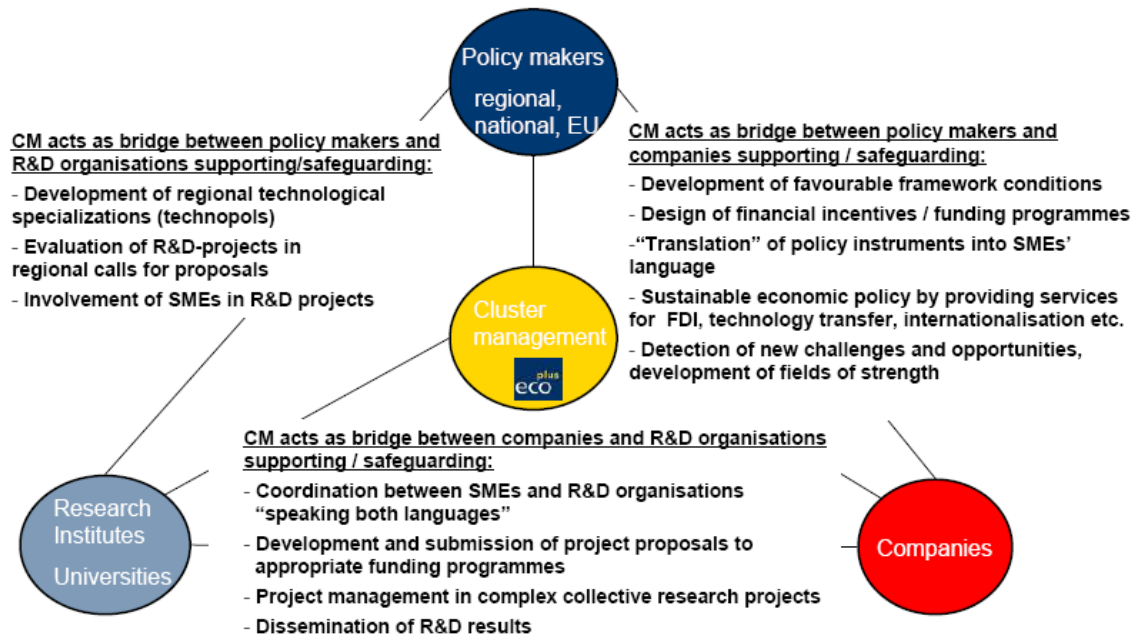
If project proposals with potential negative impacts were submitted, the project would not be funded or, when impacts were not clear, external experts would be contacted. In practice this has not happened yet in the context of the cluster programme. The **environmental authority** (Umweltanwaltschaft Lower Austria) **would be approached for complaint cases only**.

Ecoplus, the publicly funded business agency for Lower Austria, manages the implementation of the cluster programme. The figure below displays the role of Ecoplus (i.e. Cluster management) and how it constitutes a bridge between policy makers, companies and research institutes or universities. The cluster management agency contributes to the effective integration of eco-innovation measures and the implementation of projects.

The cluster programme currently involves approximately 200 members, of which more than 80% are SMEs. The cluster management bridges the gap between these SMEs and regional, national and supranational policy makers, primarily by facilitating the understanding of policy initiatives and channelling financial incentives and funds. It also coordinates the interactions between the companies and research institutes, in order to make sure that they cooperate in the development and submission of high quality project proposals. It often also acts as project manager of complicated and large investments that involve both companies and research institutions. Finally, the cluster management bridges the gap between policy makers and research institutes to assist them in the development of technological specialisation and in the applications for funds.

² INSTITUT FÜR TECHNOLOGIE- UND REGIONALPOLITIK INTEREG, ‘IM RAHMEN DER STRATEGISCHEN UMWELTPRÜFUNG DES OPERATIONELLEN PROGRAMMS: „STÄRKUNG DER REGIONALEN WETTBEWERBSFÄHIGKEIT NIEDERÖSTERREICH 2007 – 2013“

Figure 1: Governance of the cluster programme



Source: Ecoplus (2010), Eco-innovation support through clusters

Due to the nature of the cluster programme activities (awareness raising, networking, training, co-operation between business/industry and research – but no infrastructure projects³), **no trade-offs have been identified** by the funding agency⁴. All activities under the cluster programme aim at promoting growth and employment while being at least neutral to the environment. The main objective of the cluster programme is in fact promoting eco-innovation to strengthen the competitiveness of SME in the region. Thus, funded projects typically entails awareness raising campaigns, networking and training, which support the development of environmental friendly production techniques and which facilitate the implementation of tools which reduce negative environmental impacts.

In conclusion, the Lower Austria region has put in place a large array of governance mechanism to enhance environmental sustainability and ensure that sustainable development is integrated in the Cohesion Policy framework. The SWOT analysis, the ex-ante evaluation and the SEA are part of these mechanisms. Their results have been taken into account in the programming phase and they have contributed to the drafting of a programme that is considered in general ‘environment friendly’ by stakeholders and experts. The role of Ecoplus, the cluster management agency, is also crucial in ensuring that the eco-innovation measures implemented as part of the project attain the most effective and efficient results.

³ For construction projects, Umweltverträglichkeitsprüfungen (environmental assessments) are obligatory.

⁴ The SEA has not identified any trade-off. Moreover, looking at some of the measures financed under the cluster programme and presented in the paragraph below, it is possible to draw similar conclusions

The paragraph below presents an overview of the objectives of the cluster programme, as part of Priority Axis 1 of the Lower Austria OP. It also outlines some of the projects financed by the cluster programme and it will thus confirm that most of the projects tend to have a neutral, if not positive, impact on the environment.

4.0 Overview of environmental objectives, measures and allocations

In line with the environmental status described in Chapter 2.1, the Government of Lower Austria defined the following environmental objectives in the Operational Programme:

- Protection and recovery of habitats and natural systems, and containment of the loss of biodiversity until 2010
- Preservation of the protection function of soil
- Stop the trend of permanent land sealing and reduction of land consumption
- Good water conditions in line with EU framework direction on water (2000/60/EC)
- Compliance with thresholds and targets to protect ecological systems, human health and vegetation
- Compliance with Kyoto objectives to reduce greenhouse emission by 13% of 1990 figure
- Protection of biodiversity, beauty and relaxation value of nature and scenery
- Reduction of environmental health damage, in particular due to noise
- Preservation and recovery of the protection function of ecological systems
- Reduction of noxious emissions caused by traffic
- Increase in share of renewable energies
- Decoupling economic growth and energy and resource consumption
- Reduction of energy and resource consumption

Priority axis 2 targets the environmental objectives listed above in particular. About one third of the total budget is allocated to priority axis 2. Priority axis 2 comprises three action fields:

- 2.1 innovative and sustainable regional development;
- 2.2 environmental protection, energy efficiency, renewable energies; and
- 2.3 risk prevention.

Priority axis 1 instead comprises:

- 1.1 economic and technology infrastructure, and networking;
- 1.2 industries, businesses, innovation, technology; and
- 1.3 Innovation in tourism and leisure industry.

About two third of the total budget is allocated to priority axis 1.

The **cluster programme** falls under priority axis 1 ‘Enhancing regional competitiveness’, action field 1.1 ‘Economic and technology infrastructure, networking’. In this sense, the main purpose of the cluster programme is channelling research and development (R&D) in small and medium enterprises in the Lower Austria region. These programmes, addressing SME associations/cluster organisations, incentivise innovation in small companies, which dominate the Austrian economy, and they build the bridge between SME and R&D, managing the projects and disseminating results to a wider group of beneficiaries. The ultimate goal of the cluster programme is then to stimulate economic growth through innovation in SMEs.

At the same time, the cluster programme pursues very clear environmental objectives and thus it can lead to positive **win-wins situations**. In particular, the cluster programme focuses on the EU 2020 climate targets⁵:

- Cutting Greenhouse Gases by at least 20% of 1990 levels
- Increasing use of renewable energies (wind, solar, biomass, etc) to 20% of total energy production
- Cutting energy consumption by 20% of projected 2020 levels – by improving energy efficiency

According to Ecoplus, the activities promoted as a part of the cluster programme will effectively contribute to the achievement of these objectives in lower Austria. Under the cluster programmes soft measures such as facilitating cooperation and networking between companies and research institutes, knowledge transfer and exchange, seminars and conferences, etc. are funded. The specific activities depend on the nature of the clusters and their needs.

For instance, the **green building cluster** advises on energy efficiency issues and construction standards. The specific objectives of this cluster is to increase the annual refurbishment rate from 1.5% (2008) to 3% (2010) (it was 2% at the end of 2009) and to contribute to a 50% cut in CO₂ emissions by 2030. Specific steps taken to achieve these objectives are⁶:

- Development of unified strategy and procedures for all stakeholders
- Involvement in creation of favourable framework conditions (building laws, economic stimulus package, funding programs, etc.)
- Enhancement of professional skills of over 200 specialists in refurbishment of old buildings
- Formation of bidding consortia (all-in-one older building refurbishment packages)
- Collaborative development of new products and systems within the Cluster
- Establishment of Competence Centre “Future Building”

⁵ http://www.tci-network.org/media/asset_publics/resources/000/001/666/original/WS5_Walter_Freudenthaler_1.pdf

⁶ http://www.tci-network.org/media/asset_publics/resources/000/001/666/original/WS5_Walter_Freudenthaler_1.pdf

- Initiation of sector-wide solutions, e.g. food industry ("Achieving Zero Energy Retail Outlets")
- Dissemination: events, newsletters, website
- Linkages with partners abroad (international trade fairs, study trips, matchmaking activities...)

An example of an R&D project with strategic importance to the region, funded under the green building cluster is the "Future Building" Competence Centre. The new Competence Centre aims at creating innovative building components and systems that will meet the fundamental challenges the building industry is facing today: climate change and its effect on building stock; the urgent need to combat the greenhouse effect and reduce carbon emissions; and finally, both depletion and shortfalls of non-renewable natural resources. Its scientific competitiveness is grounded in an established interdisciplinary approach pioneered by the Department for Building and Environment at Danube University Krems. The consortium is composed of partners from construction, building materials and components industries.

Moreover, in order to adjust supply to meet the ever increasing demand in energy efficient refurbishment, the green building cluster and regional sector associations have developed a joint training program. Master builders, carpenters, architects, planners, site managers, heating and plumbing professionals and also energy and building consultants have been invited to participate in special seminars in order to keep up to date with current developments. More than 200 Lower Austrian tradespersons have taken advantage of this offer and are now qualified to carry out energy efficient old building refurbishment.

The **plastic cluster** focuses on bio-plastic and it aims at supporting, initiating and coordinating the cooperation across plastic enterprises in different Austria regions. The specific objective of the plastic cluster is to improve the environmental and health performance of the sector⁷ and to face the challenges of intense global competition. In order to do so, enterprises participating in the cluster are committed to gradually replace traditional plastics with bio-plastics⁸. Steps taken by the cluster to achieve these objectives include⁹:

- In-depth analysis of available resources and technology in Lower Austria in 2006
- Introduction and promotion of the topic of bio-plastics to firms
- Foundation of platform of all relevant economic and political stakeholders
- Gathering a critical mass of firms along the entire value chain bringing together Austrian and international research institutions
- Creation and management of an international collective research project on packaging made of bio-plastics("Bio-Packing")

⁷ In the past, the sector has received criticism related to the impact of its production of health and the environment.

⁸ <http://www.kompetenznetze.de/service/nachrichten/2010/medien/proceedings-report-on-the-cluster-excellence-workshop>

⁹ http://www.tci-network.org/media/asset_publics/resources/000/001/666/original/WS5_Walter_Freudenthaler_1.pdf

- Consulting for collaborative product development projects within the cluster → first products available

The core issues of concern to the **food cluster** of Lower Austria include the production of high-quality and safe products; innovative food processing techniques; the use of novel food technologies; and the production and marketing of regional and organic products. The aim of the Cluster is to promote existing native competencies in the area of food production, technologies and marketing and to enable networking among industry participants. These activities will help companies remain economically viable in the long term and enhance their international competitiveness. To achieve its goals, the Food Cluster of Lower Austria initiates and coordinates cooperation revolving around food quality, food safety as well as organic and regional products, both between companies but also between companies and R&D facilities¹⁰.

The **automotive cluster** aims at bringing together small businesses in the field of automotive supply to exchange knowledge and engage in cooperation projects. The **logistic cluster** envisages to bundle transport and to reduce unloaded drive. The **mechatronic cluster** only started in 2010 and will focus on energy efficiency issues in the production.

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

The Strategic Environmental Assessment assessed potential environmental impacts of all action fields of the OP on the environmental assets discussed in Chapter 2.1. Table 3 provides an overview of expected environmental impacts of action field 1.1 relevant to the cluster programme. An environmental impact assessment for the cluster programme itself has not been carried out.

Table 3: Expected environmental impacts of action field 1.1

Environmental issue	Expected impact	Description
Fauna, flora, biodiversity and life space	-	Infrastructure measures lead to increasing land consumption and soil sealing and have negative impacts on fauna, flora and soil.
Soil and underground	-	
Ground and surface water	0	
Air	0/-	Increasing emissions by industry and business as well as a higher traffic volume might have negative impacts on the quality of the air.
Scenery and	-	Infrastructure measures may lead to negative impacts on

¹⁰ http://www.niederoesterreich.at/magazin/00/artikel/6226/doc/e/D16_389_FO_Lebensmittel_engl_RLO_final.pdf?ok=j

Environmental issue	Expected impact	Description
cultural heritage		the scenery.
Health	-	A higher noise level is expected due to activities at business parks and related traffic.
Environment-friendly traffic	+/-	The impacts on environment-friendly traffic can be twofold. On one hand, the concentration of business in clusters shortens transport ways and contributes to more efficient logistic systems. On the other hand, an expansion of industry and business and related trade relation increase the overall traffic volume.
Energy efficiency and renewable energies	0/+	The cluster initiative 'Green building' can contribute to a more efficient consumption due to the joint usage of equipment and systems.
Resource protection and efficiency	0/+	

Notes: '0' – neutral, '+' – positive, '-' – negative

As shown in Table 3, measures under action field 1.1 may have positive impacts on energy efficiency, renewable energies and resources but may also have negative impacts on fauna, flora, biodiversity, air, scenery and health. The interviewed stakeholders reported that the potential negative impacts outlined in the SEA refer to planned infrastructure measures under the action field 1.1 but do not fall under the cluster programme.

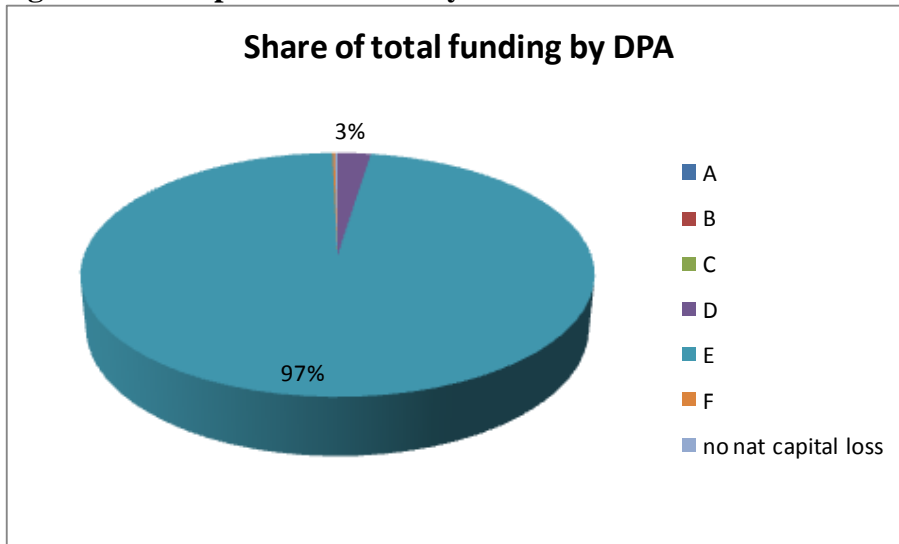
Actions funded under the cluster programme include soft measures such as trainings, networking and cooperation that are either neutral to the environment or show positive impacts. These impacts have not been measured in particular. No win-loss cases have been identified by the funding agency or the cluster management as already outlined in the governance section (Chapter 3). Therefore no good practice of dealing with trade-offs can be reported.

It is worth mentioning that it became clear during the interviews with the funding and managing agencies that only *direct* impacts on the environment are considered during the selection process. For example, as part of the evaluation of the impacts of the automotive or plastic cluster, the funding agency does not consider the potential trade-off between a growing automotive or plastic industry and environmental objectives.

We have applied the DPA as an analytical tool to assess the type of investments planned under the Operational Programme for Lower Austria. Most of the activities financed under the Lower Austria OP fall under **Development Path E (eco-efficiency) (97%)**. A

large amount of the funds are in fact allocated to interventions to promote environmental friendly investments and innovation in SMEs.

Figure 2 Development Path Analysis Lower Austria OP



The cluster programme provides support to groups of SMEs for the promotion of environmentally-friendly products and production processes and for investments in R&D and innovation. Hence, according to the Development Path Analysis (see table at the end of this report), the project falls exclusively under Development Path E (eco-efficiency), which groups interventions to improve resource efficiency of existing activities.

In this sense, the cluster programme and the specific measures financed under it can lead to win-win situations. Each of the six clusters allocates resources to SMEs and group of companies that will re-invest the money in R&D activities, which are expected to lead to economic growth and which aim in particular to create permanent jobs. At the same time, the analysis in this section has proved that these measures could lead to relative or absolute environmental gains.

6.0 Implementation and absorption

6.1 Absorption

In 2007, no ERDF money was spent. In 2008, a total of €1,073,479.59 was spent. For 2009, no final figures are available yet but the Government of Lower Austria expects to spend a similar amount as for 2008.

Two examples illustrate how the funding was spent. The plastics cluster started a cross-border R&D project on bioplastics. The project involves all major businesses in Lower Austria to ensure the applicability of the R&D findings and to secure private funding.

The green building cluster offers a wide range of trainings on refurbishing of old buildings and passive houses. This responds to a high and increasing demand and an identified lack of knowledge on the side of the manufacturers.

6.2 Preliminary outcomes

The cluster programme developed its own balance score card with objectives and indicators while the Annual Report of ERDF funding reports on a higher level of action fields only. The cluster programme balance score card comprises 4 levels with a number of indicators. The levels are

- Economic targets up to 2013
- Changes on the client side
- Process and instruments
- Innovation potential at the cluster management side

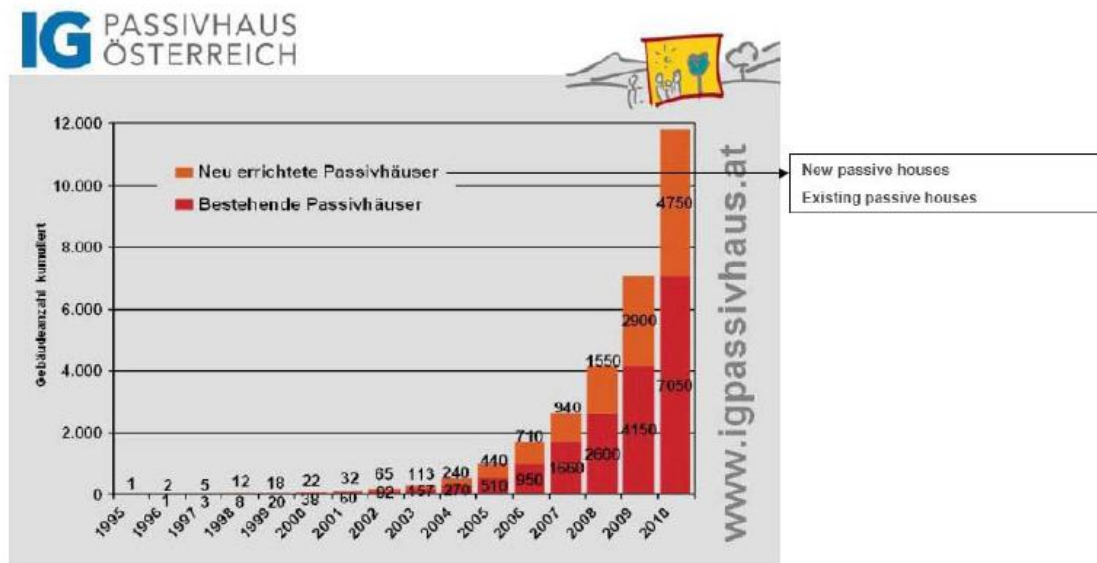
Two indicators of the second level will illustrate preliminary outcomes:

- Number of leading companies involved in the cluster projects
- Participation rate at trainings

Between 2009 and the first half-year 2010 the number of companies involved in the cluster projects increased from 11 to 14. The 2013 target is 25, which indicates progress above-average. In the same period, participation in competency building initiatives increased from about 13% to about 17% of all cluster partners. The target for 2013 is 33%.

Some key results are already available for the green building clusters, while an assessment of the results of the other clusters has not been carried out yet. Since 2001 the Green Building Cluster triggered 232 projects with (cumulated) 470 company participations. This has contributed to the intensification of houses' refurbishment and an overall increase in the number of passive houses (see figure below).

Figure 3 Development of passive house market in Lower Austria



Source: Ecoplus, Cluster development in Lower Austria, Green Building cluster, presentation 17 August 2010

7.0 Conclusions

Cohesion Policy contributes to higher employment and growth in Lower Austria. In the context of the 2007 – 2013 cluster programme, ERDF funding is used to **ensure regional competitiveness by supporting cooperation between business and research**. In order to do so, the region has focused its attention and resources on the small and medium enterprises (SME) that dominate its economy. Lower Austria has been banking on intercompany innovation for the last ten years in order to enhance overall competitiveness¹¹.

In line with these objectives, the Lower Austria region has put forward the so-called ‘**cluster programme**’ that provides pre-competitive support for mainly small and medium enterprises, in order to strengthen their **eco-innovation capacity** in six main areas (Green Building, plastics, food, automotive, mechatronics and logistics). The measures promoted as part of the cluster programme aim at stimulating economic growth in the region, through R&D investment and innovation, and at creating permanent jobs in environmental-friendly sectors. In this sense, the cluster programme can be considered an intervention to improve resource efficiency of existing activities, which can lead to **strong relative win-win situations**.

The project is co-financed by ERDF under the Operational Programme "Strengthening Regional Competitiveness of Lower Austria 2007-2013", Priority Axis 1 “Enhancing regional competitiveness through innovation and knowledge economy”. The **total**

¹¹ <http://www.kompetenznetze.de/service/nachrichten/2010/medien/proceedings-report-on-the-cluster-excellence-workshop>

budget for the cluster programme is € 20,588,208, a third of which comes from ERDF. Funds allocated to this priority axis generally support activities such as networking among cluster companies, cluster-specific cooperation, knowledge transfer and exchange between research institutes and companies. Each cluster receives an equal share (€3,431,368) from the programme budget. Co-operation activities in particular are also supported by significant additional funding instruments. At the EU level, DG ENTR and DG RTD (under the ERA-NET and CORNET instruments) co-fund some activities of the cluster programme; at the national level, the Common Framework for Research and Development and the General Block Exemption Regulation support specific projects. This is an example of coordination of EU funds not under shared management.

The funding agency (Department for Economy, Tourism and Technology at the Government of Lower Austria) ensures that all the measures financed under its OP, including the cluster programme, do not harm the environment. In order to do so, it integrates the results and recommendations of multiple governance mechanisms, such as the **SEA, the ex-ante evaluation and the SWOT analysis**, in the programming phase. However, the environmental authority has not been involved at any stage of the cluster programme planning and implementation, thus limiting the inputs from independent environmental experts in the programme. The involvement of an environmental authority in the programming or monitoring phase of a major project or Operational Programme generally ensures that all environmental factors are taken into account and that funds are allocated only to projects that do not bear substantial negative impacts on the environment. In the case of Lower Austria instead, the environmental authority is involved only when complaint cases arise, which allows it to intervene ex post, to contain the negative environmental impacts, but not during the programming.

This is also reflected by the fact that there are neither assessments nor incentives to achieve positive environmental impacts. The SEA for the OP comprehensively assesses the state of the environment and derives environmental objectives for each environmental asset. The activities under the cluster programme do not specifically refer to these objectives; neither do they aim at making a contribution to these objectives. However, the cluster programme actively pursues the achievement of specific environmental objectives related to the EU 2020 climate targets. At the same time, Ecoplus, the cluster management agency, plays a crucial role in ensuring that companies and research centres focus and coordinate their resources on eco-innovation.

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- Mechatronics Cluster, www.mechatronik-cluster.at
- Automotive Cluster Vienna Region, www.acvr.at
- Food Cluster, <http://www.lebensmittelcluster-noe.at/>
- Logistics Cluster, www.logistikcluster.at
- E-mobility initiative, www.e-mobil-noe.at

9.0 Interviewees

- Mr Henrick Haberpointner, Programme Manager - EU policies - Austria (Burgenland, Lower Austria, Vienna, Styria, Urban), DG Regio
- Mag. Irma Priedl, Government of Lower Austria, Department Economy, Tourism and Technology (managing authority)
- DI Stefan Liebert, eco plus (implementing agency)
- Mag. Andreas Maier, Austrian urban planning conference (ÖROK) (coordination of EU policies)
- Prof. Dr. Harald Rossmann, Environmental Agency Lower Austria

Activity (Cd)	DP A	Description	Budget EU
1	E	R&TD activities in research centres	€ 4,326,425
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 8,373,328
3	E	Technology transfer and improvement of cooperation networks	€ 7,646,882
4	E	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 3,066,610
5	E	Advanced support services for firms and groups of firms	€ 1,206,862
6	E	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 1,811,824
7	F	Investment in firms directly linked to research and innovation	€ 8,180,462
8	B	Other investment in firms	€ 10,750,717
41	F	Renewable energy: biomass	€ 714,167
43	E	Energy efficiency, co-generation, energy management	€ 366,385
57	D	Other assistance to improve tourist services	€ 1,208,176
61	D	Integrated projects for urban and rural regeneration	€ 550,400
80	€ -	Promoting partnerships, pacts and initiatives through the networking of relevant stakeholders	€ 275,403
85	€ -	Preparation, implementation, monitoring and inspection	€ 400,670
86	€ -	Evaluation and studies; information and communication	€ 42,263
TOTAL			€ 48,920,574.0

1.2 BULGARIA: 4 MAJOR OPS FOCUSING ON INFRASTRUCTURE AND HORIZONTAL EE/RES MEASURES

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1.0 Executive Summary

- This case study will analyse all seven OPs in Bulgaria (although in different depth focusing on the four larger ones) in view of the objectives, measures and investments that Bulgaria has identified in relation to sustainable development.
- Bulgaria is the poorest member of the European Union and will receive €6.8 billion euro from the EU Structural and Cohesion Funds for the period 2007-2013 for investing in basic infrastructure (predominantly transport and environmental) and to lesser extent providing support for enterprises, research and innovation;
- The priority setting for the programming of EU funds programmes in Bulgaria is linked to obligations stemming from the harmonisation of national legislation with the EU environmental *acquis* as well as the transport corridors which are envisioned to pass through Bulgaria as part of the Community TEN-T;
- The lack of a comprehensive National Development Plan and clear sectoral policies led to little strategic vision in the planned investments and hardly any prioritization among the different types of measures, which subsequently have created practical impediments for the effective implementation of the Funds;
- SEA proved to be an important tool for environmental integration but the lack of experience and methodological guidance resulted in varying quality of assessments and different degree of greening the OPs;
- The programming of EU funds programmes introduced novel institutional mechanisms for policy coordination and environmental integration which could be considered to constitute potential instruments for enforcing partnerships. The positive experience from the multi-stakeholder Working Groups which developed the NSRF and the OP was transferred to the respective Monitoring Committees and allowed for building some institutional memory in this regard;
- Majority of EU funding is allocated to development path E which entails predominantly measures for efficient transport systems. Development path B and A receive second and third biggest share of the funding, which comes as no surprise given the expected investment needs/objectives for basic infrastructure development linked to the transposition of EU *acquis* in this field;
- Administrative capacity remains one of the key issues concerning the programming and implementation of not only environmental but all types of measures; and
- Approximately 7.9% of the total available funding for Bulgaria in the 2007-2013 period is actually paid to beneficiaries. There is a danger that the extremely slow implementation of EU funds programmes and project might result in retaining the same priorities for building basic infrastructure after 2013.

2.0 Background and Context

The Republic of Bulgaria is a full member of the European Union (EU) as of 1 January 2007. It is the poorest Member State with GDP which is 51 per cent of the EU average. There are six planning regions in Bulgaria (NUTS 2) all of which fall under the Convergence objective of the Community Cohesion Policy and therefore pursue to develop basic infrastructure and human capital so to stimulate economic development.

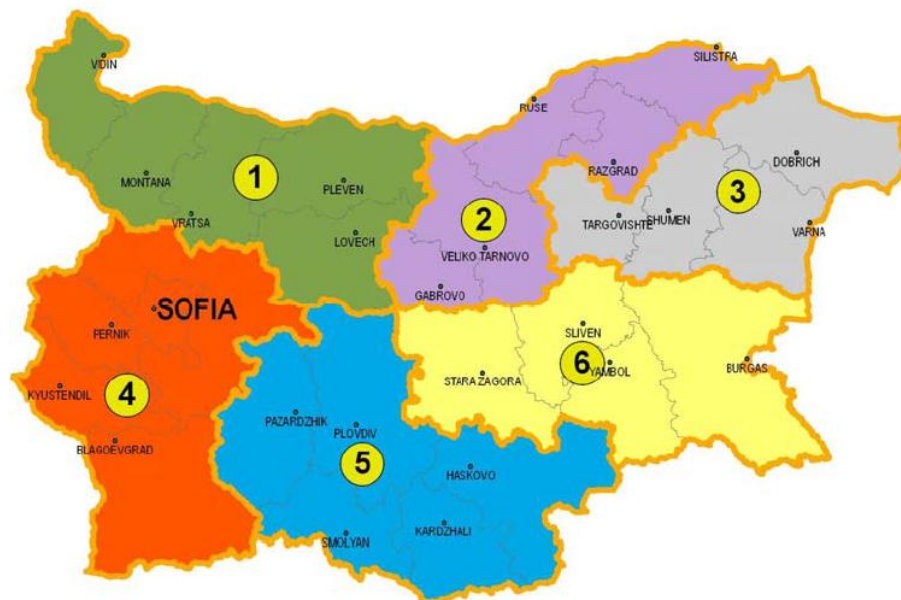
During its accession process, the country was granted access to EU pre-accession funds PHARE, ISPA and SAPARD which aimed to assist Bulgaria in meeting legal obligations stemming from the EU membership and prepare the country for the deployment of regional aid under the Cohesion Policy. In 2005, a strategic process of drawing Bulgaria's National Strategic Referential Framework (NSRF), aimed to determine the strategic orientations for economic development and social cohesion, was initiated in line with the renewed EU Strategy for growth and jobs. Seven Operational Programmes (OPs) Environment, Transport, Competitiveness, Regional development, Administrative capacity, Human Resource Development and Technical Assistance, were subsequently developed to establish key priority interventions for the deployment of EU Structural Funds and the Cohesion Fund in Bulgaria between 2007 and 2013. The total amount of EU co-financing available to Bulgaria for this period is €6.9 billion.

This case study will analyse all seven OPs in Bulgaria (although in different depth focusing on the four larger ones) in view of the objectives, measures and investments that Bulgaria has identified in relation to sustainable development. The analysis will explore the programming process by studying governance mechanisms for environmental integration. A development path analysis will be applied to the OP measures and offer in-depth discussion on potential 'win-win' and 'win-lose' interventions from environmental and economic perspectives. Further discussion about potential tools and governance mechanisms for environmental sustainability into non-environmental spending take place. The absorption of EU funds during the first two years of the implementation will also be analysed.

Figure 1: Planning Regions in Bulgaria

In accordance with the provisions of EC Regulation No. 1059/2003 in Bulgaria are defined 6 Planning Regions (2006)², as follows:

1. North-western planning region;
2. North-central planning region;
3. North-eastern planning region;
4. South-western planning region;
5. South-central planning region;
6. South-eastern planning region



Source: Operational Programme Regional Development

2.1 Current Status of the Environment

In order to analyse critically the OP measures and environmental integration actions, they need to be contextualised in terms of the actual environmental challenges and assets in the country under study. Analysis shows some positive trends with regards to improving the regulatory base and institutional set up for environmental protection and management in Bulgaria mainly due to requirements to harmonise national legislation and comply with the EU *acquis*. Many of the environmental Directives once transposed into the national legislation require significant investments to ensure their enforcement and implementation. However, the available funding both from public and private sources remains relatively low and is recognised as one of the key challenges in this sector¹². Environmental integration in non-environmental issues, however, is largely recognised as a challenge for central and local administrations and the need to strengthen good governance mechanisms and apply sound policy instruments is underlined.¹³

Heavy industrial development in some regions in Bulgaria has left a legacy of pollution hot spots, posing severe adverse impacts on air, water and soil, which have not always been addressed sufficiently in the past. According to the National Strategy for the Environment 2009-2018, Bulgaria faces a number of ‘new’ environmental challenges as well. One of the most serious challenges stems from the strong link between economic growth and environmental pressures which is related to a large extent to inefficient resource use. The energy intensity of the Bulgarian economy is, for example, six times

¹² Ministry of Environment and Water (2009) National Strategy for the Environment 2009-2018. Sofia

¹³ MEW, UNDP and GEF (2004) Bulgarian National Capacity Self-Assessment for Global Environmental Management, Sofia

higher than the EU-27 average.¹⁴ Volumes of traffic generated are steadily increasing which coupled with extremely old vehicle fleet makes the transport sector a significant source of pollution. Air pollution and energy wasteful building stock form two of the key environmental issues in urban areas. Booming tourism infrastructure has posed serious threats to coastal and mountain territories. The National Strategy also underlines that climate change is not being adequately addressed so far in Bulgaria while issues such as desertification and floods increase in their occurrence and severity.

The NSRF and OPs include analyses of the environmental situation in Bulgaria and its regions in view of concrete priorities for EU financing. The table below represents concrete environmental challenges which EU funds aim to address in Bulgaria between 2007 and 2013. Some data is also used from the draft National Sustainable Development Strategy and additional literature which illustrates better the status of concrete environmental issues.

Table 1 – Key environmental challenges in Bulgaria

Environmental theme	Challenges
Management of water resources	<p>Water quality in Bulgaria is at satisfactory level with the water supply system covering 98.8 per cent of the Bulgarian population in 2004. Unresolved issues, however, include losses during distribution which sometimes lead to water regimes and the lack of water reservoirs (affecting 51.6 per cent of the population in 2004).¹⁵</p> <p>The waste water treatment and sewerage facilities however fall well below EU standards. 69.2 per cent of the population is connected to sewerage systems (mainly in towns compared to rural areas) while 39.9 per cent is connected to waste water treatment plants (WWTPs). Discharges of untreated waste water have been increasing between 2003-2004 compared to 2002 mainly due to higher industrial production.¹⁶</p>
Waste management	<p>The overall total quantity of generated waste has been steadily increasing between 2000 and 2004 which is largely attributed to an increase in industrial waste (7 per cent of the total among of waste generated). At the same time, a decrease could be observed in the generation of municipal solid waste for the same period¹⁷. 84.2 per cent of the population is included in an organised municipal waste collection system, which includes predominantly</p>

¹⁴ European Commission (2007) Bulgaria – energy mix fact sheet. January 2007, Brussels.

¹⁵ Council of ministers (2005) National Strategic Referential Framework, Sofia, Bulgaria

¹⁶ Ministry of Environment and Water (2007) Operational Programmes Environment 2007-2013, Sofia.

¹⁷ Ministry of Environment and Water (2007) Operational Programmes Environment 2007-2013, Sofia.

	<p>cities.</p> <p>86.5 per cent of the total generated quantities of waste are landfilled. The majority of landfills do not meet current EU and national standards while the high number of illegal landfills aggravates the situation. Separate collection and recycling was introduced in 2004 only with regard to packaging waste. Overall, separate collection and recycling rates are low. There are no composting and incineration with energy recovery facilities.</p>
Air pollution	<p>Although a steady decrease in air pollutants could be observed between 1999-2004, a persistent problem regarding air pollution is caused by large combustion plants and thermal power plants.</p>
Energy consumption	<p>According to Eurostat, the Bulgarian economy consumes 8 times more energy for the production of 1000 euro of GDP compared to the EU in 2004.</p> <p>Approximately, 70 per cent of the primary energy resources are imported mainly from the Russian Federation.</p> <p>Bulgaria has set out a target for 10 per cent RES by 2010 but is unlikely to meet it. Currently, renewable energy comes from hydro power plants and some wind turbines. Only 1 per cent of the population being connected to a gas-distribution network.</p> <p>The share of the transport sector in the total energy consumption has been steadily increasing and forms 26.9 per cent of the total energy consumption in 2004. The National Statistical Institute also shows that the energy consumption in the transport sector itself has been increasing by approximately 7 per cent on average per year between 2000 and 2004 which has resulted in increased greenhouse gas emissions.¹⁸</p>
Sustainable transport	<p>At the same time, the passenger traffic by public transport has been decreasing annually by 3.7 per cent for the same period. Additionally, the number of private cars has</p>

¹⁸ Ministry of Environment and Water (2007) National SD Strategy, Draft, Sofia

	<p>increased by 22,4 per cent with 40 per cent of all private car fleet in Bulgaria being more than 20 years old.¹⁹</p> <p>Noise from the transport sector constitutes 80-85 per cent of the total noise pollution in urban areas. 88 per cent of the freight traffic is serviced by road.</p>
Nature and biodiversity	<p>Bulgaria is one of the richest countries in terms of biological diversity in Europe and offers almost all main types of natural habitats represented in Europe. By 2010, the protected areas and protected zones within the National Environmental Network should cover at least 15 per cent of the territory of the country.²⁰</p>

2.2 Role of EU Structural and Cohesion Funds

Co-financing through the EU pre-accession funds and through the Structural and Cohesion Funds has been largely seen as a key financial source to secure investment needs in the environmental sector in Bulgaria. In 2008, around 1 per cent of the GDP was dedicated to public expenditure in the area of environmental protection with more than half of that coming from EU funds.²¹ This suggests that the EU funding targeting environmental actions is of particular importance, especially with regards to implementing obligations under EU Directives in the field of wastewater and waste management. A 2009 report on the budget of the Ministry of Environment shows that EU funds constitute the single biggest source of funding for environmental expenditure and the prognosis up to 2011 does not foresee a significant change in this trend.²²

Although there is a potential for attracting private investments for environmental projects (e.g. clean and efficient energy, SME modernisation, etc.), this potential has not been fully exploited yet. The importance of EU funding to open up new market opportunities and leverage additional financial resources to environmental projects remains rather high. In the post-crisis context of reduced public budgets and shrinking private investment activity, the role of EU funds in countries like Bulgaria is therefore likely to be enhanced. For instance, foreign direct investment (FDI) in electricity production, which as a sector attracts the largest share of FDI in Bulgaria, has contracted almost three times from €670 million in 2004 to €201 million in 2008.²³

¹⁹ Ministry of Environment and Water (2007) National SD Strategy, Draft, Sofia.

²⁰ Ministry of Environment and Water (2007) Operational Programmes Environment 2007-2013, Sofia

²¹ European Commission (2010) 5th report on economic, social and territorial cohesion. 9/11/2010, Brussels.

²² Ministry of Environment and Water (2010) Report on the budget 2009 and budgetary prognosis for 2010-2011 [in Bulgarian]

²³ Bulgarian Investment Agency (2010) Renewable energy source factsheet. March 2010, Sofia.

3.0 Governance Process

In order to analyse the programming and implementation of Cohesion programmes and projects in Bulgaria from the perspective of sustainable development, this chapter will explore the programming process by discussing issues concerning the priority-setting for the environment, novel inter-institutional mechanisms for integrated planning and the role of Strategic Environmental Assessments (SEA).

3.1 Programming and Priority-setting

The programming process in Bulgaria has been a long process which commenced with the **National Strategic Referential Framework** in September 2005 in line with Article 27-28 of the Council Regulation (EC) No 1083/2006 and officially concluded with the approval of the **Operational Programmes** at the end of 2007. It involved different levels of governance (EU, national, regional) and therefore reflected the multi-level governance system that Cohesion Policy operates in. At the same time, various policy actors were engaged at each level of governance and contributed to the policy process (NGOs, social partners, etc.) through different consultative and coordination mechanisms.

The NSRF is based on socio-economic analysis of the economic situation of the country and key sectoral Strategies, which outline priority orientations for these sectors' development.²⁴ The NSRF was developed by an **inter-institutional working group** which besides the representatives of different Ministries included also members of the labour unions, professional organisations, the business community and environmental groups, thus aiming to ensure inclusiveness and build partnerships. Public discussions were launched in February 2006 and continued on a regular basis. In fact, according to national experts who were involved in the preparations of the NSRF the consultation process was a challenging novelty for the administration at that time but is now considered a valuable lesson learned and is regarded as relatively successful.²⁵

An ex-ante evaluation was carried out in the beginning of 2006 and its conclusions were reflected in the draft NSRF by September 2006. The final NSRF was adopted by the Council of Ministers in December 2006 and approved by the European Commission in early 2007. The NSFR sets out four strategic priorities for Bulgaria between 2007 and 2013 which entail:

- 1) Improving basic infrastructure;
- 2) Increasing the quality of human capital with a focus on employment;
- 3) Fostering entrepreneurship, favourable business environment and good governance; and
- 4) Supporting balanced territorial development.

²⁴ Council of Ministers (2006) Bulgarian National Strategic Referential Framework: programming period 2007-2013, Sofia.

²⁵ Interview, June 2010, Sofia

It can be observed that first order priority is given to the development and improvement of basic infrastructure, which entails mainly transport and environmental infrastructure. Setting out a strategic objective for building environmental infrastructure does not necessarily mean an objective for environmental protection or environmental integration in other sectoral investments. In fact, it has been reiterated many times at the highest political level, especially by the new government which came into power in September 2009, that a key priority for EU funds is the construction of road infrastructure.²⁶ This priority is linked to obligations stemming from the Trans-European Transport Network (TEN-T) which envision a number of strategic transport corridors to pass through Bulgaria and for which considerable funding resources are necessary.

Interviewees from the Council of Ministers acknowledged that the already established EU priorities along the TEN-T corridors in some ways ‘substituted’ the strategic planning process in this sector as Bulgarian authorities already were aware which transport corridors are likely to be financed. In this sense, EU priorities were translated directly into the NSRF and subsequently into the Operational Programme Transport regardless of what national/regional needs might have been. Therefore, the development of road infrastructure was privileged by receiving half of the allocations in OP Transport, while the second half is then split between rail, intermodal and intelligent transport systems, hence giving priority to a less environmentally sustainable mode of transportation.

Significant impediment in the planning process was the lack of a clear and comprehensive National Development Plan establishing a framework for priority actions. Bulgaria also does not have a National Sustainable Development Strategy which to establish an overarching frame for integrated developments including economic and environmental priorities.²⁷ Therefore, as far as identifying priority interventions for EU funds are concerned most influential appear to have been the EU Funds Regulations themselves (1083/2006/EC, 1080/2006/EC, 1084/2006/EC and 1082/2006/EC) which indicate the scope of measures that could be financed. Interviewees explain that the relevant measures for Bulgaria were ‘picked’ from the Regulations and subsequently ‘transferred’ into the different sectoral Operational Programmes. This means that for countries which do not have previous experience in the programming of EU structural and cohesion funding programmes, EU Funds Regulations can be quite influential. On the other hand, these cannot substitute national strategic planning processes.

The ultimate result of such EU-led priority-setting is that there is little strategic vision of the planned investments. There is little prioritization among the different measures since each of the seven OPs can to a large extent finance a wide range of measures without clear priority for action. Moreover, regional and local authorities do not consider the planned interventions under OP Environment as adequate to facilitate regional sustainable development and often see them as ‘imposed by Brussels’ rather

²⁶ Strategic report of the Republic of Bulgaria (2009)

http://ec.europa.eu/regional_policy/policy/reporting/document/bulgaria_strategic_report.pdf

²⁷ A draft strategy was prepared in 2007, but it was never adopted by the Council of Ministers.

than reflecting regional and local needs.²⁸ For instance, according to the Bulgarian Strategic Report on Cohesion, the lack of effective integrated planning in the investment process was one of the main challenges during the programming period. It could be best illustrated with an example from the water sector. A huge part of the projects proposed for indicative financing were not based on regional management plans but rather on shopping lists of projects from various towns with little coordination between these and the overall strategy of the region.²⁹

3.2 Institutional Mechanisms for Integration and Coordination

All seven Operational Programmes are developed within specially designed inter-institutional ***working groups*** which are chaired by the respective managing authorities (in the case of Bulgaria, these are usually Directorates in the respective Ministries which are established to carry out the programming of the EU funds in a given sector). These working groups are a novel institutional mechanism which involved not only state actors but also non-governmental organisation (among which environmental ones), business and professional associations. They are tasked with engaging the different stakeholders in an inclusive consultation process at every stage of developing the OPs – socio-economic analysis, SEA, SWOT analysis, priority-setting and identification of measures. Still, there is an overt imbalance in the members of these groups, which are often dominated to a large extent by governmental representatives. Furthermore, partners outside of the governmental institutions (e.g. environmental organisations) are granted the status of ‘observers’, which limits their opportunities to influence the policy-making process.

Overall, the working groups are considered by the majority of interviewees as a useful policy coordination mechanism. For example, within the working groups the representatives of the Environmental Ministry were tasked with ensuring complementarity of environmental actions and preventing overlaps under the different OPs. However, relatively little was achieved in terms of ensuring that environmental concerns were actually integrated and taken into account when planning non-environmental interventions.

Following the completion of the programming process, the working groups were transformed into ***Monitoring Committees***. They attempted to retain as members not only the same institutions but also the same individuals. This way a certain level of consistency of the policy process was achieved and certain institutional memory was built. It is yet to be seen however to what extent the monitoring committees can be an effective mechanism for environmental integration during the implementation and monitoring of OPs.

The ***partnership*** principle as set out in article 11 of the General EU funds Regulation is one of the main principles in the programming and implementation of the Operational Programmes as it explicitly identifies environmental organisations as ‘partners’. In

²⁸ Civic coalition for sustainable use of EU funds (2010) Civil monitoring of the EU structural funds in Bulgaria. Report, June 2010.

²⁹ Strategic report of Republic of Bulgaria (2009)

http://ec.europa.eu/regional_policy/policy/reporting/document/bulgaria_strategic_report.pdf

Bulgaria, common ‘partners’ in the programming of EU funds programmes are mostly considered professional organisations or respective business. There is little administrative culture of involving environmental organisations especially in non-environmental policy-making. The Ministry of Environment and Water is partnering with the national environmental network Bluelink which organises online ‘elections’ for NGO representatives in various policy-related working groups or processes stirred by the Ministry, including the development of OP Environment³⁰. This however is not a common practice in other sectoral Ministries and the involvement of environmental NGOs in the development of the different OPs was fairly limited. It should be noted though that another reason for this is related to the fact that environmental groups themselves often lack expertise to engage in non-environmental OPs (e.g. regional development and competitiveness).

The extent to which environmental NGOs could influence the decision-making process is also quite divergent. For instance, environmental organisations managed to secure their inclusion in the list of beneficiaries eligible for funding under Priority axis 3 on biodiversity preservation and NATURA 2000. Bulgarian nature conservation organisations possess significant expertise in this field and are well placed to carry out projects in this regard. At the same time, NGOs submitted several times comments to the draft OP Transport arguing for the reallocating funding towards cleaner modes of transport, but these were largely disregarded.³¹

3.3 Strategic Environmental Assessment

In the past, some experience with assessment/evaluation systems linked to the traditional land use planning and permits for construction and building could be found in Bulgaria. Usually, these assessment systems were strongly linked to the technical assessment of environmental impacts, which are methodologically closer to traditional environmental impacts assessments (EIA). Yet, the formal planning procedures guided by land use legislation throughout the 90s required some elements of ‘strategic’ assessment by provisions for applying EIA type of assessments at the level of plans and programs³². The first strategic environmental assessments (SEA) were carried out much later in relationship to the first series of Regional Development Plans and were linked to the transposition of the EU SEA Directive in the Bulgarian legislation. However, there was no practical experience with applying SEA to Operational Programmes for EU funds when the programming period started.

The SEA could be regarded as a governance instrument for environmental integration, which aims to take environmental objectives and considerations into account early in the planning process and potentially ‘green’ the content of the OPs. SEAs were planned as part of the ex-ante assessment, which looked into the broader socio-economic context of OPs. The idea was that by integrating the SEA assessment into the broader ex-ante

³⁰ Bluelink. Civic e-governance platform, http://www.bluelink.net/vote/ngovote_info.php

³¹ Interview, June 2010, Sofia

³² Dusik, J., Sadler B. and Mikulic N. (2001) Developments of SEA in Central and Central and Eastern Europe, pp. 49-58, In: Dusik, J. (ed.). Proceedings of International Workshops on Public Participation and Health Assessment in Strategic Environmental Assessment, REC, UN/ECE, WHO/Euro, November 2001.

system, environmental considerations could be regarded on par with economic and social ones. In practice, however, the SEAs were carried out separately from the ex-ante assessments mostly by international environmental constancies. They were also launched relatively late in the programming process after many of the OPs' objectives were already identified. Since this was the very first experience with SEAs for such type of investment programmes a number of **difficulties and drawbacks could be identified**. Some of these include the use of different methodologies, limited capacity of managing authorities with SEAs, short timeframes and relatively low public participation.

For instance, the SEA for OP Environment was carried out by a larger team with foreign participation and the assessment had a more general scope focusing on its strategic elements. This is considered to have aided the planning of OP Environment in terms of improving its strategic objectives and priorities. On the other hand, the SEA for Transport applied a more classical EIA methodology exploring the impacts in detail which at the end deterred drawing more strategic conclusions and recommendations. Managing authorities were also often struggling with the new procedure particularly in view of taking its recommendations in the finalisation of the OPs. Since the SEAs were launched later in the programming process, they were faced with fairly short timetables which did not always allow for sufficient time for consultations with the public. Essentially, all these impediments influenced the different degree of usefulness and adequacy of this instrument for environmental integration in the 2007-2013 OPs.

On the other hand, there were **positive outcomes of the SEA process** which influenced the final design of the OPs such as the translation of the SEA recommendations into environmental project selection criteria. This means that projects which contribute to improving the environmental performance will score higher in the project selection process. The integration of horizontal measures was also encouraged, for example – including energy efficiency and renewable energy measures in industry projects will be favoured by adding more points to the projects' selection score³³.

The SEAs contained a set of environmental indicators based on which Managing Authorities are required to carry out a report, with the first such report due in mid 2009. The required **SEA reporting**, however, was not made integral part of the general reporting system of EU funds programmes which created uncertainty on how to accommodate this requirement in the future and not surprisingly the 2009 deadline was not met. In the case of OP Transport, an external consultancy will be hired to carry out an independent assessment based on the SEA indicators in the beginning of 2011.³⁴

Even though there is growing comprehension among managing authorities that the SEA is an important tool for environmental integration in EU funds programmes, it is often perceived as a burdensome procedure, a formality required by the EU Regulations on EU funds and national legislation on SEA. The benefits that this planning instrument

³³ Ministry of economy and energy (2007) SEAs of OP Competitiveness, May 2007, Sofia.

³⁴ Interview, June 2010, Sofia

can offer decision-makers are still rather undervalued³⁵. The environmental assessments were mostly ‘added’ to the socio-economic analysis and rarely considered any alternative measures or discussed trade-offs. Due to lack of expertise and guidance, climate impacts and adaptation measures were not considered in the SEA. Interviewees stated on several occasions that more guidance from the European Commission is necessary in his regard.

4.0 Environmental Objectives and Measures

The previous section examined the governance process that underpinned the programming of EU funds in Bulgaria and explored coordination mechanisms and the strategic environmental assessment as instruments for environmental priority-setting and integration. The next step of the analysis is to explore what environmental objectives, measures and investments are included in the National Strategic Referential Framework and the four biggest Operational Programmes Environment, Transport, Regional Development and Competitiveness.

In the NSRF, no explicit objective for the environment is formulated. OP Environment is dedicated to addressing only environmental issues and therefore all its objectives are linked to the environment. However, environmental objectives and concrete measures to improve environmental performance of transport, urban development, energy and industry are included under the remaining OPs. OP Regional Development for instance includes a number of measures also linked to climate change adaptation particularly linked to risk prevention. Table 2 presents an overview of the different environmental objectives, priority axes and measures. Also, it indicates the amount of EU co-financing allocated to the different priority axes/measures.

Table 2 – Overview of environmental objectives, measures and allocations of EU co-financing

Document	Environmental objectives	EU co-financing
NSRF	None of the strategic objectives included in the NSRF explicitly refers to ‘the environment’. However, an environmental dimension is included in the explanations of two strategic priorities: <i>Priority 1: Improving basic infrastructure</i> (which includes environmental); and <i>Priority 4: Balanced territorial development</i> (one of the discourses to this priority is set out in the NSRF as ‘[p]reserving the environment and biodiversity, conservation of natural and cultural capital, adequate spatial and urban planning are integral parts of the Bulgarian national strategy’)	

³⁵ Medarova-Bergstrom, K. (2008) Ecological Assessment for Regional Development in Bulgaria: Implications for Environmental Policy Integration. Paper presented at the EASY-ECO conference, Vienna, March 2008.

	Priority axes	
	<p><i>Priority axis 1: Environmental infrastructure for growing economy and quality of life (including sustainable energy and disaster management)</i></p> <p><i>Priority axis 4: Sustainable urban development (including integrated and multi-modal transport systems and the revival of the natural attractions)</i></p>	
OP Environment	Environmental objectives	
	Improvement, preservation and recovery of the natural environment and development of environmental infrastructure	
	Priority axes and potential measures	
	<p><i>Priority axis 1: Improvement and development of water and waste water infrastructure (includes 11 major projects for integrated water supply management and sewerage)</i></p> <p><i>Priority axis 2: Improvement and development waste infrastructure (includes 22 regional centres for waste management and the Sofia waste management plant)</i></p> <p><i>Priority axis 3: Preservation and restoration of biodiversity (e.g. development of NATURA 2000 management plans; increasing awareness of municipalities and the public on NATURA 2000; establishing the management bodies for NATURA 2000; implementation of activities in the NATURA 2000 management plans; protecting and restoring biodiversity; and mitigating the impact of climate change in biodiversity)</i></p> <p><i>Priority axis 4: Technical assistance (e.g. administrative capacity; data collection and analysis; evaluation; and communication plan)</i></p>	<p>€1.027 million</p> <p>€312 million</p> <p>€88 million</p> <p>€40 million</p>
OP Transport	Environmentally relevant objectives	
	Achieving a balance between transport modes	
	Priority axes	
	<p><i>Priority axis 1: Development of rail infrastructure along the TEN-T (3 major projects for modernisation of railway lines along the TEN-T corridors)</i></p> <p><i>Priority axis 3: Improvement of intermodality of passengers and freight (one major project – Sofia metro)</i></p> <p><i>Priority axis 5: Technical assistance (Preparation of a General Plan for Monitoring of the Environment and its implementation (monitoring</i></p>	<p>€464 million</p> <p>€179 million</p>

	based on ecological indicators per mode of transport)	
OP Regional Development	Environmentally relevant objectives	
	To develop sustainable and dynamic urban centres	
	Priority axes and potential measures	
	<i>Priority axis 1: Promoting integrated urban development</i>	€176 million
	Measure: Integrated projects for urban and rural regeneration	€203 million
	Measure: Improvement of physical environment and risk prevention (including measures for rehabilitation of industrial sites and contaminated land and risk prevention)	€68 million
	Measure: Promotion of clean urban transport	€51 million
	<i>Priority axis 2: Improving accessibility of regions (e.g. access to sustainable and efficient energy sources (mainly gas distribution and to a lesser extent RES development)</i>	€19 million €65 million
	<i>Priority axis 3: Sustainable tourism development (e.g. eco tourism)</i>	
	Measure: Promotion of natural assets	€8 million
Measure: Protection and development of natural heritage	€ 3 million €6 million €7 million	
<i>Priority axis 4: Local development and co-operation</i>		
Measure: RES – solar		
Measure: RES - hydroelectric, geothermal and other		
Measure: Energy efficiency		
Measure: Management of household and industrial waste		
<i>Priority axis 5: Technical assistance (e.g. training on environmental issues – NATURA 2000, EIA, SEA and other tools for integrating environmental concern into regional development)</i>		
OP Competitiveness	Environmentally relevant objectives	
	Encouraging innovation and improving efficiency of enterprises	

Priority axes		
	Priority axis 1: Knowledge-based economy and innovation	€23 million
	Measure: Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€57 million
	Measure: Mechanisms for improving good policy and programme design, monitoring and evaluation	
	Priority axis 2: Increasing efficiency of enterprises	€55 million
	Measure: Renewable energy – wind and solar	€92 million
	Measure: Energy efficiency and co-generation Measure: Management of household and industrial waste	€28 million

Source: OP Environment, Transport, Regional Development and Competitiveness

The remaining three OPs – Administrative Capacity, Human Resources Development and Technical Assistancess do not contain any explicit objectives/priorities regarding the environment. Sustainable development is referred to only as a ‘horizontal issue’. However, all of them could be used to finance environmentally related projects depending on the creativity and willingness of project proponents. One of the concrete measures mentioned under OP Administrative Capacity is establishing centres for vocational training that can offer training in topics such as renewable energy sources, for instance. Environmental sustainability could potentially be included into measures under OP Human Resources as well which envisions the provision of additional qualification, training course and awareness-raising on issues related to environmental protection.

5.0 Analysis of interventions

5.1 Development Path Analysis

The development path approach elaborated in the methodology report of this project is the analytical tool used in this case study to assess the different types interventions³⁶ planned for financing by EU funds in Bulgaria between 2007 and 2013. The analysis shows that most EU funding is allocated to development path E which pursues environmental sustainability through eco-efficiency. Approximately, €1,620 million is allocated for these types of measures as shown in Figure 2 which is 30% from the total funding available for Bulgaria³⁷ (Figure 3). Development path B and A receive €1,375 million (25%) and €1,234 million (23%) respectively.

³⁶ According to the methodology report, Annex III, the DPA regards mainly economic and environmental interventions, therefore not all interventions financed in Bulgaria by EU funds are regarded in this analysis (particularly social ones).

³⁷ Here, by total funding is meant the total EU funds allocated for categories of expenditure included in the DPA, but not the overall amount of EU funding available to Bulgaria, which would include a wider range of interventions (i.e. social ones as well).

Development path B envisions measures linked to ensuring compliance with EU environmental legislation through the construction of man-made environmental infrastructure. Development path A entails measures which are likely to contribute to declining sustainability as these include different measures which could lead to loss of natural capital. Development paths D which envisions activities to clean up pollution or actively invest into natural capital is allocated €417 million (8%) while development path F, which includes activities that could potentially decouple economic activities from environmental pressures and facilitate behaviour change, receives approximately €706 million (13%). Development path C, pursuing the reduction of natural hazards and management of risks, scores the lowest with €36 million for risk prevention measures (1%).

Figure 2

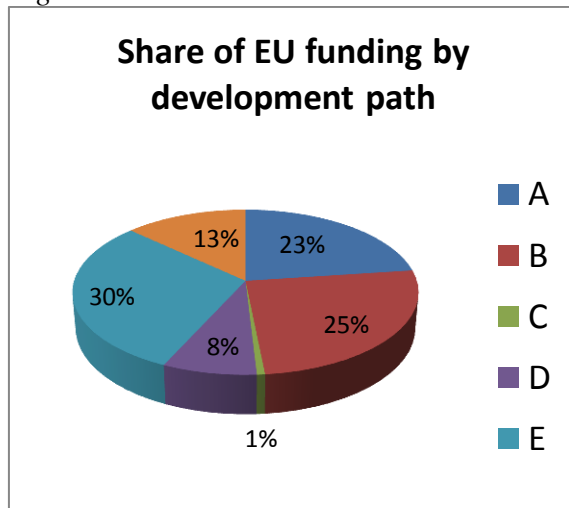
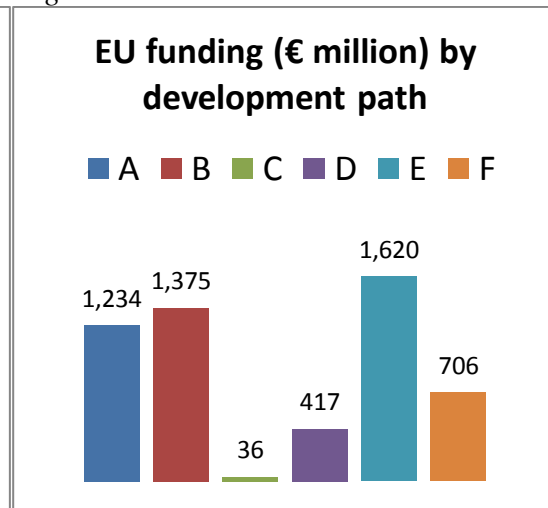


Figure 3



EU funds allocations in **development path A** mostly entail the construction of road infrastructure, which means that there inevitably will be some trade-offs. The SEA of OP Transport states that there will be significant and direct negative impacts on the local environment including noise, air quality and will contribute to increased formation of smog. Other long-term medium negative impacts include impacts on climate change, trans-boundary pollution and resource use. Impacts on the land use and biodiversity are expected to be medium in their intensity while those on landscapes are expected to be irreversible. From economic and social point of view, however, the planned road investments are expected to have significant positive gains for traffic safety, accessibility and economic activity.³⁸

The environment-economy trade-offs of road investments under OP Transport are not discussed further in the SEA. Given the first-order priority given to road building in EU funds, the negative environmental impacts are considered as acceptable in the SEA as long as they are minimised and mitigated. Potential mitigation measures are proposed

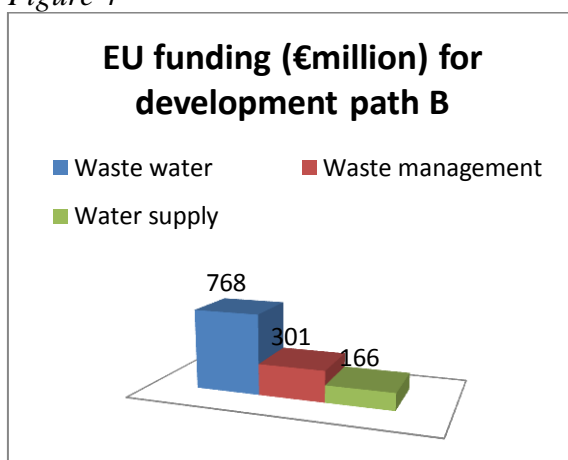
³⁸ European Consultants Organisation (2006) Environmental report: Ex-ante evaluation of Operational Programme Transport. Framework contract EUROPEAID/ 119860/C/SV/multi LOT No11

including an assessment of the landscape changes that a road construction can cause, the development of a plan for planting of trees along the road, the development of noise mitigation measures and the deployment of measures to prevent the contamination of water resources around the main routes. Furthermore, a General plan for monitoring of the environment and its implementation is being suggested as a potential tool during the implementation of OP Transport together with a plan for environmental management. None of the mitigation measures are reflected formally in text of the OP nor are environmental indicators included in the proposed indicator system of the OP. Only the General Plan is further integrated in the text of the OP and is envisioned to be prepared by 2010. By the time that this case study is being completed (February 2011), no such plan is yet developed.

The final text of OP Transport refers to the findings of the SEA but does not represent its findings very objectively. In fact, it states that the measures for road development under the OP will deliver triple ‘wins’ by ‘improving of transport access, reducing noise pollution level and environmental pollution, enhancing environmental friendly way of transport, improving quality of life and to creating better jobs’.³⁹ This means that the trade-offs are not recognized and objectively discussed. It is declared though that environmental impact assessment will be carried out for each of the projects put forward for co-financing under the OP in order to assess more precisely the likely negative environmental impacts and propose mitigation measures.

Bulgaria has transposed EU environmental legislation (the so called ‘investment-heavy’ Directives related to water, wastewater and waste management) as part of its accession process. These require significant investments and the EU Cohesion Fund is designed to secure part of these investments. Therefore, it comes as no surprise that close to one-fourth of the total EU funding in Bulgaria is allocated to activities under **development path B** related to the construction of man-made environmental infrastructure such as water supply systems, waste water treatment plants and the management of industrial and household waste (see Figure 4).

Figure 4



³⁹ Ministry of Transport (2007) Operational Programme Transport 2007-2013. Sofia.

Highest allocations are planned for **development path E** which pursues eco-efficiency. Figures 5 and 6 illustrates the types of measures and the amount EU funding allocated to each of them. It can be observed that more than 60 per cent of funding under development path E is allocated for the promotion of cleaner transport systems which entail railways, urban transport, intelligent systems and multi modal transport. It should be noted that all investments into rail are targeting high speed railways along the Trans-European Transport Network (TEN-T) (€464 million).

Financial support targeting SMEs and industrial modernisation in view of more efficient production processes and improved quality standards get as much as 20 per cent of the total support under this path. Energy efficiency and renewable energy investments are largely underinvested together with softer measures linked to the re-skilling and training activities for workers in restructuring sectors (see Figures 5 and 6).

Figure 5

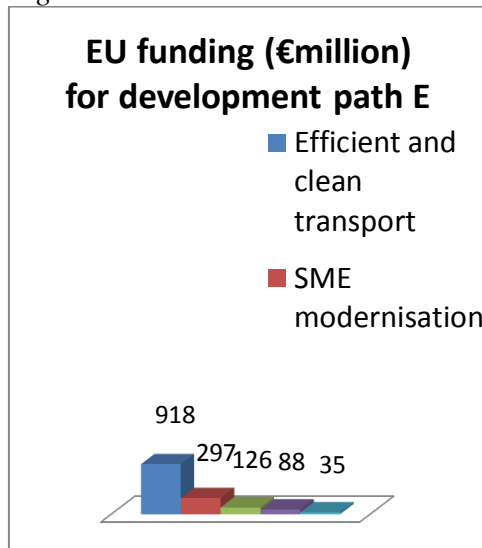
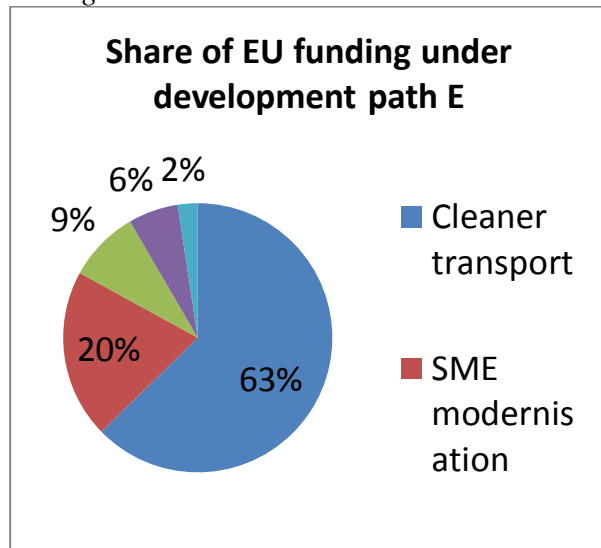


Figure 6



Development path C concerned with the management of natural hazards receives the lowest allocation of EU funds. OP Regional Development discusses that Bulgaria is particularly vulnerable to floods, fires and desertification which would require certain investments. €36 million are therefore allocated to activities for risk prevention mainly related to floods and fires. Broader issues linked to climate change adaptation are not discussed in other OPs in terms of the vulnerability of economic sectors and public infrastructure and hence no allocations are made in this regard.

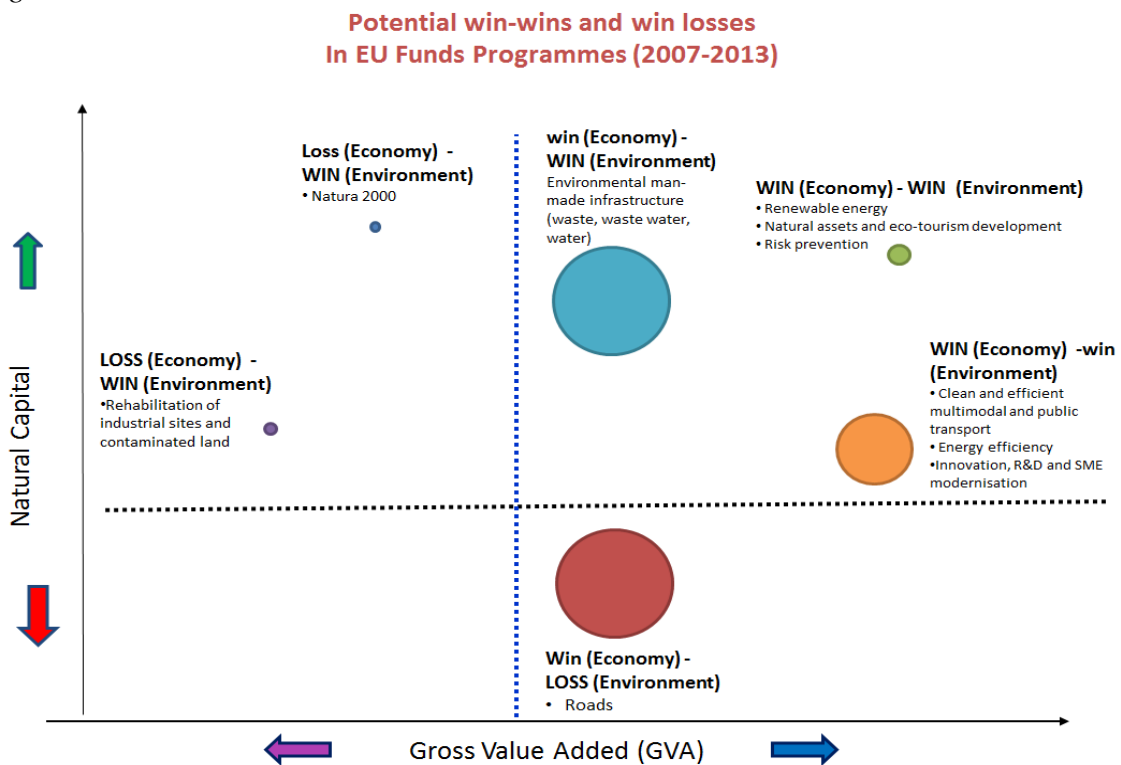
In Bulgaria, there is a separate horizontal **Operational Programme Technical Assistance**. All other ‘sectoral’ OPs also include a priority axis dedicated to the provision of technical assistance. Therefore, altogether some €240 million are allocated for technical assistance needs which include the preparation, implementation, communication, monitoring and evaluation of Operational Programmes. Such measures could be used to strengthen considerably the administrative capacity of managing

authorities linked to environmental integration by sponsoring the collection of technical data, carrying out supporting studies and conducting specific training courses for new skills.

5.2 Win-Wins

The discussion of win-wins focuses on the interventions supported by EU funds in Bulgaria, which are likely to have positive co-benefits for and impacts on the environment and the economy. Figure 7 illustrates the variety and composition of such interventions with regards gains and losses to natural capital and gross value added. The size of the circles illustrates the volume of EU co-financing that the different types of interventions receive. As it can be observed from Figure 7, most EU support is allocated to man-made basic infrastructure type of interventions in the field of transport and environment - win-WIN for the economy and the environment/quality of life such as environmental infrastructure (waste, water and wastewater); WIN-wins for the economy and the environment through clean and efficient transport (public transport, intelligent systems) and win-LOSSES for the economy and the environment through the constructions of roads (primarily motorways). Less funding support is provided to investments into natural capital, risk management and prevention of natural hazards, modernisation of the industry and clean energy.

Figure 7



SME modernisation and innovation

Operational Programme Competitiveness (OPC) provides EU funding which is aimed to enhance knowledge- and innovation-based economy in Bulgaria by providing support for SMEs and research and development. As it was discussed earlier, the Bulgarian economy is the most inefficient one compared to the EU average and significant investments are necessary to address this issue. Therefore, the OPC is designed to provide EU funds for the modernisation of Bulgarian enterprises in order to improve the energy efficiency of products and production processes stimulate the development of clean technologies and ensure the compliance with international quality standards such as the Eco-management and audit scheme (EMAS). These positive impacts of the OPC are all recognised in the SEA which the OPC was subject to in 2006⁴⁰.

By June 2010, however, there are no calls for tenders concerning energy efficiency and renewable energy measures under Priority axis 2. According to the Indicative annual work programme of the OPC, the first call for tenders with regards to energy efficiency and renewable energy measures are planned to be announced in the third quarter of 2010. This means that between 2008 and 2010, which is a period of active implementation of the OPC, no measures concerning energy efficiency and renewable energy have been financed. This constitutes a significant delay in the implementation of these measures and implies considerably low absorption rate of EU funds for such win-win interventions.

According to the managing authority of the OPC the main reasons for the extremely slow implementation of the OPC in general and the energy efficiency and renewable energy measures in particular are as follows:

- The global financial and economic crisis that had negative impact on Bulgarian enterprises, which could not continue their contribution in the form of co-financing for EU funded projects;
- The significant administrative burden and complexity of the procedures related to the implementation of the OPC; and
- The general lack of capacity and preparedness of the Bulgaria business to apply for the available EU funding.⁴¹

At the beginning of 2010, the managing authorities have acknowledged the considerable delay in the implementation of these measures, and subsequently undertook a number of actions to address the identified implementation impediments. Correction measures included specific actions to simplify the application procedures and encourage beneficiaries to apply for funding and information campaigns targeting beneficiaries which aim is to inform them better and well in advance about the requirements of the application process. Furthermore, preliminary draft guidelines for application to upcoming calls for proposals within the OPC were published, costs attributed to consultancy services for the preparation of project proposals were made eligible for reimbursement under the OPC, and the Manual for application and project selection

⁴⁰ Ministry of economy and energy (2007) SEAs of OP Competitiveness, May 2007, Sofia.

⁴¹ Interview, June 2010, Sofia.

were revised in view of shortening the timeframe for project appraisal for the benefits of the beneficiaries.⁴²

Since the beginning of 2010, all these measures are considered to have a positive impact on speeding up the implementation of the OPC and improving its general absorption. However, given the unprecedented delay it is yet to be seen if the available funding could be absorbed by 2013. Unfortunately, this situation could potentially compromise the realisation of genuine win-win interventions linked to one of the most serious issue concerning the Bulgarian economy – its inefficiency.

Energy efficiency and renewable energy in public infrastructure

The building stock in Bulgaria is also highly inefficient. The share of the buildings' energy consumption in the country's final energy consumption is substantial – approximately 40 per cent (23.5 per cent of which is contributed by residential buildings). The housing stock is characterised by a high number of prefabricated panel residential buildings -more than 18,900 blocks of flats, located in 120 housing estates, constructed in the 1960s and 1980s, and very poor heat insulation. Potential for savings from heat energy are estimated at 35-40 per cent on the average.⁴³ Targetted investment for improved energy efficiency, therefore, could deliver important co-benefits e.g. lower energy bills, decreased energy consumption, lower greenhouse gas emissions, energy security, etc.

In this respect these measures constitute a clear win-win with in the context of EU funds programmes. The integration of energy efficiency measures as part of the renovation works of publicly owned buildings including educational, social and cultural buildings is encouraged under the OP Regional Development. Energy efficiency is also seen as an integral part of the interpretation of applying sustainable development as a horizontal principle as explicitly stipulated in the OP.

Although primarily these projects are intended to address the aggravated condition of the public building stock, they foresee energy conservation measures such as energy audits, insulation of windows and doors, modernisation of heating systems, etc. A number of projects considered as good practice have been realised in the in small municipalities across the entire country.⁴⁴

The OP Regional Development sets out interim and long term indicators for energy savings from refurbished savings at 44 400MWh by 2009 and 119 000MWh by 2015 as a result of the funded measures. However, there is no monitoring and reporting on the progress made in relation to these indicators yet. Civil society organisations report that often there is no quality control over projects while the practice has showed cases when

⁴² Interview, June 2010, Sofia.

⁴³ EnEffect (2008) Bulgarian Policy for energy efficiency improvements in the residential sector. February 2008, <http://www.energy-community.org/pls/portal/docs/36322.PDF>

⁴⁴ Single information portal on EU funds in Bulgaria, Good practices in OP regional development, <http://www.eufunds.bg/bg/page/788>

insulation works were carried out with low quality materials, putting under question the actual outcome for improving the living conditions and energy saved.⁴⁵

Sustainable transport

The biggest share of investments under development path E is dedicated to sustainable and efficient transport systems, predominantly the construction of railways and urban transport. These could constitute win-win measures as they could bring benefits for improved mobility and accessibility while being more environmentally friendly.

OP Regional Development aims to achieve, through targeted investments in clean urban transport, an increase in the number of passengers using trolley, tram and underground transport (Sofia) with 30 per cent by 2013. For this, indicative measures eligible under the OP include: development of traffic management plans and establishment of automated systems for traffic management and control; improvement of basic infrastructure access and affordability to the city bus stations; and renovation of the public transport infrastructure. The long term target would be to ensure 5 per cent increase in the use of public transport services by the general population of the country by 2015.

Overall, public transport services and infrastructure is in poor condition requiring significant public investments which are not sufficiently supported in the current OPs. The railway services do not meet the requirements of the passengers, especially in terms of frequency and duration of travels while the rolling stock is in poor technical and sanitary conditions. Further investment needs identified in the OP Regional Development note common problems with bus services and the lack of complex multi-modal service (bus – bus or bus – train). Privately run mini-bus inter- and intra-city services have become very popular to the public but they are not very environmentally friendly.

At the same time, the explicit focus on railways projects along the Trans-European Transport Network (TEN-T) is linked to addressing international passengers and freight transport, while no attention is given to developing inter-rail connections for passengers traffic across regions, for instance. Furthermore, any large scale transport infrastructure could potentially generate some *unintended losses* in terms of land use and habitat fragmentation. Nevertheless, in a country like Bulgaria where transport infrastructure remains number one objective, railway infrastructure is an important alternative to road building, which is discussed further under win-loss interventions.

5.3 Win-Losses

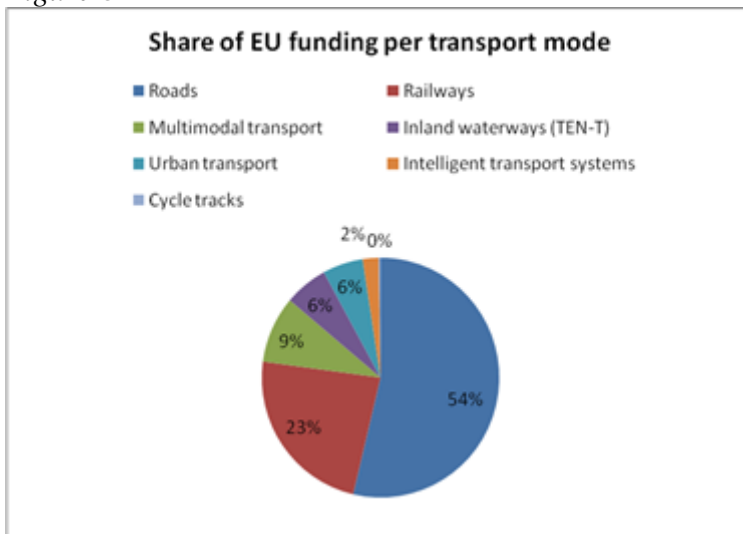
Road infrastructure

OP Transport is the Operational Programme with the largest budget of €2 billion in Bulgaria. The construction of road infrastructure with EU funds is declared to be a number one priority of the previous and current governments which is illuminated in the

⁴⁵ Civic coalition for sustainable use of EU funds (2010) Civil monitoring of the EU structural funds in Bulgaria. Report, June 2010.

allocations of EU funds per transport mode in Figure 8 below. Although the OP states a number of times that the OP aims to ensure the balanced development of different types of transport modes, an explicit priority is given to road infrastructure. Funding support for road construction takes up to 54 per cent of the total funding of the OPT and is two times more than the support for railways. The development of multimodal transport on the other hand is translated into support for one single project in the capital city, the Sofia metro development project.

Figure 8



As mentioned earlier, this priority is strongly linked to the planning of EU TEN-T corridors. This is made explicit also through the introduction of project selection criteria for the choice of major projects envisioned under the OP, by giving most weight to the criterion linked to the access of the Bulgarian transport system to the European TNE-T network. In this sense, there is no discussion about the possible losses that can be generated by this mode of transport. On the contrary, the environmental analysis of the OP together with the SEA even attempt to justify these investments by arguing that the construction of motorways would lead to environmental wins by reducing air and noise pollution. However, there is no analysis of the potential impact on greenhouse gas emissions; no environmental indicators are foreseen to measure the implementation of the Programme and relevant major projects. Furthermore, there is no discussion to the possibility of using EU support for the development of carbon intensive infrastructure which could have a technological lock in effect to the economy on the long term.

Furthermore, according to the interviews the last Monitoring Committee of the OPT discussed the fact that the planned major projects for road construction did not foresee bypasses around major cities along the road corridors. At the same time, there is not available national funding to construct such bypasses. Therefore, it appears that key road projects would actually pass through the centres of cities which would not solve the air and noise pollution problem but would instead aggravate the traffic and might

cause additional road accidents. The issue of lack of funding for bypasses as part of major projects for road construction is considered by municipality stakeholders as one of the key omissions during the programming of OP Transport.⁴⁶

6.0 Implementation

As it is recognized in the Strategic Report for Bulgaria there is no substantial progress in the implementation of measures supported by EU funds in the field of environmental infrastructure between 2007 and September 2009.⁴⁷ Overall, the report shows that implementation of all seven programmes and interventions is slow, however, the implementation of environmental investments is particularly problematic. Updated figures show that by 30 August 2010 project proposals with the total costs €2.7 billion (€2.3 billion Community contribution) have been approved (34 per cent of the total funding available for the whole programming period). However, project proposals approved is one way to track the implementation of OPs, whereas another indicator is to look into the actual payments, which appear to be much lower - €627 million have been paid in the form of advance (the EU contribution to this is €528 million), interim and final payments under the projects within the seven operational programmes. Therefore, the actual disbursement of funds is 7.9 per cent of the total budget.⁴⁸

According to the Bulgarian Strategic Report published at the end of 2009, the implementation of interventions under the different Operational Programmes by September 2009 concerning measures under the different development paths could be summarized as follows:

Table 3

Operational programme	Rate of absorption per OP	Rate of absorption per priority axis
OP Transport	Contracts signed total €231.3 million (14 per cent of EU co-financing)	Two infrastructure projects have been approved: <ul style="list-style-type: none"> • Extension of the Metropolitan Sofia Project; and • Electrification and reconstruction of the Svilengrad-Turkish border railway line
OP Regional Development	Contracts signed total €287.4 million (20 per cent of the EU co-	Priority Axis 1. Sustainable and Integrated Urban Development Sub-priority 1.1 in the field of educational, social and cultural infrastructure 62 contracts totalling €121.7 million grants have been signed with municipalities (these include

⁴⁶ Interview, June 2010, Sofia

⁴⁷ Strategic report of the Republic of Bulgaria, December 2009, http://ec.europa.eu/regional_policy/policy/reporting/document/bulgaria_strategic_report.pdf

⁴⁸ Single information system on EU structural funds in Bulgaria, <http://www.eufunds.bg/document/725> [in Bulgarian language]

	<p>financing)</p> <p>Disbursements under the contracts signed amount to €19.4 million (1.4 per cent of the EU co-financing)</p>	<p>measures for <i>energy efficiency</i>);</p> <p>Contract signed with Ministry of education for the renovation and <i>energy efficiency</i> of educational infrastructure amounting to €0.9 million;</p> <p>Sub-priority 1.4 have been signed 17 landslide fortification contracts with municipalities totalling €7.5 million are grants aimed at the fortification and stabilization of more than 30 <i>landslides and landslips</i>; and</p> <p>Contracts have been signed with Ministry of Interior on <i>fire prevention</i> amounting to €7 million.</p> <p>Priority Axis 2. Regional and Local Accessibility 29 contracts totalling €62 million grants have been signed aimed at the reconstruction and rehabilitation of over 310 km of municipal roads</p> <p>Priority Axis 4. Local Development and Cooperation Sub-priority 4.1, 58 contracts totalling €26.8 million have been signed – including introduction of energy efficiency measures</p>
<p>OP Environment</p>	<p>Overall, progress made concerns the technical parameters of interventions</p>	<p>Priority Axis 1, 157 contracts for granting financial aid within the procedure ‘Technical assistance for drafting investment projects’;</p> <p>29 contracts within the procedure ‘Improvement and development of <i>water and wastewater infrastructure</i>’ are under implementation; and</p> <p>Minister of Environment and Water has signed one order on the award of a grant within the procedure ‘Development of <i>river basin management</i>’</p> <p>Priority Axis 2 33 contracts for granting financial aid within the procedure ‘<i>Technical assistance</i> for drafting investment projects’ totalling €10.4 million are under implementation</p> <p>Priority Axis 3 Minister of Environment and Water has issued three orders on award of grants within the procedure ‘Development of the <i>NATURA 2000 Network</i>’;</p> <p>7 orders and 16 contracts signed for granting financial aid within the procedure ‘Preservation and restoration of the <i>biological diversity</i> of the Republic of Bulgaria’, to an</p>

		aggregate amount of €23.3 million
OP Competitive ness	726 contracts totalling €377.4 million grants signed (38 per cent of EU co- financing) Funds paid amount to €0.8 million	Priority Axis 1, Development of Economy Based on Knowledge and Innovations 40 contracts signed of a total value of OP-provided co-financing amounting to €16.2 million Priority Axis 2, Enhancing the Efficiency of Enterprises and Development of Favourable Business Environment Concrete measures regarding improving the <i>energy efficiency</i> of enterprises however have not been announced yet. According to the indicative annual work programme of the OPE a call for tender would be launched for a first time in the third quarter of 2010.

Figure 9

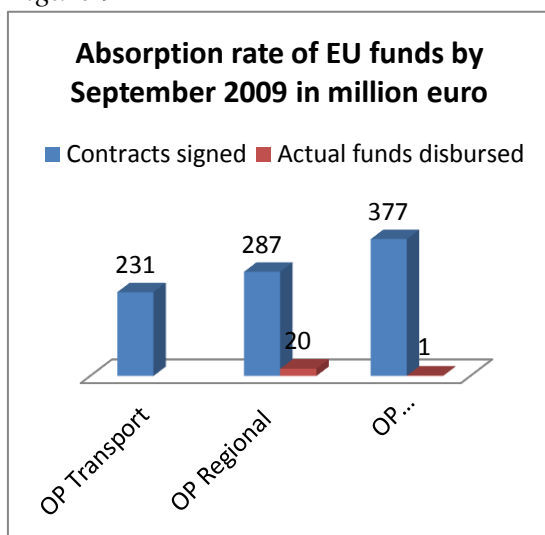
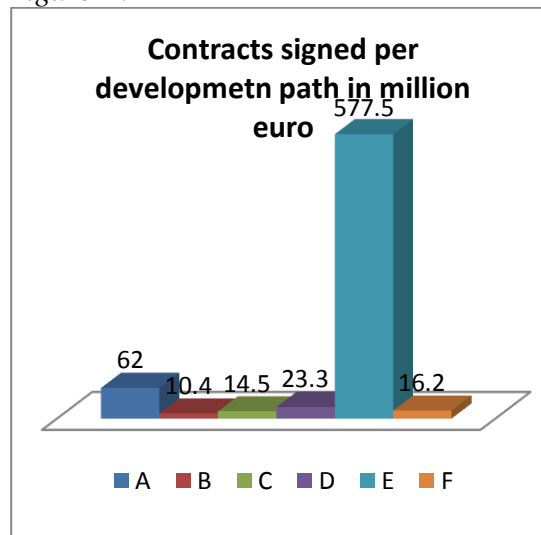


Figure 10



Source: Bulgarian Strategic Report on Cohesion Policy

It should be noted that the high rate of absorption under development path E could be explained by the fact that the accounted measures include overall funding disbursed for housing and education infrastructure where the energy efficiency measures are only a small part of the renovation works. Therefore, from the available data it is difficult to discern the share of funding dedicated to energy efficiency measures within the total funding for overall renovation.

The main factors which contribute to the slow implementation and absorption rates include:

- Inadequate accessibility and purposefulness of information on the possibilities for application under the individual OPs;
- Lack of means of circulation of beneficiaries to finance projects in advance;
- Submission of incomplete project proposals by beneficiaries;
- Delay in the communication with beneficiaries during the process of evaluation;

- In some of the Operational Programmes there were problems related to the great number of project proposals submitted, which required a longer period of time to evaluate them and/or to engage more evaluators compared to the initial expectations of the Managing Authorities;
- Delay in the signing of contracts due to complicated administrative procedures.

Two particular trends were identified also during the interviews with representatives of the municipalities, which are the main beneficiaries of EU funds. One is reported to regard Managing Authorities especially at middle and lower administrative levels in an attempt to 'reinsure' themselves against possible irregularities during the disbursing funds under projects. They tend to introduce numerous bureaucratic procedures, for instance, requiring up to seven copies of the same document, which demands significant human resource input from the beneficiaries.

The second problem articulated by municipalities regards the requirements for providing a 100 per cent guarantee for the advanced payments received and securing co-financing. With the economic crisis, the ability of municipalities to provide this guarantee has been reduced significantly, which in turn affects the implementation of even already approved projects. At the beginning of the programming period, it has been estimated that only 28 per cent of the municipalities and 4 per cent of the districts can allocate resources to co-finance projects whereas 44 per cent of the municipalities and 8 per cent of the districts can allocate resources for project preparation. In most cases, the reasons for this are considered to be limited resources and untimely planning.⁴⁹ According to the representatives of the municipalities this capacity has been decreased significantly in the last years.

According to interviewees, due to the slow implementation rate, it is very likely that in the next budgetary period after 2013, Bulgaria will retain the same priority interventions for constructing basic transport and environmental infrastructure, which fall largely under development path A and B.

6.1 Administrative Capacity

A particular issue which arises in relation to both programming and implementation of EU funds programmes and projects in Bulgaria concerns the capacity of all stakeholders engaged in the process – central administration, non-governmental organisations and beneficiaries.

A survey in 2006 showed that the municipal development capacity for project elaboration with regard to human resources, knowledge and experience is concentrated primarily in a limited number of large and more urbanized municipalities with a developed non-governmental sector. These are mainly the municipalities that have benefited from the opportunities of the 'learning by doing' method provided by pre-

⁴⁹ Ministry of Regional Development and Public Works (2007) OP Regional development, Sofia

accession instruments.⁵⁰ Moreover, there is lack of feasibility studies and mature technical projects, as indicated by 54 per cent of the municipalities. The lack of spatial and cadastre plans impedes project development as municipalities often lack funding to carry out the necessary studies⁵¹. With regards to environmental issues and environmental integration, a National Capacity Self Assessment (NCSA) from 2002-2004⁵² showed a recognition among officials of the importance of integrating environmental matters into development and management practices (including regional development and EU funds management) but revealed a limited knowledge, capacity and skills among administrators to deal with such issues.

Various measures were undertaken to address the issue of administrative capacity of different stakeholders in order to enhance the implementation process within all Operational Programmes. The track record of training courses, seminars and information days organised with the aim to improve the administrative capacity of managing authorities, beneficiaries and non-governmental sector is truly impressive. And yet, the issue of low capacity of all stakeholders remains one of the key impediments for the implementation funds, something confirmed in all the interviews. This regards the implementation of not only environmental but all types of projects.

There are additional issues which emerged during the interviews which aggravate further the issue. The lack of capacity was addressed by hiring new people in the structure of management of the EU funds; in some cases administrations almost doubled and tripled. For instance, the MA of OPC (European Funds for Competitiveness Directorate) employed 82 people. Furthermore, administrators in central government dealing with EU funds receive double salaries as a measure to keep experts on a long term basis. However, the turnover of staff is extremely high; people stay of few years and then move to better employment opportunities taking with them expertise, contacts and know-how. Therefore, retaining knowledge and skills has been challenging in view of improving the system of EU funds implementation and building institutional memory.

7.0 Conclusions

The 2007-2013 Cohesion Policy created a new momentum for the environment in Bulgaria, bringing substantial funding resources for environmental infrastructure such as waste water management, water supply and waste water treatment. These are measures that have the potential to realise significant win-win benefits for improving the state of the environment, quality of life and attractiveness of regions. The inclusion of environmental measures into other policy areas was also enhanced through the provision of funding support for clean and efficient transport and the modernisation of small- and medium-sized enterprises. Significantly less EU support, however, is

⁵⁰ UNDP Bulgaria (2006) Assessment of municipal and district capacities for participation in EU structural and cohesion funds absorption.

⁵¹ Ministry of Regional Development and Public Works (2007) OP Regional development, Sofia

⁵² MEW, UNDP and GEF (2004) Bulgarian National Capacity Self-Assessment for Global Environmental Management, Sofia

envisioned for investment in natural capital, climate change adaptation and clean and efficient energy.

First order priority is stipulated the construction of large scale road transport systems, which receives twice the amount of EU co-financing compared to all other transport modes altogether. This priority is largely related to the implementation of TEN-T projects regardless of the likely negative environmental and climate impacts which could potentially lock the country into carbon intensive paths of development in the long term.

The governance process for environmental integration was aided by the application of Strategic Environmental Assessment of Operational Programmes and the establishment of novel multi-stakeholder structures. Their effectiveness varied significantly, though, and in the future these instruments and governance mechanisms will need to be strengthened.

Three key problems emerged from the analysis of environmental integration in the 2007-2013 EU funds programmes in Bulgaria. The first one is linked to the lack of a National Sustainable Development Strategy coupled often with the lack of national policy frameworks, outlining a vision and strategic priorities in the different sectors (including the environmental one) that take into account adequately regional problems, assets and investment needs. As a consequence, at a strategic level, the NSRF did not formulate a specific objective for environmental protection and integration. Furthermore, this posed additional challenges to the implementation of OPs in terms of the extremely low absorption rates of all projects but particularly environmentally-related ones.

The second issue is linked to the relatively low understanding and appreciation of the objectives for sustainable development as well as the role of the environmental integration and environmental investments. Although large amount of investments are channelled to basic environmental infrastructure and the SEA is increasingly seen as a key instrument for environmentally sound decision-making, often these are considered as measures arising from the EU accession obligations and requirements. They are rarely seen as important instruments aiding the planning process or offering different types of development pathways. Therefore, environmental provisions in EU funds programmes and projects are limited to what is usually formally required under the EU Regulations and do not extend to additional innovative measures, complementary instruments, proofing tools, etc.

The third issue is the limited capacity of the different policy actors to engage effectively in the programming and implementation of EU funds programmes – at the level of public administrations - managing the complex processes of planning and managing environmental projects and having high turnover of experts; at the level of beneficiaries - generating ideas, developing project proposals and implementing them; and at the level of environmental groups - failing to a large extent to act as a civil society corrective and a driver for environmental integration.

The post-2013 will offer new opportunities for Bulgaria to frame its development vision in the context of the transition to a low carbon and resource efficient economy up to 2020. The currently low EU funds absorption rates and the slow implementation of projects coupled with the lack of imagination and capacity of all policy stakeholders could potentially result in retaining the present development objectives focused very much on manmade basic infrastructure in the field of transport and environment. Some actions could be undertaken to address this for instance: initiating the planning process at an early stage so as to allow enough time to carry out a comprehensive and inclusive planning process; training and engaging key policy actors to ensure links to actual problems and investment needs but also to strengthen environmental integration; increasing the environmental expertise in all relevant stakeholders to develop and promote smaller scale innovative and win-win projects; linking the provision of financing to the achievement of concrete environmental targets; and establishing monitoring and reporting systems which take into account environmental pressures.

List of interviewees

Luba Hristova, Cohesion Policy Department, Ministry of Environment and Water

Zhaklina Metodieva, Senior SEA expert, Ministry of Environment and Water

Anton Gladnishki, Boryana Ivanova and Yana Marinova, Secretariat of Managing EU Funds, Council of Ministers

Martin Georgiev, Senior expert, Ministry of Transport

Dessi Hristova, Expert, Open Society Institute

Aksinia Trioava, Expert, Ministry of Economy, Energy and Tourism

Silvia Georgieva, Manager of EU funds projects, National association of the Municipalities in Bulgaria

Veselka Ivanova, Senior expert, National association of the Municipalities in Bulgaria

Natalia Dimitrova, Rio Conventions project, UNDP Bulgaria

Petko Kovachev, Green Policy Institute

1.3 CZECH REPUBLIC: INVESTMENTS IN THE WASTE SECTOR IN CZECH REPUBLIC

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1.0 Executive summary

- This case study examines the priority axis **Improvement of waste management and rehabilitation of old ecological burdens** implemented under Czech Republic's **Operational Programme (OP) Environment**, which identifies environmental protection and quality improvement as the basic principle of sustainable development.
- The major project concerning construction of a **municipal waste incinerator in Karvina**, which is at this stage still under preparation and has not been submitted for approval to the European Commission yet, is analysed in more detail as a representative example of a project developed under this priority axis.
- OP Environment and in particular the examined priority axis dedicated to waste management were developed on the basis of the **national waste management plan adopted in 2003**. The national waste management plan was developed after assessment of the strategic options for dealing with the waste management problems and implementation of the EU legislation.
- The national waste management plan has been seriously modified in 2009, giving priority to waste incineration as the preferred waste management option, which was not the case in the earlier version of the plan, binding at the time of drafting OP Environment. The SEA for the modified waste management plan was not carried out.
- The choice of incineration as a waste management option in the modified National Waste Management Plan and Regional Waste Management plan for Moravian-Silesian Region has been controversial especially because mechanical-biological treatment (MBT) has been pointed out as a more effective option in numerous studies. Construction of a waste incinerator has been seen by some experts as a potential lock-in option, preventing the development of separate collection and recycling
- The Karvina project described in the case study is promoted as an infrastructure project helping the country comply with EU environmental legislation. The project is in line with the modified national waste management plan from 2009.
- Concerns about the quality of the EIA process, especially as regard of assessment of the alternatives and coherence of the Karvina incinerator project with waste management hierarchy have been raised by NGOs and experts

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	X
	Weighting	X
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	
	Partnerships	
	Consultation	X

2.0 Background and Context

On 20 December 2007 the European Commission approved the "Environment" Operational Program (OPE) of Czech Republic for the period 2007-2013. This program involves Community support for the whole national territory within the framework of the "Convergence" objective. The total budget of the program is around € 5.78 billion and the Community investment through the ERDF and CF amounts to € 4.9 billion, which amounts to approximately 18.4 % of all finances intended for the Czech Republic from the EU funds.

The Operational Program aims to support sustainable development, long-term competitiveness and employment in the Czech regions. The objectives of the OP are:

- The reduction of priority environmental pressures,
- The preservation of good environmental quality in fields which are not under strong pressure and the maintenance of positive trends,
- The compliance of the Czech Republic with the environmental "acquis" (EU legislation)

Furthermore, the program will contribute to meet the commitments of Czech Republic arising from the Treaty of Accession, by resolving persistent environmental problems. It will thus significantly contribute to meeting the objectives of the Lisbon agenda, particularly as regards the sustainable use of natural resources.

The OP Environment contributes above all to the fulfilment of the strategic objective of the National Strategic Reference Framework "Attractive Environment", namely through the "Protection and Improvement of Environmental Quality" priority. The interventions promoted as part of the program aim at improving the quality of life of the population, increasing the attractiveness of the region by decreasing external costs (negative

impacts) and contributing to the use of progressive, environment-friendly and energy-efficient technologies.

The thematic program is structured along eight priorities:

- Priority 1 - Improvement of water management and reduction of flood risks (CF)
- Priority 2 - Improvement of air quality and reduction of emissions (CF)
- Priority 3- Sustainable use of energy sources (CF)
- Priority 4 - Improvement of waste management and rehabilitation of old ecological burdens (CF)
- Priority 5 - Limitation of industrial pollution and environmental risks (ERDF)
- Priority 6 - Improvement of the state of nature and landscape (ERDF)
- Priority 7 - Development of infrastructure for environmental education, consultancy and awareness (ERDF)
- Priority 8 – Technical Assistance (CF)

Priority axis 4 is focuses on two areas of action – improvement of waste management and rehabilitating serious old ecological burdens.

The specific objectives of the Priority Axis 4 are as follows:

- Reduce specific waste production independently on the level of economic growth;
- Utilise waste to the maximum possible extent as a replacement for primary natural resources;
- Minimise the negative effects on human health and the environment in waste management;
- Rehabilitate serious old ecological burdens.

2.1 Current status of the environment

While the OP Environment lacks a detailed analysis of the state of environment and data for the relevant problem areas, the environmental strengths and weaknesses of the region were identified during the preparation of the OP Environment⁵³.

Strengths (S)

- Transposition of European environmental legislation including IPPC, EIA, Seveso, management of chemical substances, etc.,

⁵³ Source missing

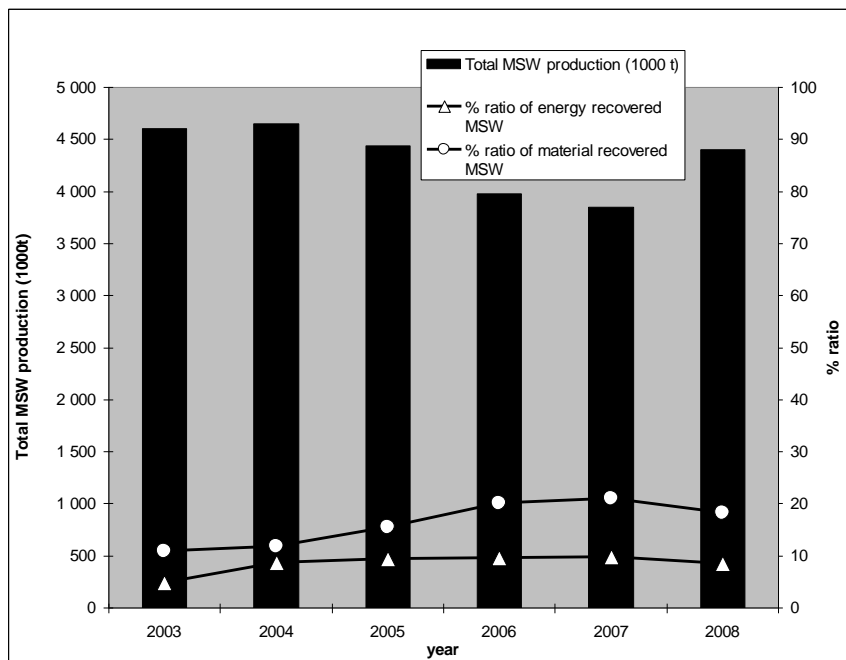
- Certain pieces of Czech environmental legislation more stringent comparing to environmental acquis and/or cover broader scope of regulated issues (e.g. the Clean Air Act),
- Stabilized situation in respect to certain environmental problems (e.g. emissions of sulfur dioxide or carbon monoxide into the air, capacity of landfills in connection with the developed systems of waste management, recycling of waste, prevention of major accidents),
- Unexploited potential of renewable energy sources and energy savings,
- Top qualified experts in the fields of nature conservation, geology, hydrogeology, hydrology, etc.
- Sophisticated system of management of protected areas,
- Territorial and conceptual planning at the regional level (power engineering, water protection, transport, air, territorial plans, etc.),
- Sophisticated system of environmental education and awareness raising.

Weaknesses (W)

- Missing technical infrastructure for the protection of surface waters,
- Municipal waste water treatment in smaller municipalities (2000 – 5000 PE) is still not completed,
- Insufficient ensuring of drinking water supply in adequate quality and quantity in some areas,
- Insufficient flood prevention measures and reduced retention capacity of the landscape,
- Growing emissions of the priority pollutants from mobile and small sources (PM10, PAHs, VOC, ozone),
- High emissions of CO₂ equiv. per capita and per GDP,
- Missing infrastructure for effective material utilization of wastes, landfilling prevails,
- High number of contaminated industrial sites not in use (old environmental loads, brownfields),
- Loss of biodiversity,
- Health status and age structure of the forest, high level of defoliation of conifers,
- Regional disparities,
- Insufficient qualified capacities within public administration at the regional and municipal levels, including project preparation,
- Low level of public environmental awareness.

The scale of waste management challenges in Czech Republic is significant, as illustrated in Figure 1. The recovery of both materials and energy from municipal waste in the Czech Republic remains very low. Almost three-fourths of the entire amount of municipal solid waste (MSW) is disposed at landfills, which undermines the implementation of EU Landfill Directive and EU Waste Framework Directive.

Figure 1 Municipal waste disposal in CR (t)



Source: Fourth evaluation report on fulfilment of Government Regulation no. 197/2003 Coll., on WMP of the Czech Republic for 2008, Prague, Ministry of Environment 2009

2.2 Current investment context

The Operational Program Environment (OPE) falls within the Convergence objective and it is the second largest Czech operational program, in terms of finances. **€ 4.92 billion** in EU funding have been allocated to it, which amounts to approximately **18.4 % of all finances intended for the Czech Republic from EU funds**. In addition to the EU funds, the program is assigned € 0.87 billion from Czech public sources. Priority Axis 4 is allocated **€ 0.78 billion EU funds (15.8 % of the entire OP)**. **The analysis did not identify reliable estimation of additional funding, allocated by the European Investment Bank (EIB) or commercial loans.**

3.0 Overview of environmental objectives, measures and allocations

The Waste Management Plan of the Czech Republic was used as basis for defining the priorities for action in the area of waste management for the OP Environment. The Waste Plan of the Czech Republic (WMP CR) was adopted in July 2003. It identified two main environmental problems related to waste management:

- 1) Desirable hierarchy of waste management is not fully respected in the Czech Republic, waste disposal prevails over its utilization.
- 2) The extent of old ecological burdens (landfills and brownfield) resulting from poor waste management in Czech Republic is alarming, especially because it strongly impacts the health status of the population and the environmental

In order to address the problems of waste management, the WMP CR strategic objectives are:

1. reduce specific waste production abstractedly from the level of economic growth,
2. carry out maximal utilization of waste as replacement for the primary natural resources, and
3. minimise the negative effects on human health and the environment in waste management.

The Waste Management Plan for Czech Republic established targets for 2010 to increase the degree of material utilisation of municipal wastes and for reduction of proportion of landfilled biowaste that are in compliance with the targets of EU Landfill Directive and EU Waste Framework Directive (see chapter 4.1 for figures). It should be noted that the indicators established for Area of action 4.1 of OPE (to be achieved by 2013) are not sufficiently ambitious to match the objectives of the WMP of CZ. The OP Environment has set, as a target for 2013, the same degree of material utilisation that was set for 2010. The indicator for volume of the municipal waste production in 2013 is 25% higher than the level of MWP in 2006, which presumes low effort in waste prevention.

The objective of Waste Management Plan of the Czech Republic to increase materialisation of municipal solid waste (MSW) to 50% by 2010 was not met. MSW currently amounts to approximately 15% of the total waste production in the Czech Republic. In 2005, municipal waste production amounted to 4.4 million tonnes. The weight quantity of municipal waste per capita and year amounted to 387kg in 2006. The proportion of separately collected components of municipal waste is permanently growing, including hazardous components.

According to the text of OP, **Area of action 4.1 - improvement of Waste Management** aims at supporting implementation of the national Waste Management Plan, with specific objectives including:

- reducing waste production,
- increasing selective collection, sorting and recycling of waste
- reducing the quantity of disposed waste.

Eligible types of projects include:

- construction of integrated waste management systems,
- construction of systems of selective collection of assorted waste,
- construction of waste utilization facilities, particularly waste sorting, processing and recycling facilities,
- construction of waste collection yards and stores,

- construction of hazardous waste management facilities (except for landfilling),
- construction of systems of selective collection of assorted hazardous waste, including hazardous municipal waste and hazardous waste produced by health care facilities,
- reclamation of old landfills, including municipal and other waste,
- elimination of unauthorized (illegal) landfills within specially protected areas, sites of community importance, and special protection areas,
- support for construction of composting plants and biofermentation stations

The construction of the Karvina municipal waste incinerator is among the projects under preparation and is scheduled to apply for funding from the Priority Axis 4 in 2011.

3.1 Karvina incinerator project or Regional integrated centre for recovery of municipal wastes in the Moravian-Silesian Region

The project's official name is Regional integrated centre for recovery of municipal wastes in the Moravian-Silesian Region. Waste incineration facilities are not mentioned specifically as eligible type of projects in OPE.

The total envisaged investment costs for the construction of the RIC municipal waste incinerator are estimated at CZK 4,900 million (€ 200 million), with the intention to launch the facility operation in 2015. This would still correspond to the regulation of n+2, i.e. drawing upon resources within the current Cohesion Policy financial framework (2007-2013). Total financing of the project is supposed to be a combination of a commercial loan, loans from the European Investment Bank, EU Cohesion Policy (grant from Operational program for Environment, Measure 4.1), state, regional and municipal budgets.

The aim of the project "RIC – Regional integrated centre for recovery of municipal wastes in the Moravian-Silesian Region (MSR)" is to build a facility with certified and best available technology (BAT) for energy recovery of MSW and a capacity of 190,000 t/year. A component of this project is also the construction of five transfer stations within the MSR, which would increase the effectiveness of the system for the transport of waste to the facility. RIC will be located on the site of the former lumber yard of the Barbora mine, close to the Karviná heating plant.

Waste will be loaded via a weighing room into a waste container – bunker, where it will be assorted (and also homogenised) by crane and subsequently transferred into the feed hopper of the boiler. Combustion takes place at a temperature of 950-1100°C on a travelling grate. Solid combustion products – ash, clinker – shall be transported to areas for treatment of clinker. Clinker shall be crushed and rid of metal parts. The separated scrap iron and coloured metals shall be taken off for recycling. The clinker shall be then forwarded to a company capable of handling this type of waste, or deposited at a landfill outside of the RIC complex.

Ash trapped in the separator during filtration of combustion products and fly ash shall be pneumatically transported to the ash silo. This ash shall subsequently be rinsed so as to remove soluble salts and heavy metals. The purified ash should then be certified for utilisation in the construction industry. Ash trapped in the combined catalytic filter shall be gathered in the silo separately and carried off by autocistern as hazardous waste.

Energy for combustion is converted to electrical energy in a steam turbine. Steam with lower parameters is used for heating water for the system of centralised heat supply in the Karviná region.

The following method of purifying combustion products is proposed in the project:

- Elimination of NO_x by dosing of 24% solution of ammonia water (NH₄OH).
- Trapping of fly ash in electrostatic separator.
- Destruction of dioxins shall be implemented by the oxidation-reduction method of surface and catalytic filtration in a combined catalytic filter.
- Wet washing of combustion products on the principle of physical chemical absorption.

Waste technological wasters shall be discharged into the Karvina stream following treatment. Alternatively the possibility of evaporation of waters is being considered.

4.0 Analysis of the measures and allocations

4.1 Meeting the requirements of the EU Landfill Directive through EU funds

The Landfill Directive⁵⁴ is one of the most important directives for the organisation of municipal waste management systems. It consists of two main parts:

- an objective-based part which gives targets for the reduction of landfilled biodegradable MSW on a national scale; and
- a prescriptive part which defines the technical standard of landfills and the aftercare period as well as aftercare funding.

The objective based part requires wide-ranging changes in the public waste management. The targets require changes in the collection systems as well as in treatment facilities. The targets are defined as follows:

The quantity of landfilled biodegradable MSW of EC member states, compared to the 1995 baseline, has to be reduced to:

- 75 % by the year 2010
- 50 % by the year 2013

⁵⁴ [Council Directive 99/31/EC](#)

- 35 % by the year 2020

These years reflect the four-year extension provided for in the Directive for states that landfilled more than 80% of MSW in 1995. Czech Republic has decided to make use of this extension.

During the accession process, Czech Republic has agreed with the European Commission a baseline of 1.53 million t of biodegradable parts of MSW. The reduction rates are calculated from this basis. So the quantity of biodegradable parts of MSW has to be reduced below the following figures:

- 1 147 500 t/a in the period 2010-2012
- 765 000 t/a in the period 2013-2019
- 535 500 t/a from the year 2020

Following the Waste Management Hierarchy, the reduction of landfilled biodegradable parts of MSW has to be achieved primarily through waste minimisation, separate collection and waste recovery.

The Landfill Directive itself requires in article 5 (1) that the reduction targets should be kept mainly by recycling, composting, biogas production or energy recovery. Examples are the separate collection of paper and cardboard for the purpose of recycling or the separate collection of biowaste for the purpose of composting or anaerobic digestion.

The Czech Republic is not succeeding in meeting the two main targets of the national WMP:

- to increase the degree of material utilisation of municipal wastes to 50 % and
- to reduce the proportion of landfilled biowastes and BDMW.

The national WMP has been valid for seven years, however, the government has not succeeded in taking legislative action to ensure its implementation as for example preparing new waste law to address legislative obstacles. The current waste law foresees one of the lowest landfill fees in central Europe (this results in lowest total prices for landfilling and also high ratio of landfilling), no tax for incineration, possibility for producers of waste to avoid separation of biowaste.

4.2 Regional Waste management plan's consistency with country obligations under EU law

At its 25th session on 30 September 2004, the Council of the Moravian-Silesian Region (MSR) approved the Waste Management Plan (WMP) of the MSR in resolution no. 25/1120/1 and issued the Generally Binding Decree of the Moravian-Silesian Region no. 2/2004. The waste management plan of MSR was prepared by the company FITE, a.s., which directed the plan towards energy utilisation.

The waste management plan of MSR contains *inter alia* the following specific measures:

Measure no. 3: Development of separation of materially usable components and hazardous components of municipal wastes

Measure no. 4: Integrated system of municipal waste management and operation

Measure no. 5: Regional integrated centre for utilisation of municipal wastes

According to Measure 4 (Integrated system of municipal waste management and operation), the existing system of municipal waste management in the MSR shall be extended to create an integrated municipal waste management system within the territory of the region. The system shall comprise two fundamental parts:

- Part A: systems of towns and municipalities.
- Part B: regional system composed of the “Regional integrated centre for utilisation of municipal wastes”, a component of which shall be an energy source and transport infrastructure as relevant.

The aim of the measure is to reduce land filling of biodegradable waste and to achieve material utilisation of waste according to table no. 2 below.

In the same time measure no. 5 of Regional WMP: Regional integrated centre for utilisation of municipal wastes aim should be:

- to increase material recovery of municipal wastes,
- a set reduction of biodegradable wastes deposited at landfills,
- processing of a minimum of 97 000 t of MSW from production of MSR by means of RIC in 2010 and subsequent,
- processing of a minimum of 161 000 t of MSW from production of MSR in 2013 and subsequent.

The target established for separate collection in the WMP for MSR are not coherent with the national WMP and do not respond to the EU Waste Framework Directive targets. Table 2 below illustrates that WMP for MSR plans to a) increase total amount of MSW, b) increase recycling ratio only to 31.3% till 2020 and c) increase composting ratio only from 5,2% in 2001 to 6,6 % in 2020. The WMP for MSR does not focus on waste prevention and recycling.

Table 2: Amount of separated municipal solid waste in 2001 and forecast for 2005 – 2020 from WMP MSR

year	2001			2005			2010			2013			2020		
number of residents	1 268 603			1 263 036			1 319 715			1 337 659			1 376 581		
sorted waste	amount (t)	% recycled	kg/resident/year	amount (t)	% recycled	kg/resident/year	amount (t)	% recycled	kg/resident/year	amount (t)	% recycled	kg/resident/year	amount (t)	% recycled	kg/resident/year
paper and cardboard	29 261	7.8%	23.1	50 459	12.1%	40.0	64 400	13.1%	48.8	64 400	13.1%	48.1	64 400	13.1%	46.8
glass	10 841	2.9%	8.5	26 323	6.3%	20.8	27 666	5.6%	21.0	27 666	5.6%	20.7	27 666	5.6%	20.1
plastics	9 228	2.5%	7.3	12 103	2.9%	9.6	14 725	3.0%	11.2	14 725	3.0%	11.0	14 725	3.0%	10.7
metal	9 389	2.5%	7.4	11 743	2.8%	9.3	11 743	2.4%	8.9	11 743	2.4%	8.8	11 743	2.4%	8.5
textile hazardous waste	132	0.0%	0.1	454	0.1%	-	1 229	0.3%	0.9	1 229	0.3%	0.9	1 229	0.3%	0.9
compostable waste	2 653	0.7%	2.1	798	0.2%	0.6	997	0.2%	0.8	1 197	0.2%	0.9	1 296	0.3%	0.9
	19 642	5.2%	15.5	21 719	5.2%	17.2	28 187	5.7%	21.4	29 948	6.1%	22.4	32 591	6.6%	23.7
Total	81	21.6	64.0	123	29.7	97.9	149	30.3	112.9	150	30.7	112.8	153	31.3	111.6

	147 %	600 %	947 %	908 %	650 %
Total amount of MSW and waste similar to MSW (without sludge)	375 376 - 295.9	416 511 - 329.8	491 355 - 372.3	491 355 - 367.3	491 355 - 359.9

According to the evaluation of the WMP of MSR from 2008, the degree of material utilisation of municipal wastes is increasing in accordance with Table 3. Comparing Table 2 and Table 3, it is possible to conclude that production of municipal wastes in 2008 was higher than expected and that the planned recycling of municipal wastes for 2005 was not achieved even in 2008.

Table 3: Reality of total MSW production and material recovery ratio in MSR:

	2004	2005	2006	2007	2008
Ratio of material recovery	6 %	7.5 %	13.2 %	20 %	29.1 %
Total MSW production (1000 t)	633	494	461	440	530

According to the evaluation of the WMP of MSR carried out in 2008, the fulfilment of these targets requires equipment for energy recovery of wastes with grate combustion technology. The possibility for use of the mechanical-biological treatment of wastes is not envisaged. The proposed capacity of the incinerator facility is 200,000 tons of municipal wastes per year. The evaluation does not specify how the implementation of the municipal waste incinerator is bound to increase material recovery of municipal wastes.

The WMP would meet a target of 50% for material recovery of municipal wastes only on the precondition that the RIC shall materially utilise waste. According to Table 3, the degree of material utilisation of separation of sorted components is to reach 30.3% in 2010 and only 31.3% by 2020. If the EU Waste Framework Directive target of a 50% degree of recycling of MSW is to be met, a regional integrated system should be designed to recover at least one half of processed waste on regional level. Using the data from Table 2 the target recycled waste by 2020 should be at least 180,000 t/year (estimated MSW for 2020 are between 491 000 and 355 000).

The reality however is that the RIC planned in Karvina is a facility for energy recovery. The planned capacity of the facility is 192 000 t/year (2 combustion lines). If the facility is to be put into operation it may actually prevent implementation of the EU Revised Waste Framework Directive, in particular in relation to the material recycling targets – e.g. the target of material recovery of 50% of MSW shall not be met even in 2020.

In addition such a facility does not fulfil measures no. 4 and 5 of the MWP of MSR. It is not clear how the implementation of the municipal waste incinerator (RIC) is bound to increase material recovery of municipal wastes, while the aim of the measure No.5 of MWP of MSR is „to increase material recovery of municipal wastes“. In accordance with No.4 of MWP of MSR the “Regional integrated centre for utilisation of municipal wastes ... [has to lead] to achieve material utilisation of waste according to table no. 2.“ If it is not clear how the implementation of the municipal waste incinerator (RIC) is bound to increase material recovery of municipal wastes, the implementation of RIC

cannot achieve measure No.4 of MWP of MSR. The RIC facility planned in Karvina will contain only waste incinerator and does not fulfil measures no. 4 and 5 of the MWP of MSR.

The important condition for the construction of waste incinerators under OP Environment is that the capacity of the incinerator shall not exceed half of the municipal waste generated in the relevant area. This could be seen as a way to ensure that the material recycling targets of the Revised Waste Framework Directive and recycling targets of national WMP are not compromised as a consequence of diverting too much mixed waste to the incinerator. It should be noted also that this approach does not take into account the potential of waste prevention, which could make this amount lower in future years. Waste incinerators are not flexible in terms of the amount of waste which is delivered, therefore their capacity determines the waste management model for the region for the next two or three decades.

5.0 Governance mechanisms

5.1 Strategic Environmental Assessment

The Strategic Environmental Assessment (SEA) of the Environment OP was concluded in 2006. The SEA was considered by the Ministry of Environment when drafting the conditions relevant for the selection of projects for measure 4.1. These conditions are:

- Projects have to be fully consistent with valid and mandatory national WMP
- It is possible to support projects that aim at decreasing waste production and that maximise the use of waste in exchange for raw materials,
- It is possible to support projects that aim at material recovery, or decreasing land filling of bio-waste, with emphasis on separation, mechanical-biological treatment and waste recycling.

After approval of the OP, the National Waste Management Plan (WMP) and Regional Waste Management Plan were revised to include waste incineration as option for achieving the WMP objectives⁵⁵. The SEA procedure for the revised WMP was stopped in screening phase and it was concluded that the update of the National Waste Management Plan would not significantly change the impact of the Plan on the environment.

Revision of the National WMP to provide a framework for EU funds waste investment

The main aim of the 2009 revision of the national WMP according to the grounds of the decision for the SEA process was to enable the swift implementation of the projects in preparation for the operational program, i.e. to enable the quick absorption of EU Cohesion Policy grants for the construction of incinerators like the Karvina incinerator project in Czech republic. The original national WMP envisaged financial support from

⁵⁵ The WMP adopted in 2003 do not provide for using waste incineration for achieving its objectives.

state resources for mechanical-biological treatment (MBT) facilities (see point 3.8f of WMP of the Czech Republic) and thus enabled a solution to the problem of non-treated landfilled mixed waste. However, there was no interest of potential beneficiaries (municipalities) in these projects, especially due to the lack of sufficient legislation, which would have laid down clear conditions for the operation of MBT facilities.

In addition, the national WMP was revised without updating the target of material utilisation of 50% of municipal wastes by 2010 whatsoever. In an evaluation of the national WMP from 2009 the Ministry of Environment itself acknowledges that: “...meeting the target of the WMP of the Czech Republic to increase material utilisation of municipal wastes to 50% by 2010 as against the year 2000 is very problematic” .

Revision of regional MSW management plan for Moravian-Silesian Region

Following the amendment to the MWP of the Czech Republic, the MWP of MSR was also amended. Generally binding declaration of MSR (amending WMP of MSR) no. 3/2010 became effective on 4 August 2010.

On this occasion MSR was reminded by the civil society⁵⁶ of the fact that the WMP of MSR was not in accordance with the WMP of the Czech Republic, which requires an increase in the degree of material recovery of MSW to 50%. The binding part of the WMP of MSR in fact does not reckon with a higher degree of material recovery of MSW greater than 31.3% even in 2020. The amendment to the WMP of MSR should have dealt also with this problem.

5.2 Project preparation process and institutional setup

The first announcement of the plan to build a “Regional integrated centre for the utilisation of municipal wastes” was submitted within the framework of the law on environmental impact assessment by the company OKD, Energo, a.s on 29 July 2004, thus two months before the approval of the regional waste management plan. The company FITE, a.s., which prepared the WMP of MSR, was also responsible for this plan.

The aim was to construct a genuinely integrated facility. This was intended first of all to sort received mixed municipal waste on a MBT line. Magnetic ferrous metals, fractions of biodegradable waste (designated for subsequent recultivation), fractions for production of synthetic gas and fractions of non-utilisable waste were to be separated on this line. Subsequently fractions for production of synthetic gas were to be combusted in a plasma burner at a temperature of around 4 000°C. The result was to be synthetic gas and slag waste. The facility was also intended to combust mine gas from the OKD mines and to handle sorting of MSW. Within the framework of the determination proceedings however, there were fears of large atmospheric emissions and the project did not progress to the next phase.

⁵⁶ Letter from Hnutí Duha / Friends of the Earth

In 2005 a “Memorandum on mutual co-operation in preparation of RIC” was concluded between the region and five statutory municipalities of Frýdek-Místek, Havířov, Karviná, Opava and Ostrava.

The Regional Authority of MSR had a “Techno-economic analysis” prepared for the RIC project by the company E.I.C., spol. s r.o., which was to be one of the first source materials required for submission of an application for a grant from Operational program for Environment so that connected measures could be taken in 2007.

In January 2008 the Regional Authority commissioned a feasibility study entitled “Regional integrated centre for utilisation of municipal wastes within the territory of the Moravian-Silesian region”, which was drafted by the company E.I.C. s.r.o. The study was finalised in June 2008 and assessed three proposed sites for the RIC and the technical aspects of the various alternative solutions, including a “zero alternative”, i.e. leaving the existing situation. The alternative consisting of an MBT installation without connection to a combustion plant was not investigated. In addition to assessing the alternative solutions, the aim of the study was also to analyse the possible risks and above all to recommend alternatives suitable for realising the RIC plan. The alternatives were assessed from the perspective of the suitability of the land, transport access, energy recovery, requirement for water, fuels, environmental impact and other aspects. The conclusion was that a cogeneration facility, which would ensure that the incinerator can be classified as meeting the criteria of energy recovery from waste, was possible only at one site of the Karviná – Barbora mines, on the precondition that all thermal energy from the RIC would be supplied to the heating network of the company Dalkia, a.s.

By decision of the regional assembly no. 25/2211 dated 25 September 2008, an entity called KIC Odpady, a.s. was established as the promoter of the waste incinerator and future beneficiary of Cohesion Policy funding. Shareholders of the company are region and municipalities of Ostrava, Karviná, Havířov, Opava and Frýdek-Místek.

5.3 Environmental Impact Assessment

On 18 March 2009 KIC Odpady, a.s. presented notification of the construction of “RIC – Regional integrated centre for utilisation of municipal wastes in the Moravian-Silesian region” for assessment according to the law on environmental impact assessment. The designer was the association of companies the Nuclear Research Institute Řež, a.s., Technoprojekt, a.s. and Rambøll Danmark A/S.

During public consultations a variety of objections were submitted, in particular in relation to following issues:

- The need to include a wider set of alternative solutions (the EIA report did not assess alternative solutions other than waste incineration, building on the findings of the feasibility study)

- Specifying the management of waste derived after combustion and from purification of combustion products:
- Existing level of air pollution of affected locality with dioxins (PCDD/F):
- Insufficient evaluation of the possibility of using railways for transport of waste.

On 8 June 2010, the Ministry of Environment issued an environmental decision based on outcomes of the EIA process. The decision demanded that purified combustion products from the facility for energy utilisation of waste are released into the atmosphere by a chimney 120 m high (the plan was for a chimney of 75 m, but the emission burden for the surrounding area was too high).

6.0 Implementation and absorption

The RIC Karviná project is currently at the stage of obtaining the planning permission. It however appears to be problematic, particularly concerning the planned spatial reserve for a third line. The EIA documentation of the project contains the statement: “The aim of the project is to design and construct a facility for processing municipal waste with a volume of 192 000 t/year. The design includes the installation of 2 technological lines for combustion of MSW with an output of 2 x 12 t MSW/hour. The design also considers a spatial reserve for potential extension by another line.” In this way the project would deliver extra capacity of the bunker and chimney. This creates extra costs and it also implies that the project, in this design, does not meet the condition included in the environmental decision which states that the annual capacity of the facility for energy recovery of MSW (MSW incinerator) or treatment of MSW in a facility for MBT must not exceed half of the annual production of MSW within the region covering the cadastral territory of the municipalities from which the facility in question shall receive municipal waste. Failure to meet this condition puts in question its qualification for EU cohesion funds.

Using EU funds for a spatial reserve for a future extension, for which there is not and will not be sufficient waste, has raised the fear that waste will be imported from abroad.

7.0 Alternative solutions in waste management

This section examines other waste management options discussed in Czech Republic, which could constitute alternatives achievement of objectives in the OP Environment and to the studied major project. In particular, mechanical-biological treatment (MBT) options for municipal waste had been discussed as main method for waste treatment in the WMP adopted in 2003. According to some stakeholders, the MBT alternative could be a more effective way of reaching waste management objectives, without the effect of technological lock-in connected to the incinerator (which will demand a steady supply of mixed municipal waste, possibly in conflict with efforts to reduce the amount of waste or to improve its selective collection and recycling). The analysis below aims at summarizing the findings of studies of those alternatives performed in the Czech Republic. It relates to the weighting question of environmental integration of strategic

level, because waste incineration and the MBT approach differ in terms of priorities given to the various aspects and objectives waste management.

When preparing the national Waste Management Plan, the Ministry of Environment completed the economic analysis of two alternative solutions: (1) construction of municipal solid waste incinerators and (2) a combination of prevention of waste production, a high level of sorting, recycling, composting and MBT for residual MSW. The study compiled by Charles University in Prague came to the conclusion that:

- the recycling alternative required an investment of CZK 1 600 – 6 500 million less than the alternative based on the construction of incinerators;
- the recycling alternative would also reduce operating costs by CZK 0 – 700 million per year⁵⁷.

The Ministry of Environment thus selected the alternative based on a high degree of recycling of MSW and treatment of residual MSW in facilities for MBT as a strategy for the implementation of the WMP of the Czech Republic. The WMP was submitted and approved by the government in 2003. The Ministry, however, did not subsequently prepare amendments to the acts and decrees which would lead to the implementation of the approved WMP of the Czech Republic.

Several other studies, both in the Czech Republic and abroad have also shown that MBT technologies for MSW are considerably more economical than MSW incinerators. Among the Czech studies one can name the following:

Proposed Waste Management Plan for the Pardubice region, 2003⁵⁸:

The MBT method (see table 4) enables recycling and composting of 12 times more waste, combusts 3.6 times less waste and deposits one third less waste on landfills in comparison with the alternative in which wastes are combusted in an incinerator. In addition it creates over 40% more jobs, and all for one quarter of the price.

Table 4: Comparison of conception with incinerator and conception with the utilisation of MBT according to the proposal of the WMP of the Pardubice region

	Incinerator	MBT method
Costs	CZK 2550 million	CZK 850 million
Jobs	40	85
Capacity	100 thousand t/year	150 thousand t/year
Recycled and composted	4 thousand t/year (metals)	76 thousand t/year
Combusted	96 thousand t/year	40 thousand t/year
Landfilled	33 thousand t/year	Over 36 thousand t/year

⁵⁷ WMP of Czech Republic, version 2.4, Ministry of Environment, Prague 2002

⁵⁸

A recent study prepared for the Ministry of Environment of the Czech Republic states: “As experiences abroad show, MBT and incinerators coexist and there is no reason why this should not be the case also in the Czech Republic.”

The study also assessed the state of the legislation and identified a number of deficiencies, which must be resolved quickly in order to remove obstacles to development:

- Lacking implementation of the MBT concept into legislation
- Problems with legislation on integrated prevention emerging from the problematic definition of a facility for “waste disposal”
- Legislative problems with depositing CLO (compost like output) fractions at category S-OO landfills on the level of decree no. 294/2005 Coll. due to high extract.
- Need to develop operational legislation for facilities for waste treatment, in particular with regard to odour.
- Need to develop legislation for solid alternative fuels and implementation of European norms relating to this area into national legislation.

Regarding comparison of MBT and MSW incinerators, the study states that “a mutual comparison of both technologies for treatment/recovery of MSW is very difficult, since... each project is individual. For an assessment a capacity of the facility of 90 000 t of MSW per year was selected, which roughly corresponds to the “average” size of MBT and the “minimum economical” size of a MSW incinerator... It was determined that the corresponding price level of MSW in MBT is within the range of CZK 1 700/t, whilst in the case of an incinerator this is approx. CZK 2 400/t. This result indicates that for a smaller facility MBT would be more effective. In the case of above-average utilisation of heat from the incinerator however, these differences may be considerably reduced. An incinerator must have a capacity of 190 000 t of MW in order to achieve a cost level of approximately CZK 1 700 per 1 ton of MSW and thus be comparable in terms of cost with an MBT facility with a smaller capacity.”

The main advantages of Mechanical-biological treatment (MBT) are as follows:

- It is flexible, which enables its adaptation to the success of sorting waste at the source. It may be constructed in a modular manner and as soon as the quantity of waste sorted at the source increases, it is possible to adjust it into production plants for high quality compost or operations for processing waste materials. By contrast, incinerators must operate at almost full capacity for the entire duration of their life span (25 to 30 years).
- It is possible to build it considerably faster than a similar sized incinerator, and with markedly lower investment costs. It can also have a relatively small capacity, which is also an advantage from the perspective of costs.
- MBT technologies have lower investment and operational costs than

incinerators.

- MBT technologies do not cause toxic emissions.
- MBT equipment is capable of reducing the quantity of wastes by 30-40 % [12], and is more advantageous than building waste incinerators in both economic and ecological terms.

8.0 Conclusions

In order to justify the construction of a waste incinerator, like the Karvina incinerator, the Czech Waste Management Plan had to be modified. The update of the plan has been criticised by stakeholders and has raised questions about whether incineration is indeed the best choice. In particular, mechanical-biological treatment options with a high level of separate collection and recycling of municipal waste seems to be a better alternative. Several projects very similar to the Karvina incinerator are under developed and will apply an EU funding. They are justified as measures to improve Czech Republic's compliance with the EU environmental legislation, in particular with the Landfill Directive, by diverting municipal waste from landfills to incineration. Incineration of waste, while leading to compliance with the Landfill Directive by reducing the amount of biodegradable waste at landfills, may compromise the material recycling targets of the Revised Waste Framework Directive.

According to a study commissioned by the EC⁵⁹, if recycling targets are to be reached, it is necessary to develop efficient collection systems before investing in treatment facilities. For those countries that just began to implement the EU strategies and legislation in the field of waste it is necessary to ensure that treatment options are sufficiently flexible to allow the further development of separate collection without compromising the value of capital investments (such as incinerators, anaerobic digestion or MBT plants). In other words, building incinerators or other installations that are not flexible in terms of capacities may lead to technological lock-in: the incentive to reduce the amount of municipal waste which is not recycled may disappear if the incinerator or other installations need to be steadily supplied with a certain amount of mixed waste for the next 20-30 years. In this view, Cohesion Policy investments in waste management could prioritise projects within the field of waste management which avert the production of waste, and support separate collection, reuse and recycling of waste.

The lack of Strategic Environmental Assessment of the revised National Waste Management Plan and Regional Waste Management Plan for Moravia-Silesia region shows gaps in application of the instruments for environmental integration and sustainable development. The omission of SEA resulted in development of the solutions for waste management that are not coherent with the targets established in EU waste legislation and lead to technological lock-in. The lack of a thorough assessment of

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

alternatives in the Environmental Impact Assessment and the non-approval of the project to deliver integrated waste management show another major problem in implementation of the legislation and of instruments for environmental integration and sustainable development.

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10.0 Abbreviations

BAT - best available technology
BDMW - biologically degradable municipal waste
CLO - compost like output
EC – European Commission
EIA – Environmental Impact Assessment
MBT – mechanical-biological treatment
MSR - Moravian-Silesian Region
MSW – municipal solid waste
OKD – Company name (Ostrava Karvina mines)
RIC - Regional integrated centre
SEA – Strategic Environmental Assessment
WMP - Waste Management Plan

11.0 Interviewees

- Zdena Bubeníková, Ministry of Environment - waste department
- Jan Lipner, mayor of Horní Suchá municipality
- Ivo Kropáček, independent waste expert and Friends of the Earth Czech rep
- Václav Gavlovský, FRYGATO EKO, local ecological NGO
- Ing. Pavel Novák, independent waste expert, ARTEZIS, s.r.o

Activity (Cd)	DPA	Description	Budget EU
6	E	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 158 614 627
11	E	Information and communication technologies (...)	€ 11 030 239
39	F	Renewable energy: wind	€ 6 679 385
40	F	Renewable energy: solar	€ 44 388 155
41	F	Renewable energy: biomass	€ 5 682 275
42	A	Renewable energy: hydroelectric, geothermal and other	€ 44 388 155
43	E	Energy efficiency, co-generation, energy management	€ 421 833 317
44	B	Management of household and industrial waste	€ 520 258 572
45	B	Management and distribution of water (drink water)	€ 250 661 221
46	B	Water treatment (waste water)	€ 1 344 868 832
47	B	Air quality	€ 252 317 000
48	B	Integrated prevention and pollution control	€ 160 647 006
50	D	Rehabilitation of industrial sites and contaminated land	€ 256 246 759
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 599 423 825
53	C	Risk prevention	€ 250 165 305
75	A		€ 42 452 678
85	0	Preparation, implementation, monitoring and inspection	€ 94 518 433
86	0	Evaluation and studies; information and communication	€ 48 691 314
TOTAL			€ 4 662 867 098 € 4 662 867 098

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1.4 DENMARK: THE ORGANISATIONAL STRUCTURE OF REGIONAL DEVELOPMENT AUTHORITIES

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1.0 Executive Summary

This study, on Denmark and the specific Midtjylland region, examines the institutional and governance aspects of implementing the structural funds. This study concludes that overall the institutional and procedural approach taken in Denmark is enhancing the generation of win-wins between economic, social and environmental considerations. The main findings are:

- The majority of Cohesion Policy funds (96%) in Denmark are allocated to activities that promote innovation and knowledge. Within this, the activities pursue sustainability with 46% (eco efficiency) being allocated to path E and 44% to path F (decoupling)
- The Danish structural funds are implemented by regional bodies known as Growth Forums, these bodies integrate the Structural Funds into their regional business development strategies.
- The governance and institutional setup is fairly novel. The Structural Funds are integrated into an institutionalised regional partnership through the Growth Forums (triple helix approach)
- The inclusion of regional stakeholders in the political commitment for environmental and sustainability targets creates a high level of ownership and improves implementation
- The Regional Authority contributes expert knowledge to project development, improving the quality of projects.

2.0 Background and Context

The present study focuses on Denmark and analyses the institutional and governance aspects for implementing the EU Structural Funds. The scope of the study includes the national as well as the regional level.⁶⁰ Due to the implementation approach taken and the administrative structure in Denmark, the regional level is the most important for the integration of environmental considerations into the EU cohesion funds programme and projects. The analysis will centre on governance aspects such as the specific procedural and institutional characteristics, which demonstrate “win-wins” between economic and environmental considerations.

Furthermore, the analysis will focus on specific governance aspects with a positive impact on the number of project applications developed and submitted, which would potentially have a win-win effect.

Also, this analysis will include a path development analysis and a discussion of potential win-wins and win-losses through Cohesion Policy investments. This section has two levels of analysis: a national level focus comparing the standard typology of investments of planned

⁶⁰ Due to resource and time limitations, it has been necessary to confine the regional focus to one out of the six regional business development authorities in Denmark. This study is concerned with the authority in the *Midtjylland region*. Midtjylland covers the central part of Jutland including the second biggest city in Denmark, Aarhus, with around 250,000 inhabitants, Aarhus University with approximately 40.000 students and other higher education institutions.

spending and the identified development paths, and; a regional level focus conducting a semi-in depth analysis of the investment axes regarding the pursued development paths.

It should be noted that the Danish Cohesion Policy programme is not concerned with grants to any direct physical investment. Thus, this case study will not look at environmental issues related to investment in (transport and environmental) infrastructure, land-use planning or risk prevention measures, etc.. Instead, the focus will be solely on investments in the priority category “Innovation and Knowledge Economy” under the “Regional Competitiveness and Employment objective” (Article 5.1).

2.1 Current status of the environment

The Strategic Environmental Assessment for the “European Regional Development Fund in Denmark programme, ‘Innovation and knowledge’ for the Structural Funds period 2007-2013” identifies the overall Danish environmental objectives. Table 1 summarises these main environmental objectives/challenges in the context of sustainable development. The two themes below pose challenges to Danish sustainable development and are the most relevant for considering where cohesion policy can best contribute to a shift to a green economy in Denmark.

Table 1: Main relevant environmental challenges in Denmark

Environmental Theme	Current Status of the Environment (challenges for sustainable development)
Climate Change & Energy Consumption	Denmark has one of the highest per capita GHG emissions in the world. This can be explained by the high levels of energy consumption and the fact that currently energy is mainly produced from burning fossil fuels. In light of this, Denmark has a significant GHG reduction target under the Kyoto Protocol. In the first commitment period under the Kyoto Protocol (2008-2012) Denmark has a commitment target of 21%, one of the largest reduction targets. However, Denmark is experiencing difficulty in meeting these targets. Although Denmark has been investing in renewable energy and emission reduction projects in developing countries, the national effort to increase renewable energy has not matched the demand for energy. There is a clear need, therefore, to improve energy efficiency and increase the share renewable energy in order to tackle climate change. This could be supported by projects within EU cohesion policy.
The Agriculture Industry	Another environmental challenge for Denmark is the impact of the intensive agriculture. The Danish agricultural sector is a substantial industry in rural areas raising significant environmental implications. This includes impacts on meeting commitments under the EU Water Framework Directive, Natura 2000 and climate change legislation. There is a demand for new technology, knowledge and innovation in order to reduce pollution levels from Agriculture. In this respect there is significant potential for Cohesion Policy to help stimulate and develop green technology innovation, leading to win-win situations, for the economy and the environment.

Denmark has a strong national economy with low inflation and low unemployment levels. 4.2% of the population is unemployed, although this varies between regions. Border areas in the west and south of Jutland and the southern islands, for example, are experiencing negative development trends. Currently, the population of Denmark is just over 5.5 million inhabitants and this is increasing slightly each year due to immigration. Most of the population live in cities, with one third residing in and around Copenhagen. All regions now face the problems posed by an ageing population and a predicted reduction of employment numbers by approximately 10 per cent by 2020.

Almost 31% of the population have graduated from higher education and training, although the graduation rate has recently been showing a negative trend.⁶¹ However, there are significant disparities from region to region in the educational level of the workforce. In the capital region almost 13 per cent of the workforce has completed long-cycle higher education. This can be compared with Central Jutland where the figure is approximately 6 per cent and 3-5 per cent in other regions. With the overall level of education increasing in Denmark, the country is seeking to become a knowledge based society. The ICT industry is a strong example of this transition and employs 90,000 people. The renewable energy technologies sector is also growing rapidly and is seen as an important player by the Danish government in designing technologies for achieving sustainable development. Knowledge based industries are considerable in university cities such as Copenhagen, Aarhus and Aalborg, but much less prominent in non-university cities.

Denmark was an early mover on progressive environmental legislation and environmental policy. It has been successful in creating favourable conditions for the wind energy industry which has given Denmark a strong position on the world market for environmental and renewable energy technology. In 2009, for example, the wind industry in Denmark generated around 56 % of the global turnover in the renewables sector (approx. 6.9 of 12.3 bn EUR)⁶². Due to a predicted considerable growth in the global market for renewables, this is an important aspect for economic growth and a driver for sustainable development. Environmental technologies for water management and the agricultural sector are also important growth areas with an expanding world market. It can be said, therefore, that 'green' technological development and eco-innovation are an important priority area for economic policy in Denmark. Consequently, this is reflected in the Danish regional business development strategies.

2.2 Current investment context

On the 16th May 2007, the National Managing Authority (Erhvervs- og Byggestyrelsen) published the Operational Programme for the implementation of European Regional Development Funds in the cycle 2007-2013 in Denmark. The programme allocates a total of approximately € 510 million for innovation and knowledge actions under the Regional Competitiveness and Employment Objective and includes € 255 million of Community funding through the European Regional Development Fund (ERDF)⁶³. This amounts to almost half of the total budget of the EU Structural Funds allocated to Denmark.

⁶¹ Statistics Denmark, 2010. <http://www.dst.dk/pukora/epub/upload/14850/dkinfigures.pdf>

⁶² Danish Wind Industry Association (2010): *Danish Wind Industry Annual Statistics 2010*. <http://www.e-pages.dk/windpower/15/>

⁶³ <http://www.ebst.dk/regionalfondsprogram>

The programme has two priority axes: innovation and knowledge and technical assistance. The allocation is as follows:

- **Priority axis 1:** Innovation and Knowledge (approximately 96 % of the total funding)
- **Priority axis 2:** Technical Assistance (approximately 4 % of the total funding)

This encompasses actions such as: The enhancement of regional R&TD and innovation capacities; Innovation in SMEs by promoting university-enterprise cooperation networks and clusters of SMEs; Facilitating SMEs' access to advanced business support services by supporting the integration of cleaner and innovative technologies in SMEs.

As aforementioned, the Danish Operational Programme does not prioritise direct investment in the environment – in fact, the programme does not allocate funds to any type of direct physical investments, i.e. no direct investments in physical measures like major transport infrastructure projects, waste water plants, NATURA 2000, risk prevention, etc. Instead, the programme focuses on innovation and knowledge only. This is due to the rather limited amount of Community funding allocated to Denmark. Thus, to secure the most efficient implementation funding is limited primarily to the priority axis Innovation and Knowledge. Also, Denmark already has extensive national programmes financing infrastructure or investments in natural assets like funding for NATURA 2000 action and transport infrastructure, thus, Community funds are not really needed.

In light of this, it should be noted that ‘traditional’ trade-offs between economic and social development, on the one hand, and environmental protection, on the other hand, do not apply to the Danish case⁶⁴. That means that the programme does not really have a significant environmental impact through direct environmental investments. Accordingly, the major interest of this study will be in the promotion of economic-environmental win-wins with respect to environmental technology, eco-innovation and clean energy in the implementation process of the OP at strategic and project level.

3.0 Governance mechanisms

This study will address some of the unique governance structures and mechanisms relevant for the implementation of the Structural Funds in Denmark. It will discuss how these promote the integration of environmental and sustainability considerations into the Structural Funds investments. These include, for example, the institutional setup in public administration, policy integration into regional business development strategy and action plan (which in an European context is a unique novelty), political commitment and institutionalised partnership with important regional stakeholders (triple helix partnership and strong inclusion of the university at strategic and project level).

3.1 Governance structure characteristics

A novel organisational setup

As part of the Local Government Reform in 2006 (*Kommunalreformen*)⁶⁵ and the Business Development Act (*Lov om Erhvervfremme*)⁶⁶ in 2005, regional business development has been organised into six regional “Growth Forums”. They are the responsible political bodies

⁶⁴ As the OP does not require a zero or positive environmental effect of all investments trade-offs in term of economic/social and environmental win-losses are still possible. However, these are not considered to be very significant.

⁶⁵ Act no 537 of 24 June 2005

⁶⁶ Act no 602 of 24 June 2005

for formulating regional business strategies and action plans. Since 2007, the Danish Structural Funds have integrated into the regional business development strategies. This is also due to a novel approach by the national government “to have programmes with a breadth of content that allows the [EU Structural Fund] action to be adapted to regional and local conditions, both in terms of content and over time” (DK OP 2007: 54). Hence, the OP establishes the broad framework for implementation, and at the regional level the regional business development strategies provide more detailed provisions.

This approach is considered a novelty in the EU context (COWI 2009: 101). Compared to other Member States, it gives much more importance to the regional development bodies in terms of the strategic and thematic priorities and objectives. The regional Growth Forums are considered the most important actor regarding the implementation of the Structural Funds and, in particular, regarding the integration of the environmental and sustainability considerations into the Structural Funds.

The regional Growth Forums (*Vækstfora*) are political bodies with their own secretariat. Each Growth Forum has the status of a committee and is responsible for matters concerning regional business development, for example, the regional business development strategy and the associated action plan. However, the Regional Council (Regionsrådet) is responsible for the broader regional development. The council is the main legislative body at regional level and is the head of the regional public administration. The Growth Forums are comprised of regional and local politicians and representatives of the business community, knowledge and educational institutions and the social partners in accordance with the partnership principle.

Partnership

The development process of the regional business strategies in the regional Growth Forums included a broad range of regional stakeholders – both, through representatives in the regional Growth Forums and by the involvement of external regional stakeholders. The purpose of this broad stakeholder coverage was to include all relevant regional aspects in the strategies and to promote a high level of ownership to facilitate successful implementation (COWI 2009).

According to a recent study by COWI, all regions have engaged in a broad dialogue with a range of regional stakeholders. However, some regions were more successful than others (COWI 2009). In the Growth Forum *Midtjylland*, the regional business development strategy was developed based on the preparatory work by eight broadly composed think tanks, including representatives of regional stakeholders and experts (COWI 2009). Furthermore, the decision-making process in the regional Growth Forum included alongside the regional and local politicians, representatives from higher education, research, industry and the social-economic partners. The composition of the Growth Forum through the inclusion of a broad spectrum of regional stakeholders in the decision-making process of the regional business development strategy alongside environmental targets for the region (see above) are quite significant for the policy outcome (and potentially for the policy impact) of the cohesion policy. According to stakeholders, this institutionalised partnership has improved implementation through the commitment to a common development path by the different central regional stakeholders involved at project level. An important aspect is that the business development approach and targets are the approach and targets of the regional community – and not of a public authority. This results in a high level of ownership by the regional stakeholders.

Political commitment

Interviewees for this case study emphasised that the influence of political commitment was a significant positive impact on the integration of environmental and other objectives in the implementation process. The regional Growth Forums are the political organs in which the important regional stakeholders commit to a common strategy and action plans and exercise political leadership. At the same time the forums also have the financial resources to support the achievement of their objectives. This combination of political leadership and the financial resources is fostering innovative approaches to regional development and new development paths. An example from the region *Midtjylland* is the political target in the regional business development strategy that 50% of total regional consumption should come from renewable energy. This is backed up by public spending through national, regional, local as well as EU funds, which are implemented under the provisions of the regional business strategy.

Triple Helix and inclusion of the university

An important characteristic of the governance structure around the regional Growth Forums is the institutionalised inclusion of stakeholders from industry, research and public authorities. The triple helix model is acknowledged to be the basis for the stimulation of knowledge-based economic development (cf. Etzkowitz & Leydesdorff 2000). The Growth Forums foster communication between stakeholders and the inclusion of the regional universities is especially notable. First and foremost it is important as the OP solely focuses on knowledge and innovation to foster the transition towards a knowledge-based economy. Interviews conducted during this case study indicate that there is a positive relationship between the inclusion of the university at the strategic level and the participation of the university at the project level. Furthermore, a recent study by COWI identifies a relationship between the degrees to which the university has been incorporated into the regional business development process through the regional Growth Forums and the approach taken on regional business development. It is interesting to note that Growth Forums with a strong university partnership have adopted a more high-tech approach to innovation in their business development strategy, whereas those without (Bornholm and Zealand) have a more low-tech approach to innovation (COWI 2009).

Furthermore, the analysis done by COWI for the national managing authority (COWI 2009) show that the two Growth Forums “Bornholm” and “Zealand”, with no local university or an unsuccessful integration of the local university into the regional business development process, are much less successful in generating successful project applications under Priority Axes “Innovation” and “Knowledge” compared with the other Growth Forums.

3.2 Institutional and procedural setup at the project level

The project application process under the Danish Structural Fund programme is comprehensive and it involves several authorities. The project application process has three formal administrative stages as well as, in many cases, a more informal project development stage. The three formal stages are:

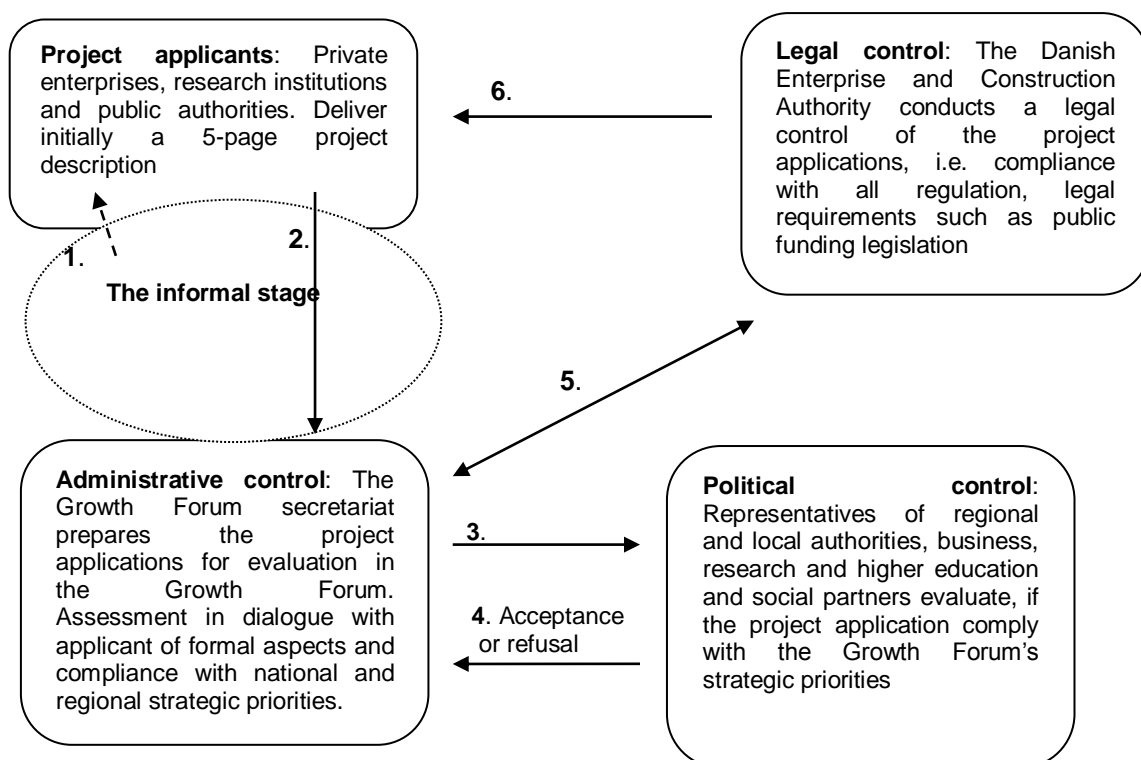
- the Growth Forum Secretariat,
- the Growth Forum Committee, and
- the national managing authority (encompassing 90 % of the allocated structural funds).

These are anchored in the national Business Development Act and apply to all regions. The Growth Forum secretariat is responsible for dialogue with project applicants and for

processing project applications. The Growth Forum Committee, the political body, evaluates if the project application complies with the thematic priorities of the regional business development strategy. If accepted, the application is submitted for legal control by the national managing authority (Erhvervs- og Byggestyrelsen). Legal control includes an assessment of compliance with Cohesion Policy regulation, the conditions for funding in the OP, public funding legislation, etc. Hence, the project fund application process includes an administrative, a political and a legal stage.

Furthermore, each region has developed its own informal process around this procedural setup. In some cases (as in the case study region ‘Midtjylland’) this applies an extra procedural stage to the project application process (see figure 1).

Figure 1: Procedure and institutions of the project application process



Instead of waiting for complete project applications, a number of regions are applying a top-down approach where the regional authorities take a very active role in engaging important regional stakeholders such as private businesses and research institutions. Through this informal engagement, they define a detailed thematic scope for the project application as well as engaging actively in developing the content of the project together with the applicants. In comparison to previous Structural Funds cycles, the top-down approach is a much more strategic approach to the implementation of Structural Funds (COWI 2009: 22).

The top-down approach also broadens the spectrum of actors involved in the project application process. This includes professionals from the regional administration the Growth Forum secretariat councils and expert groups, etc. In this way, professionals and the expert groups are contributing their skills in areas such as environmental protection, green energy and environment technology (COWI 2009: 19). The example below analyses how this institutional and procedural approach facilitates the integration of environmental considerations into Structural Funds at the project level.

3.3 Example of governance structure facilitating policy coordination and integration

The following provides an example of the governance structure and policy integration described above. The example is drawn from the selected region 'Midtjylland' and analyses the specific governance approach taken by the regional Growth Forum as well as the institutional and procedural setup of the project application process, showing how these specific characteristics facilitate the integration of economic and environmental consideration.

Institutional and procedural setup

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

Second, if the project application is submitted under the regional mega initiative 'Energy and Environment' or (in some cases), if the application is considered to have an environmental dimension, the *Division for Environment, Technology and Infrastructure*, which is part of the *Department for Regional Development*, takes an active role in the application process. This procedural approach is not formally compulsory, however, it has been applied to all project applications under the current funding cycle. A central practicality underlying this procedure is that project applicants are asked not to deliver complete applications but a project outline of a maximum of five pages. The *Division for Environment, Technology and Infrastructure* have a range of professionals specialised in the energy and environmental sectors, who can then supervise the project applicants. In addition, to support the project development process, the regional business development authority has appointed – among others – an external, highly professional advisory committee on energy and environmental issues. Thus, the institutional setup around the managing authority at the regional level provides a pool of professional expertise in environmental management, environmental technology, agriculture, technology development and innovation supporting the development of new projects.

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

According to the regional business development authority, this setup not only facilitates the integration of environmental consideration at the project level, it also – and perhaps more importantly – facilitates the integration of economic considerations into environmental projects. This is an important aspect with a significant effect. Regional enterprises, research institutions and universities already have the knowledge to design, plan and execute an environmental projects, however, they sometimes don't have the expertise or they need feedback on how to add a business dimension to their environmental projects. One example of this is the *Miljøpilprojektet*⁶⁷, which began as an environmental project and for which a business model was developed in cooperation with the regional authority. Today, the project

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

can be described as having a short-term positive environmental effect and a long-term economic effect. This is quite an achievement because the institutional and procedural setup not only promotes environmental projects, which would otherwise have not complied with the criteria for CP funding, but it also promotes the development and commercialisation of environmental technologies and services.

4.0 Analysis of measures and allocations

There is only one OP for the European Regional Development Fund (ERDF) in Denmark. Its purpose is to enhance Danish growth policy in areas where Structural Fund resources are particularly suitable.

As identified in the Nordregio study⁶⁸, Denmark belongs to a category of EU Member States which focuses primarily on innovation, knowledge, ICT and entrepreneurship in order to contribute the Lisbon and Gothenburg goals. This approach is characteristic for small Member States such as Denmark, Ireland and Luxemburg. These countries have relatively small financial allocations in the Regional Competitiveness and Employment Objective, a GDP *per capita* higher than the EU-27 average, relatively small regional disparities and comprehensive national programmes already addressing areas such as environmental protection⁶⁹.

In order to strengthen the international competitiveness of Danish firms and foster growth, all of the Structural Funds are used to co-finance projects concerned with 'Innovation and knowledge', the focus area of the Danish OP. The focus, 'Innovation and Knowledge' is broken down into four priority axes or 'growth sources'. These are:

- 'Innovation, knowledge sharing, and knowledge building',
- 'creation and development of new enterprises', and
- 'adoption of new technology' and 'human resources development' (the latter primary covered by the programme under the European Social Fund (ESF) objective) (DK OP 2007: 54).

Environmental integration

Environmental measures, under Article 5(2) of the Regulation on the European Regional Development Fund are adopted into the Danish OP as a horizontal consideration which is to be integrated under each of the four growth sources. The programme, however, does not define any specific priority axes for environmental investments. Thus, in order to be funded under the programme, environmental or sustainability objectives have to be integrated into or match with one of the four 'growth sources'. Although this approach gives absolute priority to the four growth sources over environmental and sustainability objectives, the OP promotes the integration of environmental and sustainability objectives by defining a number of specific environmental targets and indicators. The OP requires that at least 70% of the financial resources are allocated to projects with a positive or no negative environmental effect. Indicators are defined under the headers: biodiversity, flora and fauna, soil and land consumption as well as climate and air in terms of energy efficiency and renewable energy.

Strategic integration of the Structural Funds at regional level

Due to the specific Danish approach of integrating Structural Funds and regional business development strategies, it is not possible to assess accurately the development path as well as

⁶⁸ Nordregio (2009)

⁶⁹ Ibid.

win-wins and win-losses by the implementation of the Structural Funds solely on the basis of the national OP. The OP does not specify clear content-related provisions. Instead, the assessment of the actual content-related integration of environmental consideration into the Structural Funds should include the priorities formulated in regional business development strategies and their related action plans.

Box 1 – Findings about the strategic integration

A recent study from COWI concludes that the general approach to regional business development and the provisions defined at the national level (NSRF, OP, NR and Globalisation Strategy) have not constituted any significant barriers or constraints for the formulation of the regional business development strategies (COWI 2009). This is due to a thematic and strategic breadth in the national documents (although the NSRF and OP are narrowed down to the priority area ‘Innovation and knowledge’). Hence, the NSRF⁷⁰ and the OP have been successfully designed to promote an active role of the regional business development authorities by the implementation of the Structural Funds.

De facto, the Operational Programme has not constrained the regions thematically or strategically regarding the development of the regional business development strategies and the possibilities to finance regional development action in the field of innovation and knowledge. In this way, the Structural Funds have integrated frictionless into the overall regional business development strategy (COWI). This has made the Structural Funds an additional financial source to complement and enhance the effects of other existing national and regional development funds.

Compared to some other Member States, the integrated approach enables the regional stakeholders to be more proactive and coordinate the EU Structural Fund with other funds. In contrast, some other Member States stakeholders are primarily concerned with complying to the strategic and thematic provisions provided by European Cohesion Policy regulation.

4.1 Development Path Approach analysis

4.1.1 National level analysis

Neither the national Managing Authority nor the regional business development authorities use the Development Path Approach to analyse the impact of the Structural Funds. Decision-makers, therefore, were not able to comment on issues regarding the DPA. However, looking at the allocation of Cohesion funds across different categories of expenditures at national (OP) level as well as at regional (regional business development strategy) level offers a depiction of the path followed.

At the national level, the European Regional Development Fund actions under the priorities (growth sources) ‘Innovation, knowledge sharing, and knowledge building’, ‘creation and development of new enterprises’, ‘adoption of new technology’ are focused on strengthening the growth conditions for new and innovative enterprises. There is a clear focus on knowledge and innovation as important drivers of economic growth. From the perspective of development path analysis, this immediately gives the ERDF programme a rather high score⁷¹.

⁷⁰ Danish Enterprise and Construction Authority (2006)

⁷¹ This is done by comparing the indicative relationship between the standard typology of interventions and the development paths (see Annex III in the Methodology Report) and by applying related criteria (Table 2 in the Methodology Report) to classify

Based on an indicative relationship between the standard typology of spending and the development paths as described in the Annex III in the Methodology Report the Danish OP **allocates 46% of ERDF spending (exclusive technical assistance) to development path E (eco-efficiency) and no less than 44% of funding to measures under development path F (decoupling)**. The remaining 10% is allocated to activities under the development path D (active environmental management).

Win-loss

The narrow focus of the Danish OP on innovation and knowledge means that the programme does not cause substantial win-loss situations, because no funding is granted to physical investments. However, some investments, such as minor construction projects which form a natural part of an eligible project with another purpose provided for in the OP,⁷² may have significant negative environmental impacts (still the number of such projects is limited). Also, the programme provides for investments in the tourism industry and improve access to previously inaccessible or difficult-to-reach nature areas. This could lead to increased pressure on natural services and the exploitation of previously unspoiled areas (non-technical summary of SEA attached to the OP). However, according to the national managing authority at the time of this case study there had not been any actual examples of such projects.

Win-wins

The OP emphasises environmental technology development and eco-innovations. Promoting environmental technology development and eco-innovation through Cohesion Policy is perceived to foster economic growth with both a domestic and global dimension in terms of environmental protection, improving competitiveness and strengthen the position of Danish business on the global market (DK OP 2007: 34). Due to the GHG emission reduction commitments and the forthcoming environmental regulation of agriculture, (including the EU Water Framework Directive and the Natura 2000 goals) renewable and energy efficiency technology as well as clean technology and eco-innovations in the agriculture sector are identified as areas with a high potential for generating economic and environmental win-win.

The potential of the Structural Funds to contribute to win-win situations is confirmed by the national managing authority. Although the programme was not designed to be an environmental programme, it has considerable potential to exert (indirect) positive environmental impacts and to contribute to sustainable development through investment in R&D and innovation projects. However, it is worth noting that the OP does not prescribe concrete interventions to promote the generation of eco-innovations. It is delegated to the regional Growth Forums to identify and enhance the regional potential.

Discussion on uncertainties surrounding the development path analysis

Due to the intended strategic and thematic breadth of the OP, assessing the development path pursued by the programme involves significant uncertainty. The following provides a discussion of the possible thematic indicators in the OP that are relevant for the development path analysis.

activities into one of the development paths. Please notice that the figure below represents only the allocation of EU budget to the different Paths.

⁷² The OP provides for indirect investments in minor construction projects which form a natural part of an eligible project like parking facilities or minor infrastructure projects to provide access to cultural or natural attractions (OP DK 2007: 63)

- The OP defines four cross-cutting themes: peripheral areas, rural districts, and towns and cities; equal opportunities policy; environmental policy, and Employment policy. Among the cross-cutting themes, no primary priority is given to the theme ‘environment’ and the programme does not define specific quantitative targets for the number of projects or amount of funding allocated to projects falling under the cross-cutting theme ‘environment’. On the contrary, the programme sets the target that at least a third of the funding should be allocated to projects with relevance to peripheral areas (cross-cutting theme 1).
- There is no specific priority axes defined for environmental investment. However, the prominence given to environmental and sustainable energy projects among the specified examples in the OP of possible funded projects indicates that the ‘environment’ is *perceived* as a central theme (cf. DK OP 2006: 63ff). Notwithstanding the influence of the examples on the interpretation of the OP, the examples have only inspiration purposes and do not obligate the implementing authorities in any way.
- A clear sustainable development focus is reflected in the target that 70% of the funds should to be allocated to projects with a positive or zero environmental impact (DK OP 2007: 118). However, the formulation of the target as “positive or zero environmental impact” could have the result that overall there is no environmental improvement. As Danish structural funds do not cover infrastructure investments, projects that have a zero environmental impact are not as relevant. This in Denmark, such projects will neither foster eco-efficiency (development path E) nor decoupling (development path F).

In light of this, it is rather difficult to assess the development path pursued by the OP. The SEA concludes that, on the one hand, the programme provides (or could provide) for some investments with negative environmental impacts, on the other hand, overall, “... the general patterns of behaviour for which the programme provides will have a significant positive impact on the environment, compared with the situation if the programme were not adopted”. Moreover, the SEA states that “... it should be emphasized that the programme’s overall impact on the environment will be positive, because the programme can be used precisely to create growth in environmentally friendly technologies” (non-technical summary of SEA attached to the OP).

Thus, on the one hand, the OP makes it possible for the regional business development authorities to follow a development path pursuing sustainable development; on the other hand, the OP does not provide substantive provisions to promote and achieve sustainable development.

4.1.2 Regional level analysis

In the region *Midtjylland*, under the ERDF programme, approximately € 10m is annually integrated into a regional business development strategy, which is built around three so called ‘mega initiatives’ (*mega satsninger*) (see table 2), three cross-cutting priority themes and some more minor priority areas.

Table 2: Actual spending on mega initiatives, Region Midtjylland (2007 – August 2010)

Mega initiative	ERDF (incl. Interreg) funding (€)	Percentage of total ERDF spending (approx)	Total funding (€)	Percentage of total funding (approx)

Energy and Environment	2.764.247	16 %	19.244.503	16 %
Health/welfare innovation	2.644.131	15 %	6.589.061	5 %
Food	761.559	4 %	4.686.175	4 %

Source: Region Midtjylland

The mega initiative 'Energy and Environment' focuses on biomass, wind energy, solar energy, district heating, heat pumps, buildings, transportation (electricity and hydrogen) and environmental and energy technology development in SMEs⁷³.

The strategic approach reflects the region's socio-economic characteristics, including the existing business structure. Major global wind energy actors such as *Vestas Wind Systems* and *Siemens* are located in the region, and regional energy and environment sectors are perceived as important drivers for economic growth and social development in the region. These perceptions are based on recent developments in the sectors. Between 1999 and 2004, the sector has experienced an 8 % increase in employment and a 36 % increase in turnover⁷⁴. Hence, eco-innovation is a core element of the regional business development strategy.

At the same time, the mega initiative has direct positive environmental impacts, for example, through the increased production and improved utilisation of renewable energy. Furthermore, the mega initiative has indirect positive environmental impacts, for example, through the commercialisation of new energy and environmental technologies and products, i.e. eco-innovations, which lead to an increased energy and resource efficiency.

Box 2 – The mega initiative 'Energy and Environment'

The mega initiative 'Energy and Environment' is major strategic initiative political anchored in the Regional Committee (*Regionrådet*), based on the cooperation and participation of all the relevant regional stakeholders like companies, R&D institutions, energy producers and consumers, regional and municipal councils, and coordinated and facilitated by the Growth Forum. The initiative comprises several approaches, which all together should lead towards realising the three main goals:

- Maintenance and enlargement of the commercial and technological position of strength in the region;
- increased production and improved utilisation of renewable energy (50% renewable energy of total consumption in the region), and;
- reducing environmental impact.

The initiative employs strategic-level and project-based approaches. This includes on the one hand actions like the coordination of local action plans by the municipalities and on the other hand the facilitation and co-financing of projects (among others EU

⁷³ Links:

<http://www.rm.dk/regional+udvikling/v%C3%A6kstforum/indsatsomr%C3%A5der/energi+og+milj%C3%B8>
<http://www.rm.dk/regional+udvikling/v%C3%A6kstforum/strategi+og+handling>
<http://www.rm.dk/regional+udvikling/v%C3%A6kstforum/indsatsomr%C3%A5der/energi+og+milj%C3%B8/publikationer>

⁷⁴ Region Midtjylland (2008): Region Midtjylland som Energi- og miljøteknologisk foregangsregion. Visioner og mål for en fælles regional indsats.

funded projects) that foster the realisation of the main goals. These approaches are fixed around six focus areas, which are⁷⁵:

- **Strategic Management:** To create favourable framework conditions for the industry within renewable energy and environmental technology. Partly through collaboration with the municipalities concerning the charting of positions of strengths and potentials as basis for the completion of local action plans and the development of specific renewable energy locations. Partly through projects intended to strengthen the popular involvement in renewable energy and to create exposure to the region's companies in national and international connections. Moreover, the region will set leading requirements for utilisation of renewable energy in the regional financed public transport.
- **Technology Development Programme:** To promote development within renewable energy and environmental technology through the creation of a technology development programme consisting of consulting services for a wide group of SMVs within energy and environment.
- **Improved Utilisation and Integration of Electricity from Wind Power:** To create a programme with focus on further development and demonstration of technologies that supports an improved utilisation and integration of wind power into the electricity grid.
- **Correlation between Energy and Environment:** The effort will focus on projects to developing further and demonstrating new technologies and systems for sustainable energy production on the basis of biomass. The programme will pursue new solutions to generate environmental and climate win-wins through changing a number of the current environmental challenges and problems by the production of biomass-based energy into new opportunities for business development, exports and production of renewable energy.
- **Testing and Proving:** To establish test centres for the wind and biomass sectors to support test and certification.
- **Environment Technology:** The efforts are defined to promote the development of new environment technologies in relation to energy production as well as in other environment technological areas.

Regional path development analysis

The development path analysis at regional level goes somewhat beyond comparing development paths and the standard typology of interventions. Total spending priorities in the region *Midtjylland* show the following allocations (table 3):

Table 3: ERDF spending axes in Region Midtjylland (2007-2010)

Priority areas	Actual ERDF spending (€)	Actual total spending 2007 – (August) 2010 (€)	Additional explanation for choice of DPA	DPA
Innovation & Business	5.986.533	30.181.910	Based on indicative relation btw. standard	(F)

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<http://www.rm.dk/regional+udvikling/v%C3%A6kstforum/indsatsomr%C3%A5der/energi+og+milj%C3%B8/english+version/focus+areas>

development			typology of spending and development path	
Education & Competence	0	23.738.807	Based on indicative relation btw. standard typology of spending and development path	F
Energy & Environment	2.764.247	19.244.503	Strong emphasis on promoting win-wins	F
Tourism (entertainment econmy – cross-cutting)	2.628.766	15.902.342	Focus on increased use of IT and innovation. Central elements are: design, mode, art and architecture ⁷⁶	(E)
Entrepreneurship	3.068.468	10.226.208	Based on indicative relation between standard typology of spending and development path	(E)
Health/ Welfare innovation	2.644.131	6.589.061		Undefined
The digital economy	0	5.842.742	Based on indicative relation between standard typology of spending and development path	F
Food	761.559	4.686.175	Ecology a strategic focus area. Defined overall principle of integrating sustainability considerations ⁷⁷	F
Rural development (cross-cutting)	0	4.485.528	Focus on business development and entrepreneurship in rural areas; strong focus on diffusion of new technology and networks between business' and external knowledge ⁷⁸	E

The development path analysis depicts a **significant trend towards decoupling** (development path F). Around 53% of the actual spending under the ERDF and the Interreg programmes promote development path F and 32% are spend on priority areas assessed to promote eco-efficiency (development path E). Thus, the ERDF programme scores higher in the development path analysis at regional compared to the national level.

⁷⁶ Region Midtjylland (2007): Fornyelse og vækst – i en international vækstregion; action plan 2007-2008

⁷⁷ Region Midtjylland (2008): Klog hverdagsmad – som sund forretning; Strategy and action plan for the mega initiative Food

⁷⁸ Region Midtjylland (2009): Vækstforums indsatsområde Landdistrikter – iværksætteri og virksomhedsudvikling i landdistrikter

4.2 Use of flanking instruments

Strategic Environmental Assessment

In accordance with EU legislation, a strategic environmental assessment (SEA) of the Operational Programme has been conducted during the formulation process of the OP. However, due to uncertainty about whether a SEA was required for an operational programme with direct physical investments or not, the assessment was not undertaken. At the point in time, the programme formulation process was already at a final stage and, thus, it would have been difficult to realise significant changes in the content and architecture of the programme. However, the SEA didn't give reason to any significant changes. The SEA, therefore, played a rather insignificant role.

Compulsory environmental impact assessment

A significant characteristic of the Danish OP is the requirement of a compulsory environmental impact assessment for every project application (DK OP 2007: 62). However, these are not subject to the EU legislation on EIA. The impact assessments are done by the project applicants themselves and are only formally controlled in the sense that beneficiaries will have to deliver the IA to be eligible for funding.

Through the application of this tool, the integration of environmental considerations as a cross-cutting theme at project level is enhanced. In accordance with the provisions of the Operational Programme, project applications with a higher environmental protection effect are favoured over applications without. Furthermore, project applications with a positive effect on GHG emissions are given priority over projects with other positive environmental impacts (DK OP 2007: 64). These features provide important leverage for the integration of environmental and sustainability considerations into the Structural Funds. The information collected on the assessed environmental impact is the precondition for controlling compliance with the target that at least 70% of the spending under the ERDF programme to be allocated to projects which have a positive or a zero effect on the environment. However, the instrument needs to be flanked by clear and possibly more restrictive environmental targets or provisions for effective integration; for instead by setting more ambitious targets.

5.0 Implementation and absorption

5.1 Absorption

The table below shows the absorption of community funding in Denmark under the ERDF Programme "Innovation & Knowledge" as of end 2009 (table 4).

Table 4: Absorption of community funding by end 2009

Sub-categories under the priority axis "Innovation & Knowledge"	Approved funding (million € approx.)	Percentage of total ERDF (approx. € 255 million)
Innovation, knowledge sharing and knowledge building	80	32,5
Establishing and developing new enterprises	22	9

Use of new technology	7.8	3,2
Total	109.8	44,7

Source: Annual Report for the ERDF 2009⁷⁹

At end 2009 approximately 44, 7 per cent of total available ERDF funding had been reserved for approved projects. In the beginning of the funding period, primarily small projects were granted, which led to a low absorption rate. Later, project size and absorption rate increased to the point where the managing authority is satisfied⁸⁰.

5.2 Preliminary outcomes

Actual spending tends to give more weight to the pursuit of the development path E (eco-efficiency) compared to the other development paths as originally planned (actual spending account to 51% of the funds allocated compared to the planned 46% share of the funds). Still, however, **less than 42% of the funds are allocated to activities that promote development path F (decoupling)**. The remaining 7% of the funds are allocated to activities that potentially pursue 'active environmental management' in accordance with development path D.

The following table depicts the degree to which the cross-cutting themes, such as environmental considerations, have been included in the projects under Cohesion Policy in Denmark. The numbers present the per cent of the project beneficiaries who considered themselves to have integrated one or more of the cross-cutting themes in question. The evaluation is based on interviews with project beneficiaries and was conducted by a third party consultant.

Table X: Share of project beneficiaries who state their project integrates one of the cross-cutting themes

	Considerations of peripheral, economically underdeveloped areas (%)	Employment (%)	Environmental aspects (%)	Urban considerations (%)	Equal opportunity (%)
1. no	29	0	43	70	79
2.	8	4	13	15	4
3. to	22	29	22	6	15
4.	16	29	1	4	0
5. to	26	38	22	5	1

Source: COWI 2009 (N=142)

⁷⁹ Danish Enterprise and Construction Authority (2010): Regionalfonden – Målet om regional konkurrenceevne og beskæftigelse. Årsrapport 2009.

⁸⁰ Ibid.

It is no surprise that 26% of the project beneficiaries stated that their project considered aspects related to geographic peripheral and economic underdeveloped areas because one third of the Structural Funds in Denmark is reserved for projects with relevance for these areas.

The relatively high score of environmental considerations is interesting though. Almost half of the beneficiaries stated that their project integrates environmental aspects to some or to a high degree of (row 3-5) and no less than 22% of the projects consider environmental aspects to a high degree (row 5).

This is a significant share and from the perspective of the discussion above this outcome cannot solely be explained by referring to the OP alone as the emphasis on environmental considerations in the OP is too low and it does not provide strong incentives or provisions to integrate environmental considerations in the projects.

6.0 Conclusions

The Cohesion Policy programme in Denmark for the period 2007-2013 is financially very limited, and, furthermore, the programme does not give priority to direct environmental investments. Thus, the actual impact of the programme on the achievement of environmental sustainability is very limited. However, it is reasonable to say that the programme actually has contributed to the achievement of economic, social and environmental sustainability, and there are some conclusions to be drawn with respect to enhancing the contribution of the Structural Funds to meeting environmental and sustainability targets. They refer to the implementation model and the institutional and procedural setup of the regional authorities.

The case study showed that the most important and most ambitious environmental and sustainability targets came from the regional level. The Structural Funds have been smoothly integrated into the regional business development strategies. Thus, while the Structural Funds do have a positive impact on the achievement of environmental and sustainability targets through enhancing the implementation of the regional development strategies, they do not drive the strategies themselves.

From a governance perspective, the broad range of stakeholders in the Growth Forums, with the representation of important regional actors from the private sector, research and higher education, is important. It ensures that the regional business development strategy, and hence also the environmental and sustainability targets reflects the socio-economic characteristics of the region. In addition, the integration of the structural Funds into an institutionalised regional partnership through the Growth Forums (triple helix approach) ensures inclusion of regional stakeholders in the political commitment underlying the environmental and sustainability targets. This creates a high level of ownership among the stakeholders and improves the implementation of the Cohesion Policy and the achievement of the targets.

Another issue is the uptake of a top-down approach by some Growth Forums at the project development level. The regional authority is taking an active role in involving potential and appropriate actors in the development of new projects. The regional authority facilitates the project development process and contributes with advanced expert knowledge and expertise in business development and environmental matters. The analysis concluded that the approach taken by the Growth Forum in the region *Midtjylland* has positive environmental effects on the outcome of the Structural Funds investments in the region. It improves the quality of the environmental projects and it supports the development of a sustainable

business model for environmental project ideas. This is an important aspect when regional actors especially from the research community lack competences or skills in the field of developing business models. The case study comes to the conclusion that this approach has a positive outcome from an environmental perspective as it renders possible that projects with a focus on environmental technology or eco-innovations can be funded under an economic development perspective, and hence, is also enhancing the generation of win-wins.

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8.0 Interviewees

- Danish Enterprise and Construction Authority (Erhvervs- og Byggestyrelsen), Ms Susanne Kirkegaard Brodersen, special consultant
- Agency for Spatial and Environmental Planning, Ministry of Environment, Mr Gert Johansen, COWI Mr Jakob Christensen, Senior consultant
- Region Midtjylland, Mr Henrik Brask Pedersen, special consultant

1.5 CENTRAL BALTIC INTERREG PROGRAMME: NATURESHIP

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1.0 Executive summary

- The Natureship case study has been selected based on its strong focus on ecosystem services. The Natureship project is part of the Central Baltic Interreg IVA Programme⁸¹. The participating regions of the Programme are situated in Estonia, Finland (including Åland), Latvia and Sweden, as shown in
- The OP includes an Annex on how the SEA has been taken into consideration in the decision-making/development of the programme. Normally this tends to be a broad general statement by those taking the decision but in this case it is a detailed table on how mitigation measures have or have not been incorporated into the programme.
- The SEA has also contributed to guidelines on project selection criteria as environmental considerations are integrated in the programme will become relevant mainly during the stage when projects will be approved and monitored.
- During the interviews one of the recommendations for future territorial co-operation is better knowledge brokerage between currently funded Interreg projects. It was also suggested that this would be especially relevant for projects that deal with Natura 2000 areas and that there is a need for a more international funding instrument, similar to LIFE.
- Concerns were also raised on the bureaucracy involved and the increasing numbers of indicators to be assessed. It was argued that these demands are taking away the creativity in project development.
- Overall the funded projects are win-wins, reflecting the holistic and proactive objectives that can be funded, and the high proportion of investment category F supports this. Many of the funded projects under Priority 1 (safe and healthy environment) have a spatial planning component.
- Priority 1 could be used as a model of the type of objectives that can be used for integrating the environment into land use planning from a territorial cohesion point of view, as defined in the fifth Cohesion Report. It would also correspond in a meaningful way to any approaches to macro regions, such as that of the Baltic Sea or the Danube regions.
- The contributing factors to the innovative approach to Priority 1 was the considerable input by an Estonian researcher, who had an environmental background and an interest into ecosystem services and her contribution was significant in developing the Central Baltic Programme. An indication that the quality of a programme can depend largely on the background and expertise of the individuals developing the programme.
- The environmental priority 1, safe and healthy environment, has already absorbed half of the allocated resources, whereas the normally popular priority 2 of economic competitiveness and innovation, based on the overall findings of these case studies, has a much lower absorption rate. This is especially interesting as the type of objectives covered by priority 1 are not typical environmental objectives (such as

⁸¹ http://www.centralbaltic.eu/documents/doc_view/4-programme-document-?tmpl=component&format=raw

eco-efficiency etc.) but more focused on the strategic and innovative parts of environmental policy, such as ecosystem services.

This report will look to address the following Criterion:

Processes of Integration	Criterion	Key question
Strategic	Inclusion	X
	Consistency	
	Weighting	
	Financial resources	X
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	
	Partnerships	X
	Consultation	

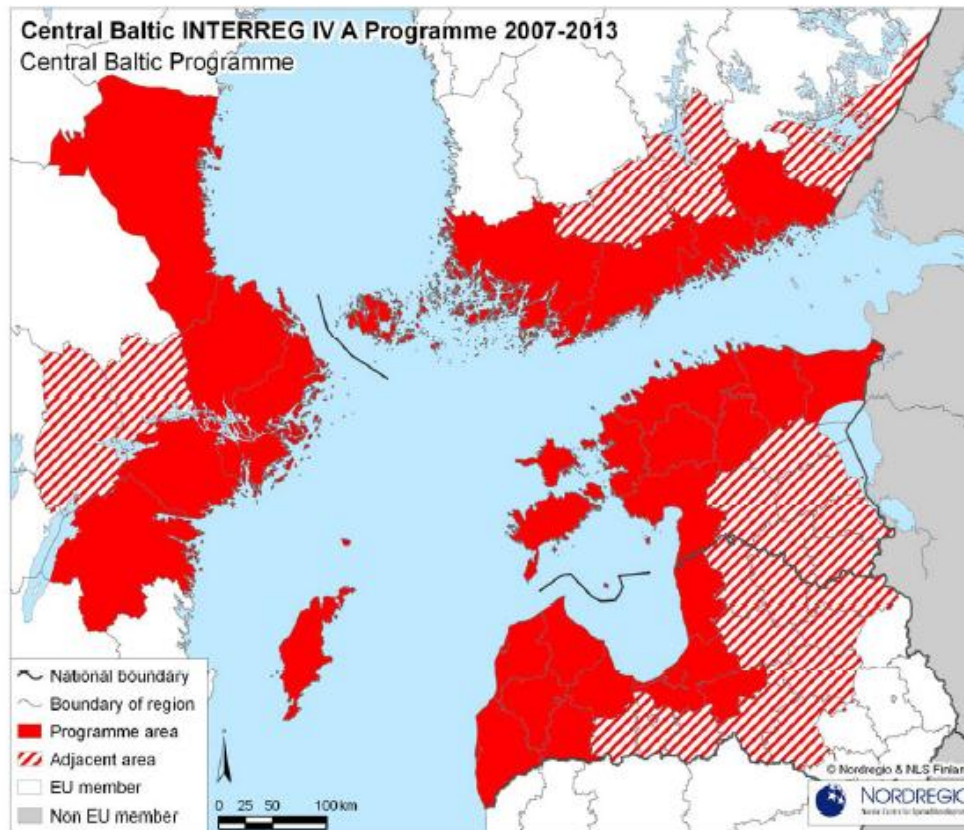
2.0 Background and Context

2.1 Central Baltic Interreg IVA Programme

The Natureship case study has been selected based on its strong focus on ecosystem services. The Natureship project is part of the Central Baltic Interreg IVA Programme⁸². The participating regions of the Programme are situated in Estonia, Finland (including Åland), Latvia and Sweden, as shown in

⁸² http://www.centralbaltic.eu/documents/doc_view/4-programme-document-?tmpl=component&format=raw

Figure 2. Regions participating in the programme



The programme has three priorities, which are:

- a safe and healthy environment;
- an economically competitive and innovative region; and
- attractive and dynamic societies.

The Central Baltic Programme has two sub-programmes: the Southern Finland – Estonia sub-programme and the Archipelago and Islands sub-programme. The programme and its sub-programmes have specific objectives for the common priorities. Otherwise the regional analysis, SWOT, vision, strategy and the general description and objectives of the priorities are common for the whole programme.

The whole Central Baltic Programme has a single Managing Authority and single Certifying Authority. These duties have been appointed to the Regional Council of Southwest Finland located in Turku. The Central Baltic Programme has also a single Monitoring Committee and a Joint Technical Secretariat with the main office in connection with the Managing Authority.

The Central Baltic programme area covers 180 000 square kilometres, which is 5% of the total land area of the European Union. At the same time the 9 715 000 inhabitants of this area make up about 2% of the population in the EU.

2.2 Natureship

The emphasis of the Natureship project is for a novel approach on planning and management of traditional rural landscapes and selected coastlines. The aim of the project is to create and restore an optimal ecosystem service network based on integrated sustainable coastal planning. The project will also assess how to achieve cost-effective planning and management of traditional rural biotopes in order to enhance public and biodiversity values. The main deliverable of the project dissemination is a Nature Management Library, where all results and cases are presented.

The Nature Management Library will consist of six publications with every partner having a specific responsibility, such as "water protection and grazing". The responsible partner (of that specific topic) is compiling the information with the help of other partners (meetings of theme groups) in order to enhance co-operation within the team. .

The participating organisations in Natureship, main responsibilities and budget are shown in Table 4.

Table 4. Natureship participants, responsibilities and budget

Participants	Main responsible area	Budget (€)
Southwest Finland Regional Environment Centre	Integrated coastal planning, City meadows (Publications: Grazing and water protection, City meadows)	305 300
University of Turku, Department of Geography	Landscape and habitat monitoring and evaluation with retrospective land cover and land use change detection using remote sensing and GIS	132 000
Metsähallitus Natural Heritage services	Management and species of traditional rural biotopes (Publication: Integration of remote sensing, historical and biological data in nature restoration)	215 800
Hamina, Salo, Raisio towns and Vihti municipality	City meadows	86 700
Norrälje Nature Conservation Foundation	Conservation and management of calcareous habitats in the coastal cultural Landscape (Publication: Indicator species of traditional rural biotopes in coastal areas)	127 600
The County Administrative Council of Gotland	Evaluation of ecosystem services as a tool for coastal zone management – the Gotland case (Publication: Instructions for Ecosystem service planning and integrated coastal management planning)	200 200

Environmental Board (Estonia)	Ecosystem services and management of coastal lagoons	197 200
University of Tartu; Pärnu college	Ecosystem services and management of coastal lagoons (Publication on coastal lagoons)	133 700

2.3 Current status of the environment

The environment of the Central Baltic Programme area is very varied and rich. It encompasses inland water bodies, the sea, archipelagos and a variety of mainland habitats. The environment of the programme area ranges from natural sites and valuable cultural environments to severely polluted problem areas.

The state of the Baltic Sea is a serious concern. There are both freshwater and seawater species living in the Baltic Sea and for many of them the conditions are extreme, close to the survival limit. The condition of the Sea affects all regions around it, but most directly the people who live on the islands or in the archipelagos.

The Baltic Sea is highly eutrophied, and the Gulf of Finland is in particularly bad condition. The sea is shallow, the average depth being only 58 meters. The channel between the North Sea and the Baltic Sea is narrow and therefore the water changes slowly: it takes 30 years for the water of the Baltic Sea to fully change. Polluting substances therefore stay in the sea for a long time. The pollutants to the Baltic Sea come mainly from agriculture, municipalities and industry.

Within the programme area there are highly polluted problem areas. In Estonia these include areas of oil-shale mining and energy production. Estonia and Latvia have to deal with the legacy of the Soviet occupation, including old nuclear submarine sites, uranium processing plants, army bases and out-dated industry. In Finland there are, too, areas with contaminated soil, old industrial and dumping areas and sensitive ecosystems. All in all, there are 14 hot spots as identified by HELCOM in June 2006. Within the Central Baltic programme area Finland and Sweden both have one hot spot, whereas Estonia has five and Latvia seven.

2.4 Current investment context

The vision of the Central Baltic Programme is to create a globally recognised, dynamic, sustainable and competitive region that is attractive for business and visitors and where people want to live, work and invest.

The aim of the programme is to contribute to this vision by:

- unlocking potentials for making the programme area a global centre for growth and innovation;
- working together for a better environment;
- optimising internal and external accessibility[
- investing in its resident's overall wellbeing, capacity and security;

- addressing new socio-economic challenges; and
- facilitating cultural co-operation and strengthening the programme areas common identity,

In order to reach its objectives, the Central Baltic Programme consists of three priorities, focusing on environment, competitiveness and good living conditions.

The total eligible budget for the Programme is 136.0 million Euro, of which 102.2 million Euro (in current prices) is EU-financing from the European Regional Development Fund (ERDF).

Table 5 shows the financial allocation between the different priorities and the national and total public contribution of the Central Baltic Programme. The total public contribution is around € 135.5 million with € 102.1 million being EU contribution and € 33.4 million being national contribution.

Table 5. Allocation of funds

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
Priority 1 (Safe and healthy environment)	28 073 434	7 939 557	36 012 991
Priority 2 (Economically competitive and innovative region)	42 418 602	12 069 031	54 487 633
Priority 3 (Attractive and dynamic societies)	25 556 234	7 210 576	32 766 810
Priority 4 (Technical assistance)	6 130 741	6 130 741	12 261 482
Total	102 179 011	33 349 905	135 528 916

3.0 Governance mechanisms

An ex ante evaluation was carried out by an external consultant, selected through an open call for tenders. The SEA was included as a part of the ex-ante evaluation and was carried out by the same consultant. For the SEA, each country and Åland nominated a national environmental contact person that acted as a link for the further consultation in their respective country. As the first stage of the SEA procedure, the draft Scoping Report was prepared by the evaluator and sent out for consultation to the national

environmental authorities via the national environmental contact persons. At the second stage of the environmental consultations, the draft Environmental Report was subject to a three week public consultation.

Interestingly the OP includes an Annex on how the SEA has been taken into consideration in the decision-making/development of the programme. Normally this tends to be a broad general statement by those taking the decision but in this case it is a detailed table on how mitigation measures have or have not been incorporated into the programme. The SEA recognises that due to the general character of the programme the potential environmental impacts could only be described very generally and that how environmental considerations were integrated in the programme will become relevant mainly during the stage when projects will be approved and monitored. To reflect this, the SEA comes up with guidelines on project selection criteria as shown in Box 1 and the earlier mentioned table in the Annex shows how these project selection criteria have been taken into consideration in the OP.

Box 1. SEA guidelines for project selection criteria.

The SEA procedure recommends the following procedure for project selection:

1. The application form should include a part where the applicant is asked to assess possible environmentally significant aspects of the project (*e.g.in which way may the environment be impacted by the proposed project?). This part of the application form should be developed on the basis of the specific challenges of the region and the foreseen content of the programme.
2. In cases where there might be environmental impacts the applicant and the programme secretariat should assess the possibilities to strengthen positive impacts or to mitigate the negative impacts of the proposed project
3. The environmental assessment of the project proposal should be one of the elements when applications are prioritised.
4. In a situation where several similar (and eligible) projects are competing for resources, the project with the most positive environmental impacts shall be preferred.
5. The programme monitoring system should include environmental impacts and project owners should be asked to report continuously on positive as well as negative impacts. The indicators that will be requested for monitoring should already be described in the application form.

The SWOT analysis has been set up using information and data from the different regions in the Central Baltic programme area and the result of cross border co-operation between representatives of all partners creating an analysis of the Central Baltic Programme area.

The applications for ERDF-funding are submitted to the Joint Technical Secretariat (JTS) according to the procedures defined in the Programme Manual. The assessment procedure consists of a technical eligibility check carried out by the JTS on behalf of the

Management Authority (MA), quality evaluation and assessment of strategic relevance. The JTS will be responsible for the evaluation of technical aspects of the quality evaluation, such as eligibility of the topic, number and consistency of the partners, the Lead Partner's capacity to manage the project implementation, the eligibility and consistency of the proposed budget plan etc. The quality evaluation process will be based on predefined quality assessment criteria. The technical eligibility and quality assessment criteria will be determined in the Programme Manual. The final assessment of the strategic relevance of project applications will be undertaken by the Steering Committees.

The monitoring system is a database for programme implementation and management. In order to support the various functions of the managing authority and JTS in managing the programme, the software Central Baltic Monitoring System has been developed and is based on an existing database. The monitoring system is divided into:

- a component for the applicant;
- a component for the management and decision making; and
- a component for monitoring, reporting and control.

The indicators selected during the programming phase were chosen for the programme monitoring, evaluation and verification of objectives. EU indicators were adapted to the programme underlining the measurability and accessibility.

Based on the interviews the co-operation between partners of Natureship has developed smoothly. One reason for this was the earlier co-operation between partners on the Interreg IIIA project RUOKO (reed strategy in Finland and Estonia), in which an attempt was made to optimise ecosystem services. This team was expanded with The County Administrative Council of Gotland as they had mapped the whole of the Gotland coastal area, covering data relevant for ecosystem services. During the interviews one of the recommendations for future territorial co-operation is better knowledge brokerage between currently funded Interreg projects. It was also suggested that this would be especially relevant for projects that deal with Natura 2000 areas and that there is a need for a more international funding instrument, similar to LIFE. Concerns were also raised on the bureaucracy involved and the increasing numbers of indicators to be assessed. It was argued that these demands are taking away the creativity in project development.

4.0 Overview of environmental objectives, measures and allocations

The programme has three priorities and their environmental aspects will be described in this section.

Priority 1: Safe and healthy environment

This priority focuses on protecting and improving the environment, with a special focus on the Baltic Sea. The actions taken under this priority should lead to increased

environmental awareness and reduced risk of environmental disasters. Special attention will be given to projects alleviating HELCOM hotspots.

The priority is divided into “directions of support”, including specific objectives, indicative actions and indicators for the Central Baltic Programme as well as for the Southern Finland – Estonia sub-programme and the Archipelago and Islands sub-programmes.

Central Baltic Programme

The direction of support covers:

- environmental awareness raising and expertise; and
- supporting sustainable spatial planning and environmental management.

The specific objective for environmental awareness raising and expertise is the:

- increased environmental awareness and exchange of environmental expertise.

Indicative actions for this objective include environmental awareness raising activities/campaigns, development and exchange of environmental know-how and expertise and identification and assessment of environmental impacts of legislation, strategies and policies.

The specific objective for supporting sustainable spatial planning and environmental management is the:

- increased cross-border co-operation concerning sustainable spatial planning and environmental management.

Indicative actions (among others) for this objective include co-operation in energy efficiency and renewable energy sources, co-operation in spatial planning, development of better risk management for maritime risks and co-operation in the field of ecological innovations and clean technologies.

Southern Finland – Estonia sub-programme

The direction of support covers:

- maintaining and improving the condition of the natural environment; and
- taking responsibility for our physical environment.

The specific objectives for the direction maintaining and improving the condition of the natural environment cover:

- improved local environment of the Gulf of Finland; and
- increased environmental awareness, transferred into individual and community accountability for the environment.

Indicative actions for these objectives include co-operation in preventing and combating oil spills, co-operation in improving maritime safety and co-operation in order to reduce and manage environmental impact through waste management (incl. recycling and reduction) and supporting renewable energy sources as well as activities for achieving individual and community accountability for the environment through environmental education and awareness.

The specific objective for the direction taking responsibility for our physical environment cover:

- preserved values of the cultural landscapes in the region.

Indicative actions for this objective include co-operation in spatial and strategic planning, actions in urban environmental initiatives, co-operation in the protection and preservation of our cultural heritage and co-operation in the preservation of valuable landscapes and historic sites.

Archipelago and Islands sub-programme

The direction of support covers:

- sustainable infrastructure; and
- Raising environmental awareness (finding new ways).

The specific objective for the direction sustainable infrastructure cover:

- improved conditions of the archipelago and island environment in the Central Baltic area.

Indicative actions for this objective include the promotion of archipelago and island adjusted water supply and waste water solutions, energy solutions and waste management as well as support investments in sustainable infrastructure, pilot projects.

The specific objective for the direction raising environmental awareness (finding new ways) cover:

- increased environmental awareness and co-operation

Indicative actions for this objective include the promotion of cooperation and common activities between different actors in environmental issues and the promotion of the management of the island specific landscape.

Priority 2: Economically competitive and innovative region

This priority focuses on enhancing the overall economic development and competitiveness of the programme area. It emphasises innovations and broad, qualitative co-operation. Moreover, the development of connections to facilitate cross-border co-operation and a better flow of goods and people is another focus, together with the utilisation of the labour force and the development of the tourism sector.

Environmental issues should be dealt with within this priority in an integrated way especially in all fields of education and economic activities.

Central Baltic Programme

Directions of support cover:

- supporting innovation and improving competitiveness;
- improving internal and external accessibility; and
- optimising the potential of the labour market.

None of these cover objectives/activities that are environmental.

Southern Finland – Estonia sub-programme

Directions of support cover:

- improve connections within the programme area;
- creating and supporting innovative and competitive environments; and
- meeting the challenges of the labour market;

None of these cover objectives/activities that are specifically environmental.

Archipelago and Islands sub-programme

Directions of support cover:

- sustainable tourism;
- knowledge based economy;
- developing archipelago and island specific economic activities –traditional small scale farming, fishing, handicrafts, maritime heritage etc; and
- supporting accessibility to and information about the archipelago and the islands

Sustainable tourism includes the specific objective of supplying the regional and international market with high quality sustainable tourism products in the area.

Priority 3: Attractive and dynamic societies

This priority focuses on creating a better living environment for the programme area's inhabitants. Thus, it is aiming at strengthening cultural exchange and the programme area's togetherness.

Central Baltic Programme

Directions of support cover:

- improving living conditions and social inclusion; and
- increasing cultural exchange.

None of these cover objectives/activities that are specifically environmental.

Southern Finland – Estonia sub-programme

Directions of support cover:

- social security and wellbeing of different groups in society; and
- stimulating and preserving our heritage and culture;

None of these cover objectives/activities that are specifically environmental.

Archipelago and Islands sub-programme

Directions of support cover:

- social and demographic issues, especially young people.

The direction does not cover objectives/activities that are specifically environmental.

5.0 Analysis of measures and allocations

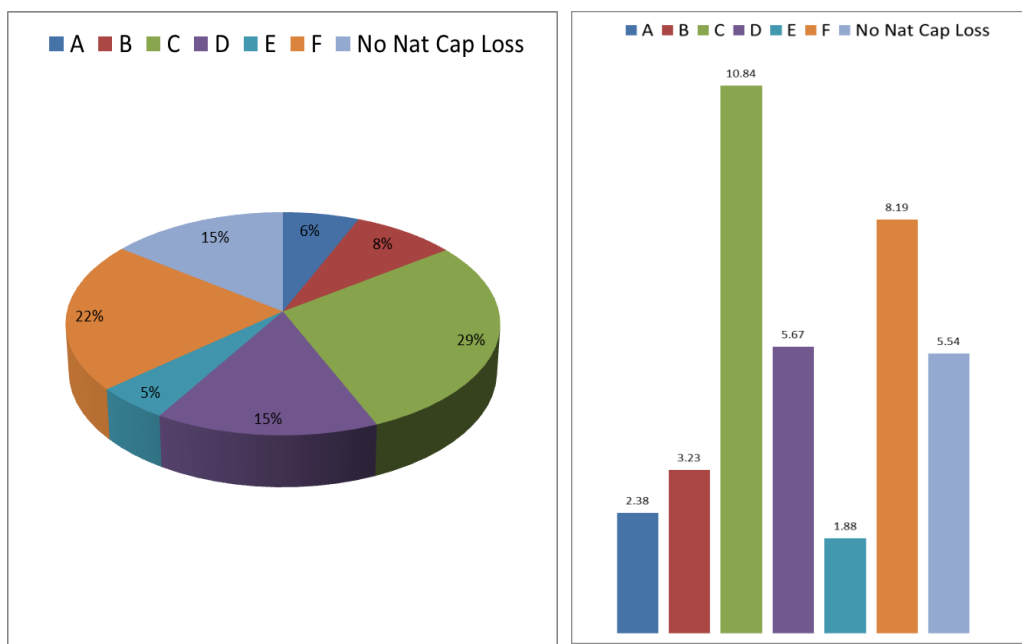
5.1 Development Path Approach Analysis

The share of EU funding per development path (Figure 3) and the funding per development path (Figure 33) are based on the interventions categories allocated to projects by the end of 2009 for the Central Baltic Programme based on the figures in the annual implementation report. By the end of 2009, € 37.7 million has been allocated to the programme. There is no information on planned allocation of investment categories in the OP for the whole funding period.

The analysis shows that most of the funding is allocated to development path C (29 %), which pursues the reduction of hazards and management of risks. This is due to the high level of funding to the investment category 54 (Other measures to preserve the environment and prevent risks) with € 9.1 million (24.1 % of the total amount allocated to projects) going to this investment category. A large proportion (22 %) of the funding has also been allocated to development path F (decoupling).

Otherwise the funding between the rest of the development paths is quite equally distributed with percentages ranging from development path E's 6 % to development path D's 15 %. Here the low funding for category E (eco-efficiency) is unusual, in comparison with the other case studies, when taking into consideration the high funding for development path F. 18 % of the funding has been allocated to investments that are deemed to have no impact on natural capital loss.

Figure 3. Share of EU funding per Development Path **Figure 4 . EU funding per development Path**



Overall the funded projects are win-wins, reflecting the holistic and proactive objectives that can be funded, and the high proportion of investment categories in development path F supports this. Many of the funded projects under Priority 1 (safe and healthy environment) have a spatial planning component. This is also the case with the Natureship project. Actually, many of the objectives in Priority 1 could be used as a model on the type of objectives that can be used for integrating the environment into land use planning from a territorial cohesion point of view, as defined in the fifth Cohesion Report. It would also correspond in a meaningful way to any approaches to macro regions, such as that of the Baltic Sea or the Danube regions.

During the interviews it emerged that one of the contributing factors to the innovative approach to Priority 1 was the considerable input by an Estonian researcher, who had an environmental background and an interest into ecosystem services and her contribution was significant in developing the Central Baltic Programme. An indication that the quality of a programme can depend largely on the background and expertise of the individuals developing the programme.

5.2 Other tools to enhance environmental integration

The “directions of support” for the Central Baltic Interreg programme are more about awareness raising, working with local communities, respecting cultural heritage, learning, sustainable tourism rather than investing in infrastructure. There are no examples where and conditional or complementary instruments have been used.

6.0 Implementation and absorption

6.1 Absorption

The absorption of funds by the three main priorities in the Central Baltic Programme is shown in Table 6. It is noticeable that the environmental priority 1, safe and healthy environment, has already absorbed half of the allocated resources, whereas the normally popular priority 2 of economic competitiveness and innovation, based on the overall findings of these case studies, has an absorption rate of 28%. This is especially interesting as the type of objectives covered by priority 1 are not typical eco-efficiency type of objectives but more focused on the strategic and innovative parts of environmental policy, such as ecosystem services. During the interviews no one could further elaborate on possible reasons for the absorption success of Priority 1.

Table 6. Absorption of Funds for the main priorities.

Allocations to priorities		Priority axis 1 Safe and healthy environment	Priority axis 2: Economically competitive and innovative region	Priority axis 3: Attractive and dynamic societies	Total
2008	ERDF funding	3 972 441,00	5 932 037,00	3 624 717,05	13 529 195,05
	National public funding	1 202 249,00	1 566 035,00	932 544,95	3 700 828,95
	National private funding	39 188,00	0,00	0,00	39 188,00
2009	ERDF funding	9 785 446,00	6 038 832,00	5 238 719,00	21 062 997,00
	National public funding	2 853 466,00	1 718 620,00	1 443 782,00	6 015 868,00
	National private funding	0,00	0,00	7 188,00	7 188,00
Total funding		17 852 790,00	15 255 524,00	11 246 951,00	44 355 265,00
ERDF budget Frame		28 073 434,00	42 418 602,00	25 556 234,00	96 048 270,00
ERDF allocation in euros		13 757 887,00	11 970 869,00	8 863 436,05	34 592 192,05
ERDF allocation %		49,01	28,22	34,68	36,02

6.2 Preliminary outcomes of Natureship

The Natureship project is a three year project that started in October 2009, and hence the outputs are still quite limited. However, as of autumn 2010, the County Administrative Board of Gotland is developing the model for assessing ecosystem services. According to Lars Vallin, from the County Administrative Board, the relevant GIS layers will be selected to get further information on natural, cultural and recreational values. It is envisaged that the evaluation model would consist of three levels, two covering quantitative values (if a value exist/does not exist within an area and the size of the area) and one with qualitative values. These values will then be

added together and the end product would be a GIS map with different colours for different values to be used in land use planning.

According to Nele Sober, from the Estonian Environmental Board, the Estonian partners have contacted inhabitants/land owners within the National Park area of Saarenmaa. The aim is to create a personal contact with the inhabitants to be able to copy pictures that reveal what the land looked like 50 years ago and what cultural changes have taken place. In addition Tartu University is developing an inventory on coastal lagoons. Draft publications are also being developed by Southwest Finland Regional Environment Centre and Norrtälje Nature Conservation Foundation.

7.0 Conclusions

The Natureship programme has only been running for a year and hence there is not much information about the approach apart from the model the County Administrative Board of Gotland is developing for assessing ecosystem services. The relevant GIS layers will be selected to get further information on natural, cultural and recreational values and the end product will be a GIS map with different colours for different values to be used in land use planning. However, there are other aspects to the Central Baltic Programme, which enabled the Natureship project, that are interesting.

Overall the funded projects of the Central Baltic Programme are win-wins, reflecting the holistic and proactive objectives that can be funded, and the high proportion of investment category F supports this. Many of the funded projects under Priority 1 (safe and healthy environment) have a spatial planning component and could be used as a model of the type of objectives that can be used for integrating the environment into land use planning from a territorial cohesion point of view, as defined in the fifth Cohesion Report. It would also correspond in a meaningful way to any approaches to macro regions, such as that of the Baltic Sea or the Danube regions.

The environmental priority 1 has already absorbed half of the allocated resources, whereas the normally popular priority 2 of economic competitiveness and innovation, based on the overall findings of these case studies, has a much lower absorption rate. This is especially interesting as the type of objectives covered by priority 1 are not typical environmental objectives (such as eco-efficiency etc.) but more focused on the strategic and innovative parts of environmental policy, such as ecosystem services.

For the SEA the OP includes an Annex on how the SEA has been taken into consideration in the decision-making/development of the programme. Normally this tends to be a broad general statement by those taking the decision but in this case it is a detailed table on how mitigation measures have or have not been incorporated into the programme. The SEA recognises that due to the general character of the programme the potential environmental impacts could only be described in similar general detail and consequently the integration of environmental considerations within the programme will become relevant mainly during the stage when projects will be approved and monitored. To reflect this, the SEA comes up with guidelines on project selection criteria and the

abovementioned table provides information on how these will be taken into consideration.

During the interviews one of the recommendations for future territorial co-operation is better knowledge brokerage between currently funded Interreg projects. It was also suggested that this would be especially relevant for projects that deal with Natura 2000 areas and that there is a need for a more international funding instrument, similar to LIFE.

8.0 References

Operational Programme for Central Baltic Interreg IVA Programme 2007-2013, Final approved version as of 21 December 2007.

Central Baltic Interreg IVA Programme, Annual Report 2007-2013, Adopted August 2010

Evaluation of the Central Baltic Interreg IVA Programme 2007-2013, Final mid-term evaluation report, Deabaltika, 24 November 2010.

9.0 Interviewees

Name	Role	Organisation
Annastina Sarlin	Contact person for Natureship project	Southwest Finland Regional Environment Centre
Iiro Jokinen	Project Manager of Natureship	Southwest Finland Regional Environment Centre
Lars Vallin	Partner to the Natureship Project	County Administrative Board of Gotland
Nele Sober	Partner to the Natureship Project	Environmental Board of Estonia
Bo Storränk	Programme Manager of the Central Baltic Programme	Regional Council of Southwest Finland

Table 7 Allocation of EU budget to the different categories of expenditures

Investment Categories	Description	Budget EU (€ million)
5	Advanced support services for firms and groups of firms	817330
28	Intelligent transport systems	666822
41	Renewable energy:biomass	850400
43	Energy efficiency, co-generation, energy management	400480
44	Management of household and industrial waste	428124
46	Water treatment (waste water)	1023531
47	Air quality	1028054
48	Integrated prevention and pollution control	753650
49	Mitigation and adaption to climate change	858756
53	Risk prevention (...)	869170
54	Other measures to preserve the environment and prevent risks	9121962
57	Other assistance to improve tourist services	2266103
58	Protection and preservation of the cultural heritage	1892388
60	Other assistance to improve cultural services	1518817
62	Development of life-long learning systems and strategies in firms; training and services for employees ...	1800254
63	Design and dissemination of innovative and more productive ways of organising work	707880
64	<i>Development</i> of special services for employment, training and support in connection with restructuring of sectors ...	1894205
	Modernisation and strengthening labour market institutions	399199
71	Design and dissemination of innovative and more productive ways of organising work	416999
72	Design, introduction and implementing of reforms in education and training systems	1201099
73	Measures to increase participation in education and training throughout the life-cycle ...	1435507
74	Developing human potential in the field of research and innovation, in particular through post-graduate studies ...	698144
75	Education infrastructure	169408,05
78	Preparation, implementation, monitoring and inspection	978770
79	Other social infrastructure	1406411
81	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	1014256
85	Preparation, implementation, monitoring and inspection	3008275
86	Evaluation and studies; information and communication	303236
TOTAL		€ 37759822

ANNEX. Table for demonstrating how the SEA was considered in the development of the OP

Findings from the Environmental Report	How findings were integrated/reason for not taking into account
PRIORITY A MITIGATION MEASURES	
<p>Projects should be able to demonstrate that they are achieving sustainable management either through certification or mentoring, for example, co-ordinated through a forum that transfers best practice and experience.</p>	<p>This comment will be taken into account. The JTS and other programme bodies look for high quality projects and support projects throughout their implementation period. This is done through thematic seminars, spreading good practices and experiences and informing the projects on the Programme standards, including environmental standards. More detailed information will be included in the secondary documentation (Programme Manuals).</p>
<p>Projects linked to climate change should be monitored to prevent approval of lower quality proposals presented as essential or deserving priority treatment.</p>	<p>Projects linked to climate change, as all projects, will be selected and monitored using a strict set of criteria. All projects with an ERDF level of more than 200 000 euros</p>
<p>To establish good project selection procedures the monitoring routines are of paramount importance here.</p>	<p>This comment will be taken into account as the JTS, MA, and SC will lay down details of the monitoring system and project evaluation and these will have high quality expectations.</p> <p>The evaluation criteria will also be included in the secondary documentation (Programme Manuals) for project applicants to be used as guidelines in their project planning.</p>
PRIORITY B MITIGATION MEASURES	
<p>There is the risk that competitiveness is interpreted as a basis to cut environmental costs, potentially by delaying legislative obligations or by seeking minimum compliance in environmental standards. Accordingly, this priority of the programme should convey a clear message that positive environmental impact is a key element of the priority's strategy.</p>	<p>Sustainable development is a horizontal objective in the CBP and it is taken very seriously. No project with a negative environment impact will be allowed.</p>
<p>The risk remains that this could represent a missed opportunity with no useful/positive environmental impact, particularly if innovation is directed primarily at sectors other than environmental ones or the new branches, clusters and networks fail to include environmental actors and stakeholders.</p> <p>Again, the establishment of good criteria for project selection is the most important measure that can be taken here in the programme implementation process.</p>	<p>This comment will be taken into account as the JTS, MA, SC and MC will set up a set of criteria for project selection. The criteria will demand high quality throughout and will include environmental criteria. As a horizontal objective of the CBP sustainable development is included in all project assessment and selection and taken very seriously in the programme. No project with a negative environment impact will be allowed.</p> <p>Projects with a neutral environmental impact can be allowed.</p> <p>Nevertheless, taking into account sustainable development is positive for projects in all Priorities and such projects will be strived for. Possibilities to prioritise projects with strong positive environmental impacts are explored.</p>

<p>PRIORITY C - MITIGATION MEASURES</p>	
<p>Since this Priority does not seem to be comprised of significant negative environmental effects no measures for mitigation are discussed.</p>	<p>Sustainable development is a horizontal objective in the CBP and it is taken very seriously. No project with a negative environment impact will be allowed.</p>
<p>GUIDELINES FOR PROJECT SELECTION</p>	
<p>For a systematic, practical application of the assessment procedure required by the SEA Directive, the following structure is proposed:</p> <ol style="list-style-type: none"> 1. The application form should include a part where the applicant is asked to assess possible environmentally significant aspects of the project (e.g. "in which way may the environment be impacted by the proposed project?"). This part of the application form should be developed on the basis of the specific challenges of the region and the foreseen content of the programme. 2. In cases where there might be environmental impacts, the applicant and the programme secretariat should assess the possibilities to strengthen positive impacts or to mitigate the negative impacts of the proposed project. 3. The environmental assessment of project proposals should be one of the elements when applications are prioritised. 4. In a situation where several similar (and eligible) projects are competing for resources, the project with the most positive environmental impacts shall be preferred. 5. The programme monitoring system should include environmental impacts and project owners should be asked to report continuously on positive as well as negative impacts. The indicators that will be requested for monitoring should already be described in the application form. 	<p>The Managing Authority agrees to introduce further environmental safeguards when preparing the implementation documents for the OP, in particular with reference to the project application guidelines + project selection criteria.</p> <p>In the application form the applicants are asked to clarify the possible environmental impacts of the project idea as well as the need for different permits or Environmental Impact Assessment that might be needed according to the national legislations.</p> <p>The estimated environmental impacts are critically analysed by the JTS during project selection process taking into account the national expertise available. Environmental assessment analysis is included in the JTS assessment reports provided for the Steering Committees to be utilised in final decision making on the project proposals. The national environmental authorities are also represented in the Steering Committees.</p> <p>Sustainable development is a horizontal objective in the CBP and it is taken very seriously. No project with a negative environment impact will be allowed.</p>

1.6 FINLAND: OPERATIONAL PROGRAMME OF SOUTHERN FINLAND

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1.0 Executive summary

- This case study is the Regional Competitiveness Programme and Employment programme for Southern Finland and has been selected in the first instance based on its environmental project selection criteria.
- The impact categories addressed in the SEA of the regional OP for Southern Finland have been adapted to better suit the relevant issues in the OP as well as the aims of the SDS.
- The whole assessment procedure is set up in such a way that the integration of the environment is addressed on an appropriate level and detail combined with environmental project selection and prioritisation criteria.
- The initial SEA of the Southern Finland OP was heavily criticised by the Commission desk officer in charge as the worst of the Finnish SEAs. This prompted a greater emphasis on the SEA, which was updated, but also on how to integrate the environment better in other stages of the funding process. Hence, interventions and guidance by the Commission can have real impacts on the ground that go beyond quality control.
- Assessing the environmental impacts of project proposals is a key component of programme implementation but is not normally addressed by the SEA, which is focused on the programme level, where identified impacts are only at a general level. . To address this, the Southern Finland SEA assesses also the environmental impacts of project proposals during the project application stage. Hence the funding authority has to also consider the SEA and its impact categories in assessing projects.
- The applicant is required to submit a basic environmental impact assessment with any project proposal. The EIA panel assesses the quality of these environmental impact assessments and in case of any inconsistencies/concerns about the quality will inform the funding authority accordingly. The project proposals that are submitted to the EIA panels are those that have been provisionally approved by the funding authority.
- No projects with significant environmental impacts will be funded.
- A more detailed assessment of priorities has been undertaken based on investment categories and projects funded and trade-offs assessed. Based on the Finnish funding experience the investment categories under Priority 2, with a focus on innovation, research and business development, could be better suited for the promotion of business activities under Priority 1, which currently supports some win-loss investments under category 8 (other investment in firms), such as building extensions to factories. Even if these impacts cannot be regarded as environmentally significant they indicate the importance of emphasising innovation (as in Priority 2) rather than general business support (as in Priority 1).
- Southern Finland has a considerably higher weighting for environmental project selection criteria and this is also reflected in the higher number of environmentally positive projects funded compared to the other Finnish OPs, with much lower weighting for environmental project selection criteria.

This report will look to address the following Criterion:

Processes of Integration	Criterion	Key question
Strategic	Inclusion	X
	Consistency	
	Weighting	X

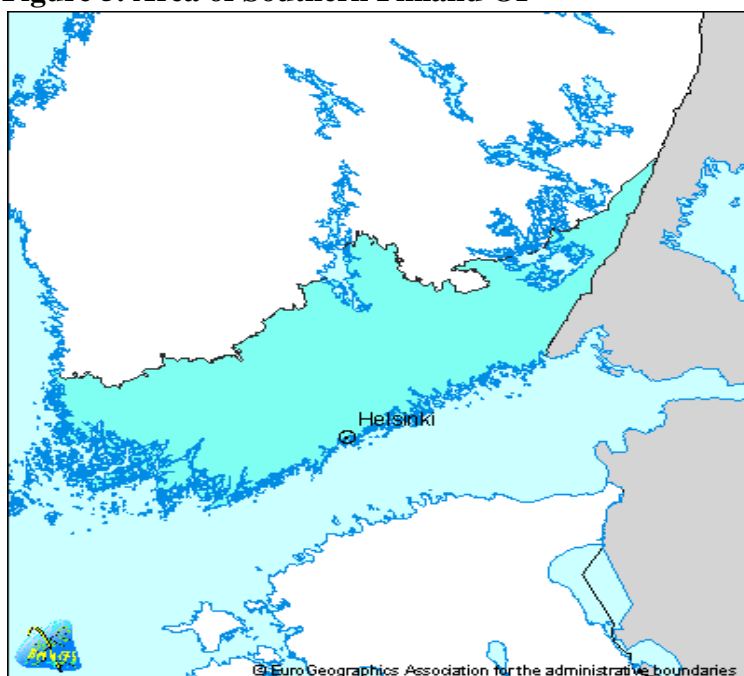
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and Context

This case study is the Regional Competitiveness Programme and Employment programme for Southern Finland and has been selected in the first instance based on its environmental project selection criteria. The Operational Programme, the Annual Implementation report 2009 and the Structural Funds database of funded projects have also enabled a more detailed analysis of the categorisation of investment categories into different Development Paths. Consequently this case study consists also of a more detailed analysis of investment categories for priorities as this information is available in Finnish OPs. The OP for Southern Finland is one of the four regional OPs, the others covering Western, Eastern and Northern Finland. None of the above documents have been translated into English.

In comparison to the rest of Finland, Southern Finland has 50 % of the population, 12 % of the area, 60 % of the GDP, 63 % of research and education budget, 76 % of motorways and 95% of international flights. The location of Southern Finland is shown in Figure 5.

Figure 5. Area of Southern Finland OP



2.1 Current status of the environment

The greatest environmental challenge according to the Southern Finland OP is the protection of the Baltic Sea and other water bodies. A special focus is also given to the control of environmental risks and the mitigation and adaptation to climate change. Table 8 summarises

the most important environmental challenges identified in the OP supported by additional information from other sources.

Table 8 State of the Environment

Environmental Theme	Current status of the environment (Challenges and Commitments)
Resources Utilisation and SCP	<p>The total material requirement of the Finnish economy amounted to 584 million tonnes in 2005. Half of this total mass of materials was extracted from the natural environment in Finland and the other half was brought in from abroad to meet demand from industry or consumers. The 2009 Natural Resource Strategy for Finland⁸³ points out that well-being and prosperity must be created in a more sustainable way, and suggests that new operating models are needed in business, policies and daily behaviour. The natural resource strategy examines natural resources and their inter-linkages across sectoral boundaries, and covers the perspectives of both use and protection.</p> <p>The Council of State has developed a programme “Getting more and better from less”⁸⁴ on ecologically, socially and economically sustainable manners of production and consumption. It includes a vision until the year 2025 as well as goals and action points and suggests that ministries and municipalities should put together their public procurement strategies and define environmental criteria for these.</p>
Climate change	<p>The National Climate and Energy Strategy⁸⁵ from November 2008 covers climate and energy policy measures in great detail up to 2020, and briefly up to 2050. The long-term strategy points out that without new climate policy measures, Finland’s greenhouse gas emissions will total some 90 million equivalent carbon dioxide tonnes in 2020, i.e. approximately 20 per cent more than the emission level of 1990, which Finland has committed itself to. The Operational Programme for Southern Finland estimates that by 2020 the temperature increase will be between 1-3 °C.</p>
Energy	<p>Per capita energy consumption rates in Finland are extremely high (in 2005 twice the EU-27 average). This is due to a high material standard of living, the energy-intensive paper and metal industries, the country’s northerly location, and the long distances between settlements. The National Climate and Energy Strategy aims to greatly increase the use of renewable energy sources to 38 per cent by 2020.⁸⁶</p>
Water resources	<p>According to the OP the greatest environmental challenge for Southern Finland is the protection of the Baltic Sea and other water bodies. Water resources are polluted by emissions from industry, agriculture, forestry, fish farms, peat production and holiday homes. However pollution from waste water has reduced considerably thanks to improved waste water treatment. The national Water Protection Policy Outlines, adopted in</p>

⁸³ SITRA (2009), A Natural resource Strategy for Finland: Using Natural Resources Intelligently, April 2009, [http://www.sitra.fi/julkaisut/muut/Aper cent20Naturalper cent20Resourceper cent20Strategyper cent20forper cent20Finland.pdf](http://www.sitra.fi/julkaisut/muut/Aper%20Naturalper%20Resourceper%20Strategyper%20forper%20Finland.pdf)

⁸⁴ KULTU-Committee (2005), *Getting more from less*, Ministry of the Environment, Ministry of Trade and Industry, Edita Publishing, Helsinki, 2005

⁸⁵ Ministry of Employment and Economy (2008), Valtioneuvoston selonteko eduskunnalle 6. päivänä marraskuuta

⁸⁶ Finnish Environment Institute (2008), Finland, State of the Environment 2008, 2008 <http://www.ymparisto.fi/download.asp?contentid=105175&lan=fi>

	2007, defines measures needed to improve water quality by 2015 through water protection measures and the planning of river basin management. Another threat identified by the OP is that a considerable part of housing, industry and roads on top of groundwater sources.
Biodiversity	The National Action Plan for Biodiversity covering the years 2006-2016 sets the measures to slow down the negative impacts on biodiversity by 2010 as well as to prepare for the threats to biodiversity caused by environmental changes, especially climate change, by 2016.
Waste	In 2006, about 70 million tonnes of waste was generated in Finland – about four million tonnes more than in 2005. Of this waste almost 71 per cent consisted of mineral wastes and about 19 per cent was wood-derived wastes. Municipal waste accounts for less than 4 per cent of all wastes. ⁸⁷ In 2008 the Finnish Government approved the new national waste plan until 2016 ⁸⁸ . The national waste plan emphasises the relationship between waste issues and other sectors of environmental policy such as chemical policy, sustainable resource use, climate policy, environmental health, soil protection, and technology policy.

2.2 Current investment context

The total amount Structural Funds allocated to Finland is 1.71 billion, with 93 % of these resources being allocated to the Regional Competitiveness and Employment objective for the four regional Operational Programmes of Southern, Northern, Eastern and Western Finland. The Åland Islands will receive financing from Structural Funds in accordance with programmes dedicated to this area. The remainder of the financing will be used for the European Regional Cooperation objective and the European Neighbourhood and Partnership Instrument.⁸⁹

Table 9 shows the financial allocation between the different priorities and the national and total public contribution of the OP for Southern Finland. The total public contribution is around € 345 million with € 138 million being EU contribution and € 207 being national contribution.

Table 9. Allocation of funds

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
Priority 1 (Promotion of business activity)	31 422 130	47 787 823	79 209 954
Priority 2 (Promotion of innovation activity and networking, and reinforcing knowledge)	28 778 350	43 767 075	72 545 425

⁸⁷ Finnish Environment Institute (2008), Finland, State of the Environment 2008, 2008
<http://www.ymparisto.fi/download.asp?contentid=105175&lan=fi>

⁸⁸ Ymparisto (2008), Finland's waste policy,
<http://www.ymparisto.fi/default.asp?node=17719&lan=en>

⁸⁹ Ministry of Employment and the Economy (2008), *Gaining Leverage from the EU, General Brochure for the Structural Fund Period 2007-2013*. Edita 4/2008.
http://www.rakennerahastot.fi/rakennerahastot/tiedostot/esitteet/885105_englanti_LR.pdf

structures)			
Priority 3 (Improving regional accessibility and operational environments)	28 601 716	43 498 443	72 100 159
Priority 4 (Development of larger urban areas)	6 627 030	10 078 608	16 705 638
Priority 5 (Thematic development at regional level)	37 111 366	56 440 202	93 551 568
Priority 6 (Technical assistance)	5 522 525	5 522 525	11 045 050
Total	138 063 117	207 094 676	345 157 794

3.0 Governance mechanisms

3.1.1 Administration

The Finnish regional administration is in the process of a major restructuring. From first of January 2010 all state provincial offices, employment and economic centres, regional environmental centres, environmental permit agencies, road districts and occupational health and safety districts have been phased out and their functions and tasks have been reorganized and streamlined into two new regional state administrative bodies: the Regional State Administrative Agencies (AVI) and the Centres for Economic Development, Transport and the Environment (ELY). There will be six Regional State Administrative Agencies and 15 Centres for Economic Development, Transport and the Environment.⁹⁰ By bringing together regional development functions, the reform aims to enhance the executive powers of the regional councils as authorities in developing the regions. The regional councils will be granted statutory responsibility for key planning and pre-emptive tasks in the regions. To better organize collaboration between the regional councils, the whole country will be divided into cooperation areas to deal with inter-regional issues.⁹¹ However, environmental NGOs have expressed concerns that the proposed changes in the regional administration will decrease the powers of the regional environment centres, as they now have to work together with centres for economic development. The regional environment centres have had an important role in developing the Operational Programmes in relation to the environment and hence the recent changes could have an impact on environmental integration. However, the interviews undertaken in September 2010, as part of the case studies, are overall optimistically cautious on the issue.

3.1.2 Environmental Assessments and Monitoring

The environmental assessments of the OP as well as of projects have several interesting features from which lessons can be learnt. The whole assessment procedure is set up in such a way that the integration of the environment is addressed on an appropriate level and detail combined with environmental project selection and prioritisation criteria and consists of an:

- adapted version of SEA Directive suitable for OP priorities;

⁹⁰ http://www.vm.fi/vm/en/05_projects/03_alku/index.jsp

⁹¹ http://www.vm.fi/vm/en/05_projects/03_alku/index.jsp

- SEA supported by more detailed assessment of projects;
- applicant, EIA panel and funding authority involved in project assessment;
- environmental project selection and prioritisation criteria (see section on conditional and complementary instruments); and
- overall funding target for environmentally positive projects (see section on conditional and complementary instruments);

The initial SEA of the Southern Finland OP was heavily criticised by the Commission desk officer in charge as the worst of the Finnish SEAs. This prompted a greater emphasis on the SEA, which was updated, but led also to increased efforts to integrate the environment better in other stages of the funding process. Hence, interventions and guidance by the Commission can have real impacts on the ground.

The SEA for the Southern Finland OP has been done to appropriate detail and corresponds to the general nature of the OP as well as the nature of the priorities. The main part of the SEA is a table where possible impacts are assessed for each priority based on:

- emissions (surface water, groundwaters, ground and air);
- consumption and production (reduction of waste, reuse and recycling of waste, energy savings, energy and resource efficiency, use of renewable raw materials, use of local resources);
- construction and society (use of existing infrastructure, quality and quantity of nature and recreational areas, cultural heritage and the environment);
- environment (coherence of nature areas, endangered and rare species, Natura 2000 areas);
- people (living conditions and the attractiveness of living areas, health and security, equality and skills);
- transport (availability to services and transport needs, increase in public transport and cycling, improved logistics);
- research and education (environmental technology, environmental skills and know-how);
- impacts on sustainable regional development;
- enterprises; and
- combined impacts.

These impact categories addressed in the SEA have been adapted to better suit the relevant issues in the OP as well as the aims of SDS. Note, however, that impact on climate change has not been included as a category at the time of the SEA but this omission has been rectified on project level and criteria setting. For each of the above categories the impacts have been assessed (using +, -, etc.). Each category is also followed by a short qualitative description.

This SEA is also used when assessing the environmental impacts of project proposals during the project application stage. The applicant is required to assess the environmental impacts of the project proposal by filling in a table and indicate whether a project is environmentally neutral (0), environmentally beneficial (+ or ++) or environmentally harmful (-). The categories assessed cover broadly those of the SEA with some exemptions/additions and include:

- Impacts on climate change (improving energy efficiency, increasing the use of renewable energy, mitigating the risks of climate change, reducing the amount of fossil CO₂ emissions)
- impacts on emissions (water, soil and air)
- impacts on production and consumption (reducing the amount of waste, waste re-use and recycling, energy and material efficiency, use of local renewable raw materials and services);
- impacts on the natural and built environment (landscape, cultural environment, biodiversity, Natura 2000 sites)
- impacts on people (living conditions and the attractiveness of living areas, health, safety)
- impacts on transport (curbing the increase of private car traffic, reducing the need of shipping, improving logistic and percentage of public transport and pedestrian traffic)
- impacts on research and training (environmental technology, use of environmental management systems and environmental knowhow and awareness);

Assessing the environmental impacts of project proposals is a key component of programme implementation but is not normally addressed by the SEA, which is focused on the programme level, where identified impacts are only at a general level. To address this, the Southern Finland SEA assesses also the environmental impacts of project proposals during the project application stage. In addition a project may also have indirect environmental impacts, such as increase in traffic, and hence the funding authority has to also consider the SEA and its categories in the assessment of project proposals. Therefore the SEA and its impact categories have a role to play in the assessment of projects as well.

In practice the quality control of the environmental assessment for project proposals is done in municipal EIA panels (assessment of Priority 1 to 4 projects) and Southern Finland EIA panel (Assessment of Priority 5 projects (Covering the whole region)). The project proposals that are submitted to the EIA panels are those that have been provisionally approved by the funding authority. The EIA panel assesses the quality of the environmental impact assessment done by the applicant and in case of any inconsistencies/concerns about the quality will inform the funding authority accordingly. Normally this entails a request by the funding authority to provide additional information. The role of the EIA panels is not only to address the quality of the proposals but also to identify any synergies and if there is a case for information exchange between certain projects. According to the OP, no projects with significant environmental impacts will be funded.

During the previous funding period a voluntary network of EIA working groups were established (Elli covering Southern Finland and Elly covering the municipalities). The focus of the network was on information exchange and training and worked well⁹². These networks were abolished as a consequence of the establishment of the new EIA panels for the 2007-2013 period. However, the formal nature of the new groups has removed most of the learning experiences provided by the earlier network, including regular presentations by staff from Ministry of the Environment.

⁹² Interview with Riitta Salasto September 2010.

Monitoring of the OP is based on the SEA Act. The monitoring data, along with other information, is reported in the annual implementation report. The main indicator of the number of projects with an environmentally positive impact is monitored. The other environmental indicators monitored are:

- CO₂ emissions from industry and energy production; and
- Proportion of projects reducing greenhouse gas emissions.

The use of the core indicator of environmentally positive projects and its 18.5 % target will be furthered described in the section on conditional or complementary measures.

4.0 Overview of environmental objectives, measures and allocations

Funding for environmental projects during the period 2000-2006 were mostly “physical projects”, such as improvement of wetlands etc. Under the current funding period the approach has been much more strategic with a focus on environmental awareness rising and environmental know how.

The Operational Programme identifies general, specific and operational objectives for the allocation of funds and are detailed in Table 10:

Table 10: Environmental aim and funded activities under Priority Axis

Priority Axes	Environmental aim	Description	Primary activities to be funded	Environmental project selection criteria
Priority Axis 1: Promotion of business activity	Promote transition to renewable energy sources	<ul style="list-style-type: none"> • Promote product development • Innovation • Move from fossil fuels to biofuels and other fuels from renewable sources 	<ul style="list-style-type: none"> • Testing and development of energy production from renewable energy sources, • Investments in expert advice required for renewable energy installations 	<ul style="list-style-type: none"> • Improved environmental know-how • Improvements in energy efficiency • Positive environmental impact
	For all aims		<ul style="list-style-type: none"> • Use of clean technology in SMEs • Increase of eco-efficiency and environmental awareness in enterprises 	
Priority Axis 2: Promotion of innovation activity and				<ul style="list-style-type: none"> • Improved environmental know-how

networking, and reinforcing knowledge structures				<ul style="list-style-type: none"> • Improvements in energy efficiency • Positive environmental impact
Priority Axis 3: Improving regional accessibility and operational environments	Control of Environmental risks and development of environmental tourism	<ul style="list-style-type: none"> • Control of environmental risks • Preparation for climate change • Protection of Baltic Sea, lakes and rivers • Protection of cultural environment • Development and promotion of environmental tourism 	<ul style="list-style-type: none"> • Developing conditions for environmental and cultural tourism • Projects protecting the Baltic Sea and waterways and promotion of ecoefficiency • Use of clean technology and control of environmental risks 	<ul style="list-style-type: none"> • Improving the wellbeing of the environment and society • Improved environmental know-how • Positive environmental impact
Priority Axis 4: Development of larger urban areas			<ul style="list-style-type: none"> • Improvements of the urban environment 	<ul style="list-style-type: none"> • Positive environmental impact • Improving the wellbeing of the environment and society • Improved environmental know-how
Priority Axis 5: Thematic Development at regional level			<ul style="list-style-type: none"> • Development of clean technology and clean technology clusters 	<ul style="list-style-type: none"> • Positive environmental impact • Improving the wellbeing of the environment and society • Improved environmental know-how

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

5.1.1 Development Path Analysis on planned investments overall

The funding per development path (Figure 6) and the share of EU funding per development path (Figure 63) are based on the interventions categories planned to be financed by EU funds in Southern Finland between 2007 and 2013. The analysis shows that most of the funding are allocated to development path E (39 %), which pursues environmental sustainability through eco-efficiency, and development path D (33 %), which covers activities to clean up pollution or invest into natural capital. The rest of the funding is distributed quite equally between the other development paths, with 7 % for development path B (compliance with EU environmental legislation), 7 % for development path C (pursuing the reduction of hazards and management of risks) and 4 % for development path F (activities that could potentially decouple economic activities from environmental pressures and facilitate behaviour change). 10 % of the funding has been allocated to investment categories that are deemed to have no impact on natural capital loss.

Figure 6. EU funding per development Path Development Path

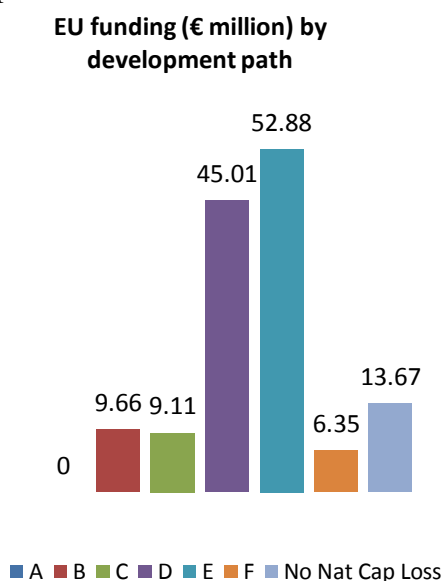
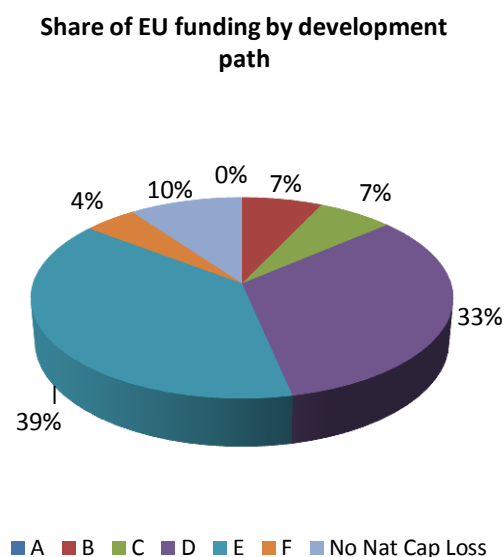


Figure 7. Share of EU funding per



5.1.2 Development Path Analysis of priority axes investment

The annual implementation report for Finland⁹³ provides information on the investment categories under which projects have been funded for each priority by the end of 2009. In addition detailed information for each project funded under the priority by the end of 2009 is available at the Structural Funds portal⁹⁴. This portal includes a brief description of every funded project. Hence it has been possible to assess in more detail the type of projects under each priority receiving Cohesion Policy funding up to 2009.

⁹³ http://www.etela-suomeneakr.fi/easydata/customers/eakr/files/eakr-ohjelma/vuosiraportti_2009_versio_0.1.1.pdf

⁹⁴ <https://www.eura2007.fi/rctiepa/projektilista.php?rahasto=EAKR&ps=40>

Priority Axis 1: Promotion of business activity

The main environmental aim of priority axis 1 is the promotion of business activity, with the environmental aim of promoting the transition to renewable energy sources. The total allocated budget for this priority is € 31.4 million (22.7 % of total budget). According to the annual evaluation report, € 14.5 million has been allocated to projects by the end of 2009. It has been distributed to the investment categories as shown in Table 11 .

Table 11. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	30.8 %	E
8	Other investment in firms	24.8 %	B
3	Technology transfer and improvement of cooperation networks	13.8 %	E
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	10.9 %	E
15	Other measures for improving access to and efficient use of ICT by SMEs	6.3 %	E
Rest	Categories in order investment size (largest first): 14, 4, 13, 5, 11, 7, 68, 45, 41 and 63	14.4 %	-

Most of the 614 projects funded so far under this priority are investments in machinery, building of new facilities/extensions, development of the manufacturing process, increase in production capacity, support for exports, market research, tourism promotion/development of facilities and business start-up costs.

Based on a broad analysis of the summaries for every project it is estimated that around 5 % are purely environmental projects, and these, cover composting, insulation development, energy efficiency in wood burning, waste water treatment, ecoplastics, recycling, wind energy company start-up costs and environmental management system projects. Also, according to the annual implementation report, 128 of the 614 projects had an environmentally positive impact⁹⁵ covering investments of € 4.6 million (31.7 % of allocated funds to projects), already exceeding the aim of funding € 4 million to environmentally positive projects during the whole funding period for this priority. Even so, based on the analysis of projects the investments categories 8 and 9 are mostly relative win-wins but with quite a strong component of absolute win-losses with many of the projects being building extensions or investments in new machinery. These win-losses are likely to have received funding from the investment category 8 “Other investment in firms”.

Priority Axis 2: Promotion of innovation activity and networking, and reinforcing knowledge structures

⁹⁵ [An environmentally positive project is defined in the OP to improve the state of the environment, increase environmental awareness and innovative environmental know-how or reduce environmentally harmful activities. The environment does not have to be the main aim of the project but the other impacts of the project cannot be such that overall the impact on the environment would be neutral/negative.](#)

The aim of this priority is the promotion of innovation activity and networking, and reinforcing knowledge structures. The total allocated budget for this priority is € 28.8 million (20.9 % of total budget). According to the yearly evaluation report, € 9.3 million has been allocated to projects by the end of 2009. It has been distributed to the investment categories as shown in Table 12.

Table 12. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
2	R&TD infrastructure and centres of competence in a specific technology	23.6 %	E
5	Advanced support services for firms and groups of firms	15.6 %	E
3	Technology transfer and improvement of cooperation networks	15.3 %	E
1	R&TD activities in research centres	13.6 %	E
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	7.0 %	E
41	Renewable energy: biomass	4.1%	F
Rest	Categories in order investment size (largest first): 14, 53, 39, 11, 15, 43. 59, 4, 80, 32, 76 and 63	20.8 %	-

Most of the 125 projects in this priority are investments in much more innovative and environmentally diverse projects than is the case for Priority 1. They include projects, such as, crafts from nature, promotions of renewable energy, research in biohybrids, , promote availability of local food, improvements in waste disposal, development of wind and bioenergy, the isolated Kimito island to become self- sufficient in energy, bio-energy education centre, research centre for renewable energy and environmental growth park (an eco-industry centre). According to the annual implementation report 28 of the 125 projects had an environmentally positive impact covering investments of € 3.8 million (40.6 % of the allocated funds to projects), already approaching the aim in the OP to fund in total € 5 million to environmentally positive projects during the whole funding period for this priority. Overall, many of the projects are win-wins with many of these closer to DPA F than DPA E.

Priority Axis 3: Improving regional accessibility and operational environments

The aim of this priority is the control of environmental risks and development of environmental tourism. The total allocated budget for this priority is € 28.6 million (20.7 % of total budget). According to the annual evaluation report, € 7.9 million has been allocated to projects by the end of 2009. It has been distributed to the investment categories as shown in Table 13 below.

Table 13. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
57	Other assistance to improve tourist services	41.7 %	D
54	Other measures to preserve the environment and prevent risks	11.0 %	C
58	Protection and preservation of the cultural heritage	10.7%	D
81	Mechanisms for improving good policy and	6.4%	F

	programme design, monitoring and evaluation		
61	Integrated projects for urban and rural regeneration	5.3%	D
53	Risk prevention	4.5%	C
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	4.4 %	E
Rest	Categories in order investment size (largest first): 49, 2, 60, 71, 6, 59, 56, 51, 9, 39, 41, 30, 11, 29.	16%	-

Most of the 113 projects in this priority are investments in culturally recognised areas and eco-tourism. The environmental projects are diverse without a clear emphasis on special project groups. Projects include those that aim to improve wellbeing, cultural heritage, the environment of coastal areas, eco-efficiency, waste-water treatment as well as research into local climate change impacts. According to the annual implementation report 44 of the 113 projects had an environmentally positive impact covering investments of € 3.2 million (39.6 % of the allocated funds to projects), with the aim in the OP is to fund in total € 10 million to environmentally positive projects during the whole funding period for this priority. Overall, the projects are mostly focused on the environment and are quite evenly divided between DPAs C, D and F.

Priority Axis 4: Development of larger urban areas (approximately of the total ERDF budget)

The aim of this priority is to improve the urban environment. The total allocated budget for this priority is € 6.6 million (4.8 % of total budget). According to the annual evaluation report, € 6.4 million has been allocated to projects by the end of 2009. It has been distributed to the investment categories as shown in Table 14.

Table 14. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	27.6 %	E
58	Protection and preservation of the cultural heritage	23.3 %	D
59	Development of cultural infrastructure	17.7 %	D
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	11.9 %	E
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...)	6.6 %	E
Rest	Categories in order investment size (largest first): 63, 61, 79, 66, 75 and 56	20.8 %	-

So far only 18 projects have been funded under this category and they tend to be more general in their nature, such as “better metropolitan areas for citizens” “scheme to improve environmental education in schools” etc. Overall the projects are more or less equally divided between those that have an environmental focus and those with a cultural focus. According to the annual implementation report eighth of the eighteen projects had an environmentally positive impact, covering investments of € 1.3 million (56.6 % of the allocated funds to

projects), already approaching the aim in the OP to fund in total € 1.6 million to environmentally positive projects during the whole funding period for this priority.

Priority Axis 5: Thematic development at regional level

The aim of this priority is to fund strategic projects that cover the whole region. The total allocated budget for this priority is € 37.1 million (26.9 % of total budget). According to the yearly evaluation report, € 27.9 million has been allocated by the end of 2009. It has been distributed to the investment categories as shown in Table 15.

Table 15. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
3	Technology transfer and improvement of cooperation networks	31.9 %	E
1	R&TD activities in research centres	14.6 %	E
11	Information and communication technologies	9.7 %	E
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	9.1 %	E
43	Energy efficiency, co-generation, energy management	6.6 %	E
63	Design and dissemination of innovative and more productive ways of organising work	5.5%	No Nat Capital Loss ⁹⁶
28	Intelligent transport systems	5.0%	E
53	Risk prevention	4.9%	C
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	4.7%	E
Rest	Categories in order investment size (largest first): 71 and 59	7.7%	-

There are 26 projects funded in this priority and these include projects to improve transport logistics, monitor eco-efficiency, sustainable consumption and production, service sector innovation and innovation through clusters.

According to the annual implementation report, 10 of the 26 projects had an environmentally positive impact covering investments of € 4.3 million (42.7 % of the allocated funds to projects), already approaching the aim in the OP to fund in total € 5 million to environmentally positive projects during the whole funding period for this priority.

Priority Axis 6: Technical assistance

This priority covers technical assistance. The total allocated budget for this priority is € 5.5 million (4.0 % of total budget). According to the yearly evaluation report, € 1.9 million has been allocated to projects by the end of 2009. It has been distributed to the investment categories as shown in Table 16.

⁹⁶ no identifiable environmental impacts

Table 16. Share of funds per investment category

Investment Category		Percentage	Suggested DPA
85	Preparation, implementation, monitoring and inspection	89.6%	no nat. capital loss
86	Evaluation and studies; information and communication	10.4%	no nat. capital loss

There are 26 projects funded in this priority and mostly for information/dissemination/administration of ERDF. None of the projects are environmental and there is no target for projects to be environmentally positive.

5.2 Win-Wins and Win-losses

Based on the above analysis (type OP projects funded and projects estimated to have an environmentally positive impact) it is possible to estimate how the priority interventions contribute to win-wins and win-losses for each priority in the South Finland OP as shown in Figure 8.

Figure 8. Priority interventions for win-wins and win losses

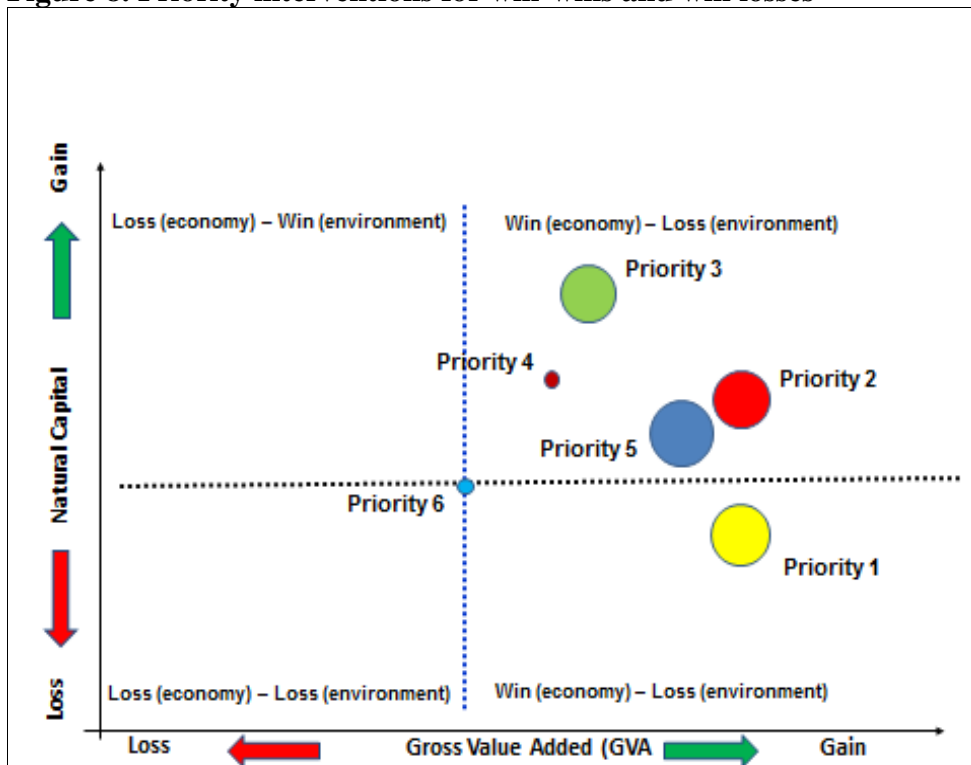


Figure 8 estimates how the different priorities are placed in terms of their impact on/trade-off between natural capital and gross value added. The size of the circles corresponds to the overall budget of the priority. It can be seen that most of the interventions funded by the priorities are situated in the win-win section of the trade-off figure. Priority 1 (promotion of business activity) is the only priority that is estimated to be a slight win-loss, mostly due to the type of projects funded under investment category 8 (other investment in firms), such as building extensions of factories. There is a similarity between the aims of Priority 2

(Promotion of innovation activity and networking, and reinforcing knowledge structures) and Priority 1 but the projects funded by Priority 2 are more innovative/environmentally friendly. Hence, based on the Finnish case study, it can be recommended that a focus on the type of business support proved by the investment categories funded under Priority 2 are better for the promotion of business activity than those under Priority 1. Priority 3 "Improving regional accessibility and operational environments" has a strong focus on reducing environmental risks and the development of environmental tourism and the strongest gain in natural capital. Priority 6 is funding technical assistance, mostly support for ERDF, and hence mostly neutral in its impact.

A project that aims to reduce the negative impact of transport logistics through a more strategic approach is funded under Priority 5. This project aims to develop environmental aspects of transport logistics to reduce lorry traffic (and queues) to Russian boarder though Southern Finland, including the role of ports as an entry point top Finland.

5.3 Use of conditional or complementary instruments

There are two main aspects to the Southern Finland OP that can be perceived as conditional or complementary instruments. These are the project selection criteria as well as the 18.5 % target of all programmes to have an environmentally positive impact. An environmentally positive project is defined in the OP as such a project that improves the state of the environment, increases environmental awareness and innovative environmental know-how or reduces environmentally harmful activities. The environment does not have to be the main aim of the project but the other impacts of the project cannot be such that the overall impact on the environment would be neutral/negative.

There are six main selection criteria for project proposals and "environmental impacts" is one of these. These main criteria apply to all priorities and consist of the following three sub-categories

:

- promoting environmental know-how and environmental management;;
- impacts on consumption and production, production, energy use, emissions, transport and climate change; and
- welfare factors promoting society and the environment.

These criteria were initially triggered as a response to the criticism of the SEA by the Commission. In addition the percentage of funding towards environmentally positive projects was monitored during the programme period 2000-2006 and the positive experience of these projects was recognised. As a consequence, Mari Kuparinen, the Programme Leader of the Southern Finland OP, suggested that environmental project selection criteria ought to be included as a main project selection criteria based on the aims of the OP. Her suggestions were accepted at a management committee meeting on the Southern Finland OP. At the same time Western and Eastern Finland were also discussing the possible inclusion of environmental selection criteria but decided not to include these. Mari Kuparinen assumes that one reason could be that private funding is more important to these regions and there were concerns, even if misplaced, that environmental criteria would have a negative impact on private funding.⁹⁷

⁹⁷ Interview with Mari Kuparinen September 2010.

The Ministry of the Environment helped to develop these criteria further as well as their scoring and assessment. The weighting of the environmental criteria of the Southern Finland OP compared to the criteria of the other Finnish OPs are shown in Table 17 .

Table 17. Comparison of weightings between environmental criteria of Finnish OPs.⁹⁸

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

As can be seen from the table Southern Finland has clearly the highest weighting for environmental criteria. But how has this prioritisation of environmental projects delivered on the ground compared to the other Finnish OPs? The annual implementation report has looked at the percentage and number of environmentally positive projects (in brackets) in all Finnish OPs, as shown in Table 18.

Table 18. Environmentally positive projects funded under Finnish OPs

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

As we can see from the table the number of environmentally positive projects funded is much higher in Southern Finland and this, at least implies, that the environmental prioritisation for environmentally friendly projects has had an impact on the proportion of environmentally positive projects funded. The smaller difference in the percentage of environmental positive projects in priority 3 is likely to be a consequence of the environmental focus of this priority.

6.0 Implementation and absorption

The implementation of the programme in terms of projects funded has already been discussed in section 5.

6.1 Absorption

As shown in Section 5 the funding for projects that have a positive environmental impact has already been achieved for most of the priorities. The funds spent for each priority by the end of 2009 are also shown in Section 5.

⁹⁸ Kallio, T. (2009), Environmental Integration in the Implementation of Structural Funds Programmes in Finland, Finnish Environment Institute, Helsinki 2009

Overall co-funding has been more difficult to find because of the financial crisis. There are no clear indications that certain type of environmental projects would have suffered as a consequence of the financial crisis. However, applications covering renewable energies seem to be increasingly popular, both in terms of public and private funding. This reflects also the interest of municipalities to co-fund projects that help them to meet/go beyond future legal requirements.⁹⁹

The Finnish Funding Agency for Technology and Innovation (TEKES) is publicly funded organisation for financing research, development and innovation in Finland. Historically the aims of TEKES have been quite similar to those stated in the OP. The Centres for Economic Development, Transport and the Environment incorporates TEKES regional departments as well and the Centres are able to distribute some of the priority 1 funds through TEKES. During the current period the proportion of funds to be allocated through TEKES is around 5 %. However, most of this money is not absorbed. One of the main reasons for this is that the state funds and Cohesion Policy funds compete with each other and the applicant rather applies for state funding, as it is perceived less bureaucratic. Hence Cohesion Policy funds are crowding out public funding.

7.0 Conclusions

The most interesting aspect of the Southern Finland OP is the use of environmental assessments (SEA and project assessment) and the role and weighting of project selection criteria. The impact categories addressed in the SEA of the regional OP for Southern Finland have been adapted to better suit the relevant issues in the OP as well as the aims of the SDS. Also the whole assessment procedure is set up in such a way that the integration of the environment is addressed on an appropriate level and detail combined with environmental project selection and prioritisation criteria. In addition the SEA is used by project applicants to assess the environmental impacts of project proposals during the project application stage. Hence the funding authority has to also consider the SEA and its impact categories in assessing projects.

The Southern Finland OP has also an EIA panel in place that is, among other things, responsible for the quality of the environmental impact assessment done by the applicant and in case of any inconsistencies/concerns about the quality will inform the funding authority accordingly. No projects with significant environmental impacts will be funded.

A more detailed assessment of priorities has been undertaken based on investment categories and projects funded and trade-offs assessed. Based on the Finnish funding experience the investment categories under Priority 2, with a focus on innovation, research and business development, could also be better suited for the promotion of business activities under Priority 1, which currently supports win-loss investments under category 8 (other investment in firms), such as building extensions to factories. Even if these impacts cannot be regarded as environmentally significant they indicate the importance of emphasising innovation (as in Priority 2) rather than general business support (as in Priority 1).

The Southern Finland OP has also set targets for funding “environmentally positive projects” (included as a main indicator) as well as having a considerably higher weighting for environmental project selection criteria. This has also been reflected in the higher number of

⁹⁹ Interview with Mari Kuparinen, September 2010.

environmentally positive projects funded compared to the other Finnish OPs, with much lower weighting for environmental project selection criteria.

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9.0 Interviewees

- Mari Kuparinen, Programme Leader of the Southern Finland OP
- Riitta Salasto, Uusimaa Environment Centre, Member of the EIA Panel
- A number of Participants at the conference on the development of Structural Funds, Helsinki, 9.9.2010

Table 19. Allocation of EU budget to the different categories of expenditures

Investment Categories	Description	Budget EU (€ million)
1	R&TD activities in research centres	9664418
2	R&TD infrastructure and centres of competence in a specific technology	9112166
3	Technology transfer and improvement of cooperation networks ...	10354734
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	11045049
5	Advanced support services for firms and groups of firms	5798651
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	4694146

	(...)	
7	Investment in firms directly linked to research and innovation (...)	5522525
8	Other investment in firms	7593471
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	7317345
11	Information and communication technologies (...)	8007661
13	Services and applications for citizens	8974103
14	Services and applications for SMEs	5936714
15	Other measures for improving access to and efficient use of ICT by SMEs	5936714
41	Renewable energy:biomass	1932884
43	Energy efficiency, co-generation, energy management	1932884
51	Promotion of biodiversity and nature protection (including Natura 2000)	1932884
52	Promotion of clean urban transport	1932884
53	Risk prevention (...)	2761262
54	Other measures to preserve the environment and prevent risks	3313515
56	Protection and development of natural heritage	966442
57	Other assistance to improve tourist services	1932884
58	Protection and preservation of the cultural heritage	966442
60	Other assistance to improve cultural services	3037389
61	Integrated projects for urban and rural regeneration	2347073
63	Design and dissemination of innovative and more productive ways of organising work	3037389
66	Implementing active and preventive measures on the labour market	690316
68	Support for self-employment and business start-up	966442
70	Specific action to increase migrants' participation in employment ...	690316
80	Promoting the partnerships, pacts and initiatives through the networking of relevant stakeholders	1380631
81	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	2761262
85	Preparation, implementation, monitoring and inspection	4141894
86	Evaluation and studies; information and communication	1380631
TOTAL		€ 138063117

1.7 FRANCE: ADAPTATION TO CLIMATE CHANGE IN COASTAL AREAS (LANGUEDOC-ROUSSILLON, FRANCE)

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1.0 Executive summary

- The main environmental issues in the Languedoc-Roussillon region are risks of flooding and marine submersion, littoral vulnerability, insufficient number of water as well as waste treatment plants, air quality, and population increase.
- The major share of total funding for the region (EU, national, regional) has been allocated to Axis 1 of the Operational Programme (OP) (Developing innovation and knowledge-based economy, factors of growth and competitiveness) while the highest percentage of ERDF funding is allocated to Axis 2 of the OP (Reducing the vulnerability of territories, guaranteeing their attractiveness and environmental quality and limiting GHG emissions). Measures for the adaptation of infrastructure to climate change belong to the second axis.
- Current governance mechanisms enable decision makers to implement projects in an efficient manner. However, the overall assessment of ERDF impacts on the environment is only partially developed, whereas at the project level an efficient follow up seems to be in place. An improvement could be the rationalisation of indicators to ensure that the analyses are accurate.
- Erosion and marine submersion are tackled by measures promoting adaptation to climate change, listed under Axis 2. Within this Axis, measure 2 on ‘littoral protection and rehabilitation of major natural sites’ particularly focuses on this objective.
- The Strategic Environmental Assessment (SEA) has identified few win-losses and has provided conditionality measures that can be considered as flanking measures. The Environmental Assessment reached the conclusion that all in all, the environment was sufficiently taken into account in the OP.
- The rehabilitation project ‘Lido de Sète’ takes an innovative approach of ‘strategic retreat’ and gives priority to ‘soft’ techniques aiming at limiting the erosion process. This approach is an example of Integrated Coastal Zone Management (ICZM) and is in line with sustainable development. Nevertheless, the project could have been more exhaustive in terms of protection of biodiversity and marine ecosystems.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	X
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and context

The subject of this case study is the adaptation to climate change in coastal areas in the French region of Languedoc-Roussillon.

This study will focus on the coastline rehabilitation between the cities of Sète and Marseillan (the zone is called ‘Lido’). The ‘Lido de Sète’ project is the biggest of eight ‘exemplary operations’ aiming at dealing with coastal erosion and the impacts caused by human activities on natural sites of this region¹⁰⁰. This case study addresses the integration of sustainable development in the project and in particular the integration of two environmental aspects: climate change and biodiversity.

At the world level, climate change entails a rise in sea level and seems to be the main cause of more frequent storms of significant intensity. These climate phenomena together with the human action have amplified the natural erosion of Languedoc-Roussillon’s littoral zone and have led to public interventions aiming to limit this phenomenon. The approach taken to adapt to climate change has shifted from ‘hard’ solutions such as the construction of sea walls and rip-raps (which fail to reduce the exposure to risks of submersion in the long term; and moreover, their economic and environmental effectiveness depends on the magnitude – highly uncertain – of climate change) to soft solutions. These softer solutions are based on the restoration of beaches and dunes’ natural dynamics, and follow a comprehensive and long-term approach in line with the concept of integrated coastal zone management (ICZM). This shift towards softer solutions is supported by the evidence that the local ecosystem of beaches and dunes provides services and therefore plays a significant role in the functioning of local economy.

Languedoc-Roussillon is particularly exposed to marine submersion risks, since littoral spaces are composed of very vulnerable deltaic plains¹⁰¹. As confirmed by the interviews with stakeholders, public authorities started to consider the issue of submersion in 1982, when a storm almost entirely destroyed the road located on the shoreline between Sète and Marseillan.

The Lido from Sète to Marseillan is a 2 kilometre wide and 12 kilometre long sand beach separating the Mediterranean Sea from the pond of Thau. It is located between the cities of Sète and Marseillan in the Languedoc-Roussillon region. The action of waves and the impacts of major storms have led to a constant reduction of the Lido’s surface. This erosion phenomenon was severely aggravated by human actions such as the construction of dams on the upstream river preventing sediment from reaching the beach, anthropogenic pressure related to tourism, etc. Generally, human actions aiming at ‘fixing’ the shore and hence hampering its natural backwards swerving have proved

¹⁰⁰ Eight sites have been identified by the CIADT in September 2002 to be rehabilitated by 2015: Great site of the Little Camargue, Lido of the Little and Great Travers, Lido from Villeneuve les Maguelonne to Frontignan, Lido from Sète to Marseillan, the western coast of Vias, the island of Coussoules, the pond of Canet Saint Nazaire, the site of Paulilles..

¹⁰¹ Guide d’élaboration des PPR submersion marine en Languedoc-Roussillon, Octobre 2008, p. 2, available at: www.pole-lagunes.org/web/pdf_files/Guide%20PPR%20submersion%20octobre%202008_309Ko.pdf

to be detrimental in the long run. On the Lido, the road constituted a ‘hard point’ amplifying the actions of waves and contributing to the loss of sand. Additionally, waves regularly damaged the road and entailed significant reparation costs. In order to stop the erosion escalating and to preserve this exceptional site, the ‘Agglomeration of Thau’¹⁰² was designated in 2007 as the project leader for the rehabilitation programme of the Lido.

2.1 Current status of the environment

The economic development of Languedoc-Roussillon is essentially based on its strong attractiveness thanks to its natural assets. Urbanisation has been quite anarchic since the 50’s and the development of tourism, and the region now seeks to ensure the sustainability of its natural areas. To achieve this aim, three key issues for 2030 have been identified in order to ensure sustainable development¹⁰³:

- Strike a balance between tourism and population growth and biodiversity preservation;
- Strike a balance between economic growth and social development;
- Strike a balance between territories’ cohesion and regional competitiveness.

Environmental issues are encompassed in the first and the third objective, with the first one dealing with biodiversity and nature protection and the third one with air pollution, energy consumption, etc.

Within the OP and the SEA, Languedoc-Roussillon has developed an environmental report which analyses the situation of the environment and the environmental impacts of the Operational Programme¹⁰⁴. The environmental challenges and the natural assets of the Languedoc-Roussillon region are presented below.

Table 20: Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Air quality and human health	<ul style="list-style-type: none"> • Emissions of atmospheric pollutants represent a major threat for the population because of the high sunlight, the growing road traffic and the presence of various industrial sites in urban zones. Emission limit values are systematically exceeded.
Energy consumption and climate	<ul style="list-style-type: none"> • The demand for energy is rising, mainly due to the demographic growth and increased needs in terms of domestic heating and transportation.

¹⁰² The Agglomeration of Thau represents cities located around the pond of Thau, among which Sète and Marseillan.

¹⁰³ They have been developed in the Regional scheme of regional development (SRADDT)

¹⁰⁴ Prefecture of Languedoc-Roussillon, Evaluation Stratégique Environnementale du programme opérationnel pour la période 2007-2013 – Rapport d’évaluation stratégique environnementale (tâche 6) contenant le rapport environnemental, March 2007, available at : www.languedoc-roussillon.eu/fonds/doc_fonds/eval_strat_env2007mars.pdf

change mitigation	<p>The region abundant natural resources and a great potential for development of renewable energies (solar wind, biomass, etc). The region is notably France's leader in terms of wind energy development – 44% of the 8% of the national wind power production is generated here. It is also the second biggest producer of solar energy (photovoltaic and thermal solar) and has important biomass resources due to its large forest areas¹⁰⁵. In 2008, the clean and renewable energy production sector has been very dynamic, with a 5% increase in the production of wind energy and an exponential progress of photovoltaic production (more than 40%), notably due to the impetus of financial incentives¹⁰⁶.</p> <ul style="list-style-type: none"> • GHG emissions are constantly increasing in the region. The transportation sector is the principal polluting sector, with 58% of the total energy-related GHG emissions in 2003. At the same time, the region's strategic location (it is part of the "Mediterranean Arc") makes it a territory of transit and exchanges.
Water resources	<ul style="list-style-type: none"> • Water quality is a specific issue in the region. Even if water quality in Languedoc-Roussillon can be considered as relatively good (60 % to 80% of the permanent superficial hydrological network of Languedoc-Roussillon has a good chemical and biological quality), some areas fall within the category of high pollution risk. The problems identified are water eutrophication¹⁰⁷ related to nitrate pollution (agricultural activities) and pesticides. • The region must adapt its drinking water and water decontamination equipment Some processes have been already developed (System of planning and management of waters: SAGE)
Natural risks	<ul style="list-style-type: none"> • In Languedoc-Roussillon, 98% of the towns and villages are exposed to at least one of the following natural risks: floods, forest fires, landslides, avalanches, erosions or seismic risks. • The region has to face the very specific challenge of littoral landscaping, which encompasses inter alia prevention against natural risks such as erosion. Despite being a key element of Languedoc-Roussillon's tourism activity and competitiveness, the littoral development has been quite disorganized (in terms of urbanism) and environmental concerns were not always considered as a priority. Hence in 2000, the State and the Region have set up a specific axis

¹⁰⁵ See Operational Programme, Part 1, p. 18.

¹⁰⁶ Direction Régionale de l'Industrie, de la Recherche et de l'Environnement (DRIRE), *L'énergie en Languedoc-Roussillon en 2008 – Repères chiffrés*, available at : www.languedoc-roussillon.drire.gouv.fr/pages/Energie/Publications/CHIFFRES_ENERGIE_2008.pdf

	<p>dedicated to the prevention of erosion and the rehabilitation of emblematic sites in coastal areas within the ‘Contrat de Plan État-Region’ (CPER). In this framework, eight “operations with an exemplary character” were identified in 2002. These projects aim at preventing erosion, restoring lagoons, setting up public accesses to beaches, managing car parking, etc.</p>
Biodiversity	<ul style="list-style-type: none"> • About 65% of the Languedoc-Roussillon region is covered by natural areas. Among all the French regions, Languedoc-Roussillon is the one with the largest surface covered by Natura 2000 – with 144 sites accounting for 31,8% of the region’s territory. It is also France’s richest region in terms of diversity of animal and plant species (70% and 48% of France’s species respectively). Overall, when including the three Regional Natural Parks (PNRs), around 50% of the region is covered by at least one programme of preservation and restoration of biodiversity and landscape. • The rapid development of human activities deeply transforms natural media, leads to a reduction of species and harms ecosystems. The two major causes of this degradation are agriculture (through the intensification of certain farming practices such as the use of pesticides in viticulture and fruits cultivation) and urban and tourism development, which leads to an important consumption of natural areas, a fragmentation of biological corridors, ecosystems disruption, etc. Coastal areas are very fragile ecosystems and have to be carefully monitored and sought-after, since they provide valuable services to society: they can serve as natural reserves, leisure areas, transit zones and host a wide variety of economic and rural activities as well as urban areas.

Additionally, the region has always been a territory of transit and exchanges due to its strategic location. Languedoc-Roussillon has 3 ports with important activity (trade), 3 motorways, 5 airports and has a growing rail network of around 1 400 km.

The Lido de Sète’ assets are mainly related to the variety of ecosystems and richness of biodiversity. The Thau pond is bordered by various natural areas of strong ecological interest: salt marshes, humid grasslands, etc. The pond holds a large concentration of eelgrass¹⁰⁸, particularly important for the biological stability of the aquatic environment¹⁰⁹. The presence of rare plants and the bird nesting function of the area have made its protection necessary through the use of different regulatory classification tools. The Lido is notably classified as a Natural Zone of Ecological, Faunistic, and Floristic Interest (ZNIEFF) and as an Important Zone for Birds Conservation (ZICO).

¹⁰⁸ Website of the Thau agglomeration, available at: www.thau-agglo.fr/Le-Lido-et-son-identite.html

¹⁰⁹ French Institute for marine research and exploitation, description of zoosteres: www.ifremer.fr/delar/zosteres.htm

At the Lido level, the challenges include:

- a) Limitation of erosion and marine submersion: the Lido's surface is decreasing by approximately one hectare per year. Specialists estimate that by 2020 the Lido could disappear and the Thau pond will be seriously threatened by marine submersion if no action is undertaken¹¹⁰.
- b) The protection and preservation of biodiversity: the Thau pond circumscribing the Lido on one side is used for shellfish farming purposes and sees its oyster stock frequently decimated because of eutrophication.
- c) The management of the pressure caused by mass tourism during the summer season.

2.2 Current investment context

The table below shows the financial composition of the OP in Languedoc-Roussillon. The OP has identified four priority axes, each of them being allocated a budget comprised of national and EU contributions.

Table 21 Breakdown of finances by Priority Axis, in €¹¹¹

	Objectives	EU Contribution	National Public Contribution	Total Public Contribution
Axis 1	Developing innovation and knowledge-based economy	110 000 000	119 600 000	229 600 000
Axis 2	Reduce vulnerability of territories, improve attractiveness and environmental quality and limit GHG	92 420 027	151 500 000	243 920 027
Axis 3	Improve access (ICT and infrastructure) and balance the development of territories	62 000 000	105 000 000	167 000 000
Axis 4	Technical Assistance	6 000 000	4 000 000	10 000 000
	Total	270 420 027	380 100 000	650 520 027

¹¹⁰ Agglomération de Thau (2007) Press kit

¹¹¹ Document de Mise en œuvre (DoMo) ERDF, 'Compétitivité régionale et emploi' (2007-2013) – Languedoc-Roussillon, April 2009, p. 8.

It appears that interventions directly supporting the environment outweigh indirect interventions. However, Axis 2 which includes the highest number of interventions directly in favour of the environment consists of only 31% of the total OP budget. 14% of the investments are dedicated to the theme ‘environment’ and 13% to ‘renewable energies and clean urban transport’. The remaining 73% are allocated to Innovation and technologies transfer (41%), Information society (9%), Infrastructure and inter-modality (6 %), territories (15%) and Technical assistance (2%).

The Table below presents a list of indirect and direct interventions in the environment of the OP.

Table 22 Environment related interventions of the OP

Indirect investments in the environment
<ul style="list-style-type: none"> • Interventions to promote clusters and handle the environmental impacts by imposing labels (Axis 1) • Intervention supporting the dematerialisation of exchanges (Axis 3) • Support of innovating projects in rural areas • Support of projects in the fields of tourism, culture and sport which integrate ICT or renewable energies (Axis 3) • Interventions to promote and develop inter-modality and transport means alternative to road transport (Axis 3)
Direct investments in the environment
<ul style="list-style-type: none"> • Interventions to prevent natural risks in order to protect populations and economic activities (Axis 2) • Interventions to protect the coast and rehabilitation of major sites (Axis 2) • Interventions to encourage energy efficiency, develop renewable energies, reduce GHG emissions (Axis 2) • Measures aiming at preserving water quality and the aquatic environment and sustainable management of water resources (Axis 2) • Intervention aimed at guaranteeing the protection and promotion of species, sites of high natural value and landscapes (Axis 2) • Evaluation of the contribution of ICT to sustainable development (Axis 3)

Table 4 focuses on Axis 2 and provides a breakdown of the funds allocated through the OP (European funds as well as national) by main categories of measures. According to the table, measure 1 on ‘Risks prevention’ and measure 3 on ‘Renewable energies’ represents the highest percentage of the OP allocations. Nevertheless, measure 2 on ‘Littoral landscaping’ which contains intervention on adaptation to climate change is also allocated a significant share of ERDF funds (20%).

This table also shows that the private sector does not invest in measures planned in Axis 2 with the exception of renewable energies. This indicates that phasing out the private investment by public intervention is likely to be limited for these measures, which is not the case for renewable energies, considered as more profitable investments (at least in the short to medium term) and likely to attract more private investors.

Table 23: Detailed breakdown of finances for Axis 2 of the OP in €¹¹²

PO ERDF	ERDF		National counter-parts				Total national
			Public			Private	
	Amount in €	% of OP	State	Region	Other		
Measure 1 Risks prevention	30 000 000	11.1	20 000 000	14 000 000	16 000 000	-	50 000 000
Measure 2 Littoral landscaping	20 000 000	7.4	17 000 000	9 000 000	12 000 000	-	38 000 000
Measure 3 Renewable energies	33 420 027	12.4	-	25 000 000	25 000 000	20 137 193	70 137 193
Measure 4 Aquatic media quality	7 000 000	2.6	-	3 500 000	7 000 000	-	10 500 000
Measure 5 Biodiversity	2 000 000	0.7	1 250 000	1 250 000	500 000	-	3 000 000

3.0 Governance mechanisms

The State's representative authority in the Region (Préfet de Région) is in charge of the management of the OP since it is legally responsible for European funds. Nevertheless, the Préfet often delegates the management of projects to the decentralised representatives of the Region (Regional Council), notably when a project is significantly co-financed by the latter. In any case there is a co-steering between State and Region representatives, which means that the decision is collective.

The decision is taken at three levels:

- At the very basis of the entire process, Technical Committees assess the relevance and feasibility of the project. One of them is in charge of measures adopted in the field of the environment.
- A public consultation of all possible stakeholders (NGO's, companies, private individuals, etc.) is undertaken by the Steering Committee in order to raise possible issues or highlight specific points.
- After this, the Programming Committee selects the projects that will be financed by European funds. This Committee also has the responsibility of creating and submitting the annual and final reports of the programme to the Follow-up Committee. It ensures the global management of the OP.

¹¹² Document de Mise en œuvre (DoMo) ERDF, 'Compétitivité régionale et emploi' (2007-2013) – Languedoc-Roussillon, April 2009, p. 9.

- The Follow-up Committee ('Comité de Suivi des Programmes Européens') meets two or three times a year and gathers regional representatives (Préfet de Région, Préfet de Département) and EU representatives (European Commission, European Parliament). This Committee is the only one able to allocate funds or re-allocate them from one measure to another. The local collectivities can participate in those meetings and present the advancement of their projects.

The Regional Council considers that these mechanisms of governance allow the authorities to efficiently take into account sustainable development principles. According to local authorities, the committee in charge of environmental aspects was efficient during the Lido project and ensured that the environment was appropriately taken into account. Various stakeholders also stated that the population attended the public presentations of the project in large numbers and that the Steering Committee was very active and helpful.

Considering governance tools, a Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis has been performed in the SEA and has led to the definition of major issues. The OP's strategy corresponds to the regional issues identified during the diagnosis phase.

According to a stakeholder interviewed at the regional level, evaluations imposed by the European Commission have proven to be necessary and have enabled the regions to ensure a better follow-up of public policies. However, regional authorities have noticed that the length and general character of these evaluations were sometimes constraining their efficiency. Therefore, the OP mid-term assessment (currently drafted) does not assess the entire program but focuses on certain themes such as innovation and energy. This limitation of scope should contribute to a qualitative improvement regarding the content of the impact assessment.

At the local level, public authorities that were interviewed acknowledged that the mandatory use of evaluations is positive and enabled them to measure the project results more efficiently.

As regards the follow-up, the ERDF implementation document¹¹³ provides indicators for each action planned under the measures of Axis 2. These indicators present an initial value on the basis of which an evaluation can be done, at the regional, national or EU levels. Nevertheless, indicators were described by the person interviewed at the regional level as too numerous. It seemed to pose problems for external consultancies which have to make impact assessments in short periods of time and cannot necessarily take 200 indicators into account efficiently. They sometimes also face difficulties in accessing the data. Therefore, a focus on the most strategic indicators could be more appropriate. The respondent underlined that some efforts had already been made to rationalise these indicators. The creation of an Observatory in charge of gathering and analysing the indicators has also been suggested. Another stakeholder at the regional

¹¹³ Document de mise en oeuvre (DoMo)

level stated that assessments of the impacts of Cohesion policy funds on the environment were not sufficiently done and that they were still at an early stage.

At the Lido level, local authorities are currently setting up a list of environmental and socio-economic indicators which will enable them to ensure the project's follow-up. Cameras have also been installed along the shore to monitor the evolution of the beach.

At the regional level, a significant emphasis is put on sustainable development which is visible in two different approaches. The first approach results from the need to rehabilitate the littoral zone, stop the erosion process and reduce the anthropogenic impacts caused by demographic pressure. In addition to the obvious environmental rationale, economic considerations such as ensuring the sustainability of tourism and avoiding hazards for the population and destruction due to marine submersion, have also motivated this strategy. The second approach is based on a desire to protect and promote the natural assets of the region, and to organise human activities (e.g. tourism) around them. Both these approaches have an influence on decision makers and compel them to integrate sustainable development into the planning and decision making process. It must be noted that the second approach is only emerging.

Concerning the management of environmental risks, persons interviewed at national and regional levels stated that the role of the ERDF is limited, principally because France has a well-developed land-planning regulatory framework and because adaptation to climate change is starting to be taken into account in the policies developed at the national level. However, even though France has developed a strong regulatory framework and various land planning documents, stakeholders also agreed on the fact that these were not sufficiently respected and applied at the local level. The main problem seems to lie in the lack of translation of national planning guidelines and documents into local mandatory planning documents.

However, at the local level, the ERDF seems to have a more significant impact. It pushes public authorities to take the environment into account to a larger extent due to the strict conditions associated with the allocation of funds. Local authorities have to take into account several considerations which are sometimes contradictory (considerations linked to politics, balance between different economic interests etc.) and the involvement of ERDF certainly shifts the balance in favour of sustainable development, although there is room for improvement.

4.0 Overview of environmental objectives, measures and allocations

As shown in Table 24 below, the OP tackles the issue of adaptation to climate change in the second measure 'Littoral landscaping' of Axis 2. The creation of a specific measure to deal with littoral landscaping and notably the risks of coastline erosion and marine submersion, while Measure 1 already deals with 'Risks prevention', highlights the importance given to littoral issues in general, and to erosion and marine submersion in particular.

It is also interesting to note that the first action of Measure 2 is dedicated to the rehabilitation of the eight sites identified in 2002 by the Inter-ministerial committee for the development of territories¹¹⁴ (including the Lido Sète-Marseillan) whereas the second action offers funding to other projects aiming at preventing the risks of erosion and marine submersion. In other words, a comprehensive protection of the littoral is ensured.

Table 24: Place of adaptation to climate change (prevention of coastline erosion and of marine submersion) in the Operational Programme 2007-2013

Axis	Measures	Actions dealing with adaptation to climate change
Axis 1 Innovation R&D	--	--
Axis 2 Environment	Measure 1 Risks prevention	--
	Measure 2 Littoral landscaping	Action 2.2.1. Rehabilitate coastal emblematic sites in accordance with integrated coastal zone management (ICZM)
		Action 2.2.2. Implement the innovative strategies to prevent the risks of coastline erosion and of marine submersion
		Action 2.2.3. Improve knowledge and develop research on the evolution of coastline and the risk of marine submersion
	Measure 3 Renewable energies	--
	Measure 4 Aquatic media quality	--
Measure 5 Biodiversity	--	
Axis 3 Accessibility	--	--
Axis 4 Technical assistance	Measure 1 Management support	Actions 4.1.1 à 4.1.3 Support to the management, follow-up and control system and to the evaluation of the OP and the projects

¹¹⁴ Comité Interministériel de l'Aménagement et du Développement du Territoire (CIADT)

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

Box 2 provides examples of possible win-wins between economic and environmental considerations in the entire OP.

Box 1 – Examples of possible win-wins

Research and Innovation: Financial support to research and innovation could have indirect positive impacts on the environment, as in the case of innovative projects promoting technological shift. However these impacts will depend on the type of projects developed. It will also contribute to increasing long-term productivity and improving the competitiveness of regional businesses, leading to positive effects on long-term economic growth. For instance Measures 2 of Axis 1 provide the “settlement of conditions likely to increase the competitiveness of business ventures at each stage of their development”

Protection of the population and economic activities from natural risks: The SEA has highlighted the difficulty in quantifying the impacts of actions taking place under this measure. This is to say that interventions aiming at providing information about natural risks to public, controlling urban development, and adapting infrastructure could constitute potential win-wins, at least in the long-term. As evidenced by a number of studies (Stern 2007, etc.), the cost of not acting is almost always higher than the cost of action, in particular if low or no regret measures are prioritised. In particular,

Protection of the littoral zone and rehabilitation of emblematic sites: The SEA asserts that these actions are a clear win-win situation. In short it will ensure that tourism activity remains stable while in the long term, it might accelerate the development of ecotourism.

Development of road transportation alternatives to promote environment-friendly public transport: As stated in the SEA, the actions related to this measure have a significant positive impact on the environment. They would entail a decrease in road traffic and therefore limit emissions of pollutants - particularly GHGs, and lower the risk of accidents.

Table 25 provides an analysis of the main trade-offs between environmental impacts and economic considerations regarding non-environmental measures of the OP for the main environmental themes in Languedoc Roussillon. It is worth to note that no direct externalities are detrimental to the environment. Among those which are possibly detrimental, their impact is described as ‘possible’ and ‘indirect’.

Table 26 Analysis of Intervention trade-offs

Non-Environmental programmes	Priority Axis	Environmental Assets				Other Environmental themes		
		Water Resources	Air quality and climate factors	Soil and natural risks	Biodiversity and Landscape	Waste	Energy	Industrial risk and contaminated sites
Research and Innovation	I.3	Possible indirect win-win	Possible indirect win-win			Possible indirect win-win	Possible indirect win-win	Possible indirect win-win
Business support to SMEs/business parks	I.2				Possible indirect win-loss	Possible indirect win-loss		
Protection of the population and economic activities from natural risks	II.1			Possible indirect win-win	Possible indirect win-win			
Promote energy efficiency and renewable energies	II.3		Clear direct win-win		Possible indirect win-loss		Clear direct win-win	Clear indirect win-win
ICT (networks and infrastructure+ innovating uses)	III.1, 2			Possible direct win-win	Possible indirect win-loss	Possible indirect win-loss	Possible indirect win-win	Possible indirect win-loss
Promotion of non-road transport	II.3		Clear direct win-win		Possible indirect win-win		Clear direct win-win	
Cohesion of territories	III.4				Clear direct win-win	Possible indirect win-win	Possible indirect win-win	

Win-win

The win-wins are likely to happen under Axis 2 since actions taken under this axis aim at reducing the vulnerability of territories, guaranteeing their attractiveness and their environmental quality and limiting GHG emissions. The SEA had however raised issues that might reduce this win-win effect and in particular the lack of specificity of certain measures. Axis 1 deals more with investment measures, which makes it difficult to anticipate the related environmental impacts. However, investment in R&D and support to innovative projects could entail win-wins for the environment, energy consumption, water and waste management etc. Concerning Axis 3, its measures are generally largely in favour of the environment. The environmental assessment has reached the conclusion that the OP Languedoc-Roussillon takes the environment efficiently into account.

Win-loss

The Environmental Assessment (EA) conducted during the SEA identified measures constituting possible win-losses and therefore imposed conditional measures. Hence, the Operational Objective I.2.5 aimed at creating business parks to support innovative business ventures was likely to entail the production of waste resulting from construction works, and to occupy a large space with inappropriate material sealing the soil and preventing water from draining naturally. On the other hand, the Operational Objective III.1.1 aiming at allowing access to broadband infrastructure to unserved zones was seen as likely to have detrimental impacts on the population and to result in producing a large amount of waste electrical and electronic equipment. To tackle these win-losses, some conditions have been suggested in the SEA and reflected in the OP. These conditions are presented under section 5.2.

Regarding the green investments, an interview with a stakeholder at the national level highlighted the difficulty in measuring and quantifying the green content of investments, since different investments may encompass different cases which may be more or less focused on the environment (i.e. green labelled investments, investments specifically aiming at ‘greening’ a project, ‘greening’ of investments which were mandatory in any case, etc.).

As far as the contribution of green investments to employment is concerned, green investments are unlikely to create jobs at the level of the Lido project since the zone is protected and no new construction is planned in the future. In terms of growth and competitiveness, green investments in the Lido will not have direct effects. That said, these investments certainly have a positive economic effect since they take into account mid-term or long-term impacts of climate change on coastal areas. Costs linked to repairs and investments in punctual responses to storms should therefore be reduced and due to its rehabilitation, tourists should continue to visit the Lido.

The analysis of the win-wins/losses through the DPA approach is not carried out at the regional level as this tool is generally not known by regional stakeholders.

However one institutional stakeholder gave his perception regarding the overall development path stating that decision makers try to ‘avoid’ Development path B and

attempt to put in place actions under development path C. According to the interview, development path D is insufficiently favoured; while there are only a few actions covered by development path E. Finally, according to him, the national and regional levels in France do not yet achieve decoupling (development path F).

On the basis of a quick analysis of the OP, it is possible to assert that the largest part of funds is dedicated to environmental sustainability (development path E and in a smaller extent F) and risk management (development path C), which seems justified considering the Region's high risk exposure. Few projects belong to development path D (restoration and preservation, investment in natural capital) which means that this aspect has only started to be taken in account and does not yet represent a priority.

5.2 Trade-off between environmental and economic impacts in the rehabilitation of the littoral strip from Sète to Marseillan

At first, a cost-benefit analysis designated the road shifting as the most economically sustainable solution. Indeed, it appeared that it would be less expensive to shift it next to the railway running along the Thau pond, than to repair it on a frequent basis. The measure was welcomed by green associations and the environment was taken into consideration when the question of the use of the space freed by the shifting of the road was raised.

However, it seems that the construction of the road has led to the accidental destruction of rare plant species such as sea lilies, 'Russian olive' trees and intricate reeds providing shelter to a rich diversity of species. These impacts were first reported to the project team by an NGO, while other stakeholders involved in technical aspects of the project later confirmed these facts and said that they were mainly due to project management errors. They underlined the lack of experience of large construction companies to work with fragile natural environments.

At the same time, some flora species were voluntarily uprooted to be replanted elsewhere which has had detrimental effects on nature resources.

Another win-loss between economic aspects and the environment has been identified through the interviews. According to one association, the car parks along the former road were not the cause of the erosion phenomenon; therefore the environmental benefit of the construction of non-free parking areas was not clear. At the same time, two stakeholders underlined that the parking areas constituted 'hard points' in the same way as the former road and were responsible for breaking the natural dynamics of waves.

Finally, the three economic activities originally present on the Lido i.e. a camping area, an agricultural public research centre (INRA) and a vineyard belonging to the company 'Listel' were maintained despite their parcelling impact.

On the other hand, the Lido's rehabilitation is in line with the concept of Integrated Coastal Zones Management (ICZM) since it consists of a strategic retreat of human activities in order to restore the beach's 'natural' functioning and thus naturally limit the

process of coastal erosion. It represents a significant improvement since past actions aimed at protecting the coastal line against erosion were considered as being too local and some impacts were not sufficiently taken into account. The favoured approach was to place rigid defences against natural forces (construction of sea-walls) which are not sustainable solutions and may prove costly as these infrastructures might have to be regularly re-built and upgraded as climate change predictions evolve.

Hence, 'soft' solutions to adapt to climate change and rehabilitate the beach were chosen. They included a regular fill-up of the beach sand and a protection of 'grey dunes' (very old dunes) with wood barriers ('ganivelles') and installation of soft anti-swell equipment. The choice of the periodical addition of sand to the beach is likely to raise concerns since the sand will have to be extracted from the sea bed, an operation which will certainly disrupt marine ecosystems. It is worth noting that other available means such as the 'Ecoplage' process were only applied to a restricted portion of the Lido although this soft technique has the advantage that it captures the sand naturally carried in by waves. This process involves the installation of large pipes draining sand under the water surface. An association expressed its regrets about the rejection of this technique to complement the massive sand re-loading.

The 'strategic retreat' approach has also been selected in under the OP 2007-2013: this would include the sand fill-up to the beach and the retreat of human land use by 100 to 200 metres (30 hectares of camping sites and various houses). It has not yet been launched mostly as a result of difficulties related to the required expropriations of the sheds and houses illegally built at a short distance from the shore. This last obstacle illustrates that the limitation of climate change impacts on coastal areas would be better achieved if the existing legislation was implemented in a more efficient manner.

According to stakeholders at the regional level, the ideal solution is a complete strategic retreat which would be sufficient to avoid the use of other tools (potentially costlier and less effective) to ensure the Lido's durability.

5.3 Other tools to enhance environmental integration

The EA conducted during the SEA identified measures constituting possible win-losses and thus required the identification of tools to contain the negative impacts on the environment. Consequently, the Operational Objective I.2.5 (Axis 1) aiming to create business parks for innovating undertakings had to be linked to certain conditions, i.e. the recovery of waste resulting from construction, a controlled use of space; and the use of appropriate materials to reduce the risk of soil-sealing and water draining. Operational Objective III.1.1 (Axis 3) aiming at allowing access to broadband infrastructure to unserved areas, was associated with conditions regarding the minimisation of risks for populations, the a priori identification of waste electrical and electronic equipment treatment circuits and the integration of landscape considerations. In the OP, the conditions linked to Operational Objective I.2.5 have been reflected by the obligation to undertake building works in accordance with the specifications of a green label (e.g. The 'Hygiene, Quality, Environment' label). As far as the Operational

Objective III.1.1 is concerned, nothing specific had been added to the OP. In this last case the conditions have to be transcribed directly in projects.

Furthermore, as far as littoral protection and rehabilitation of emblematic sites are concerned, the ERDF implementation document¹¹³ specifies selection criteria for each of the three actions (see Table 24) contained in Measure 2 of Axis 2 of the OP¹¹⁵. They focus essentially on the scale of action, the guarantee of a sound follow-up (through observatories) and the management of works. The main criterion is the balance between public frequentation of beaches, and preservation and rehabilitation of natural spaces.

Flanking instruments such as awareness-raising campaigns and sustainable development training for people working in the Region are currently under preparation at the regional level.

6.0 Implementation and absorption

6.1 Absorption

At the regional level, the following table provides an overview of the absorption rate of ERDF funds in the Languedoc Roussillon region in September 2010.

Table 27: Progress report of Operational Programmes ERDF in Languedoc Roussillon, September 2010

Operational Programme ERDF	UE ERDF Funds		Public National expenses		Private expenses	
	€	%	€	%	€	%
Maquette	270 420 027		380 100 000		167 365 744	
To be paid	106 778 362	39,5	195 502 532	51,4	146 302 468	87,4
Paid	33 907 434	12,5	57 049 173	15	72 886 363	43,5

TOTAL			
Public Expenses		Total Cost	
€	%	€	%
650 520 027		817 885 771	
302 280 893	46,5	448 583 361	54,8
90 956 607	14	163 842 970	20

At the project level and for the first time slot of works of phase 1, the European Union provided 20% of the funding. An overview is presented in Table 28 below.

¹¹⁵ Measure 2 of Axis 2 of the OP. See Document de Mise en Œuvre (DoMo) ERDF – ‘Compétitivité régionale et emploi’ (2007-2013) – Languedoc-Roussillon, 3 April 2009, available at: http://www.languedoc-roussillon.eu/fonds/doc_fonds/domo090403.pdf.

Table 28: Financing plan for the first phase (October 2007 to June 2008) of the ‘Lido de Sète’ rehabilitation project (25,7 M€)¹¹⁶

	Time slot 1 (T1)	%	Time slot 2 (T2)	Phase 1 (T1 + T2)
Herault Department	2 355 000	15	1 395 000	3 750 000
Languedoc-Roussillon Region	2 355 000	15	1 395 000	3 750 000
Thau Agglomeration	3 140 000	20	<i>N/A</i> ¹¹⁷	
State	4 629 370	30	<i>N/A</i>	
Europe/ERDF	3 220 630	20	<i>N/A</i>	
TOTAL	15 700 000	100	10 000 000	25 700 000

Four out of eight rehabilitation projects identified in 2002 have been initiated: the ‘Lido de Sète à Marseillan’, the ‘Grand site de la Petite Camargue’¹¹⁸, the ‘Lido du Petit et du Grand Travers’ and the safeguarding of the coastal line Vendres-Valras¹¹⁹. All of them benefit from ERDF funds.

Like the Lido de Sète, the ‘Lido du Petit et du Grand Travers’ is threatened by anthropogenic impacts and the site’s fragmentation. The consequences of these processes entail significant erosion of the shore and an increasing risk of marine submersion.

Four actions have been initiated: adding sand to the shore, setting up small wood barriers protecting the dunes (‘ganivelles’), road signs, parking signs, and a comprehensive consultation of stakeholders at Lido. The project was divided in three phases, between 2008 and 2009.

6.2 Preliminary outcomes

The mid-term evaluation of the OP is currently being drafted. It is therefore difficult to have a complete overview of the preliminary outcomes. Nevertheless, desk research and interviews witness that the two above-mentioned projects (Lido de Sète and Lido du Petit et du Grand Travers) do not receive unanimous support from the local NGOs. The association ‘Réseau Hippocampe’ notably criticised the lack of consideration of the rich biodiversity present along the Thau pond which has been partly destroyed during the works. This association also criticised the construction of parking areas which constitute ‘hard zones’ disturbing the natural dynamic of waves in the same way as did the former road. Regarding the ‘Lido du Grand et du Petit Travers’”, there is some evidence that

¹¹⁶ Thau Agglomération, Dossier de presse : Le Lido de Sète à Marseillan – Thau Agglomération s’engage dans la protection de ses Lidos, Avril 2009, p. 12/20, available at: www.thau-agglo.fr/IMG/pdf/DP_Lido-3.pdf

¹¹⁷ *N/A*: information not available when the table was released

¹¹⁸ Petite Camargue is classified as a Ramsar site according to the Ramsar Convention on Wetlands

¹¹⁹ DREAL, La gestion durable du trait de côte en Languedoc-Roussillon, (no date), available at: www.languedoc-roussillon.developpement-durable.gouv.fr/IMG/pdf/PresentationDREAL1_cle57592a.pdf

the works to adjust traffic are not well understood by the population (e.g. it creates traffic jams).

Apart from civil society's initial impressions about the project, it is too soon to measure concrete outcomes as restoration of natural dynamics is a long-term process. Additionally the last phase of the 'Lido de Sète' project has not been fully completed.

7.0 Conclusions

France has set up a sound regulatory framework to encourage the implementation of sustainable development, manage natural risks and ensure that the environment is efficiently protected. However, the main problem lies in the lack of implementation of national planning guidelines and documents into mandatory local planning documents. Indeed, urbanisation issues are under the responsibility of local authorities and the margin for manoeuvre left to them by national authorities often leads to abuses. Thus, despite the sound framework already developed in France, cohesion policy funds do have a significant impact on regional policy and reinforce the consideration of sustainable development at the regional and local levels. This is particularly true at the project level where the mandatory use of impact assessments and follow-up measures helps decision makers to ensure that the project corresponds to the planned results.

To date, climate change adaptation projects in coastal areas which have already been launched through the OP Languedoc Roussillon 2007-2013 seem to have reached a balance in terms of implementation of the principles of sustainable development (in particular the economic and environmental aspects). Although these projects could go further on certain environmental aspects, it appears that decision makers have taken sustainable development into account and included a long-term vision in their choices. For example, the Lido project has been developed with a 30-year perspective.

The investments planned for 2007-2013 are in coherence with the medium and long-term environmental targets set up at the European level, in particular as regards climate change.

The Environmental Assessment (EA) conducted during the Strategic Environmental Assessment (SEA) identified measures constituting possible win-losses and therefore imposed conditional measures. Hence, the Operational Objective I.2.5 aimed at creating business parks to support innovative business ventures was designed to entail the production of waste resulting from construction works, and to occupy a large space with inappropriate material sealing the soil and preventing water from draining naturally. On the other hand, the Operational Objective III.1.1 aiming at allowing access to broadband infrastructure to unserved zones was seen as likely to have detrimental impacts on the population and to result in producing a large amount of waste of electrical and electronic equipment. To tackle these win-losses, some conditions have been suggested in the SEA and taken into account in the OP.

Biodiversity represented the only aspect of the Lido project which could have been emphasised more but instead suffered from the works related to the strategic retreat of the road. Throughout the interviews, it appeared that the protection of natural assets at the regional level *per se* is not sufficiently widespread. Hence, the natural capital still suffers from pressures related to economic interests such as mass tourism and urbanisation. The environmental losses (rare plant species and intricate reeds providing shelter for animal species) could have been avoided by better anticipating the damages the major infrastructure works could entail. This could have been done through different means at different levels of the Cohesion policy process, for example by:

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

Nevertheless, as a result of major climatic events which have caused massive destruction, and thanks to tools such as the cohesion policy funds, sustainable development and the environmental awareness are certainly becoming a core component of regional policies. This is particularly true for littoral zones which are at front line of natural risks and which provide valuable ecosystem services essential to the local economy. Consequently, the approach taken to adapt to climate change has evolved from ‘hard’ solutions such as the construction of sea walls and rip-raps to softer solutions based on the restoration of natural dynamics.

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- Agglomération deThau (no date) Le Lido de Sète à Marseillan, 2 : Visite de chantiers
- Agglomération de Thau (2007) Press kit
- Agglomération deThau (April 2009) Press kit
- CREOCEAN (2007) Protection et aménagement durable du Lido de Sète à Marseillan - Etude benthique et sédimentologique (non disponible)
- CREOCEAN (2004-2006) Protection et aménagement durable du Lido de Sète à Marseillan – ‘Etude d'impact sur le milieu marin’(non disponible)

9.0 Interviewees

- Frédéric UHL, Ministry of Environment, chief of the ‘littoral and natural public domain bureau’ (12/07/10)
- Marie AZZARONI, NGO: Réseau Hippocampe (23/07/10)
- Pierre-François CLERC, ministerial delegation in charge of ‘land planning and regional attractivity’ (DATAR), in charge of sustainable development (05/08/10)
- Jean Paul SALASSE, ‘Les écologistes de l’Euzière’ (05/08/10)
- Michel GAUTIER, DREAL, Regional Direction of Environement,planning and housing ; assitant of the Director in charge of littoral (17/08/10)
- Jean-Philippe BROSSARD, Regional Council, Direction of European and contractual policies (27/08/10)
- Nicole HERISSON and other stakeholders involved in the project, Agglomération of Thau, Contractual and coordination policies (01/09)
- Vincent ARSIGNY, General secretariat for Regional affairs (SGAR) mission Europe

1.8 FRANCE: CARBON NEUTRALITY IN OPERATIONAL PROGRAMMES, BASSE NORMANDIE

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1.0 Executive Summary

- Basse-Normandie is characterised by a rich natural and cultural heritage, which the region is taking advantage of, through the development of eco-tourism, for example. However its economy relies heavily also on activities which are characterized by high risks, such as activities related to nuclear energy. The importance of the fisheries sector and the existence and expected development of related infrastructures (ports) also exert pressure on the natural environment.
- A priority axis of Basse-Normandie's authority is sustainable development, as it is regarded as an essential element for attractiveness of the region and job creation.
- Regional officers do not envisage any possible negative impact on the environment. On the contrary, they emphasise the positive environmental impacts that might occur on the mid to long-term, due for example to modal shifts.
- The carbon-proofing tool Necater is considered by the vast majority of the stakeholders at national, regional and local level as an informative assessment tool. This is currently the only way to assess if regions respect the principle of carbon neutrality of investments. The tool is seen by stakeholders as too complicated and not transparent enough, although more recent versions have improved it. Training and information should be considerably improved and open to all regional stakeholders.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	x
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	x
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and Context

In the framework of the objectives of the French National Strategic Reference Framework (NSRF) and in order to be consistent with the orientations of the Lisbon Strategy, at least 60% of the total investments funded by the ERDF have to focus on innovation, research, support to business, and renewable energy. This involves action on the regional business actors (SMEs and SMIs) to stimulate research and development, encourage entrepreneurship and innovative approaches, and promote the use of ICT.

Moreover, according to the NSRF, it is essential to create an environment favourable for economic growth and competitiveness of regions. This involves the promotion of partnership and initiatives such as business support, research, training and the promotion of associations and social economy in general. It also involves creating a favourable ground for the establishment of new economic activities (clean energy, biotechnology, etc.) in order to improve the protection of the environment, environmental risk management as well as sustainable transport modes (multimodal, public transport, etc.).

The priorities set by the NSRF are:

- Priority 1: The promotion of innovation and knowledge economy
- Priority 2: The development of ICT for the economy and information services
- Priority 3: The support to businesses in a perspective of territorial development
- Priority 4: The protection of the environment, the prevention of risks, the mitigation of energy uses in a perspective of sustainable development
- Priority 5: The development of alternatives to road transport for individuals and economic activities

Basse-Normandie is a pro-active region regarding carbon assessments of investments: it has recently launched a project which will build on the work done for Necater the carbon proofing tool developed by the Delegation for Territorial Planning and Regional Action (DATAR) in order to construct a more refined and adaptable tool for regional policy-makers. On the 21th of December of 2007, the European Commission approved the Regional Operational Programme for Basse-Normandie for 2007-2013. This Program involves Community support for the Basse-Normandie region under the Regional Competitiveness and Employment Objective. The total budget of the Programme is 485 million euro and includes Community funding through the European Regional Development Fund (ERDF) of some 181 millions euro (approximately 1.3% of the total EU investment in the framework of the Cohesion policy 2007-2013).

The Operational Programme identifies general, specific and operational objectives for the allocation of funds. These are structured along five priorities:

- Priority (Axis) 1: Developing the region's innovation potential (31.1% of total investments)
- Priority (Axis) 2: Making ICT serve businesses and local competitiveness (32.9% of total investments)
- Priority (Axis) 3: Contributing to local economic activity and cohesion (22.4% of total investments)
- Priority (Axis) 4: Improving the region's attractiveness with a view to sustainable development (11.9% of total investment)
- Priority (Axis) 5: Technical assistance (1.7% of total investment)

2.1 Current state of the environment

The territorial diagnosis¹²⁰ provides a comprehensive picture of the environmental assets of the region. This diagnostic is required for the definition of the regional strategy of Funds intervention and has been mainly assured and performed by the national services (SGAR). This was based on work previously done by a network of decentralised state services, and builds on the studies performed for the preparation of regional strategic documents, including the Regional Scheme of Planning and Territory development (SRADT) and the Regional Scheme of Economic Development (SRDE). In addition, the regional branches of state departments (such as the regional offices of the ministry for environment) were solicited to provide thematic contributions to extend the regional diagnosis. Other regional stakeholders, particularly the Regional Chamber of Commerce, also provided inputs in specific areas (tourism, ICT, craft industry). Table 29 summarises the results of the contextual environmental analysis presented in the Operational Program and in the environmental and ex-ante assessments, with a focus on climate change mitigation related assets.

Table 29: Current status of the environment (natural capital, human capital, economic capital) relevant for the case-study¹²¹

Environmental Theme	Current status of the environment (Challenges and assets)
Air quality	<ul style="list-style-type: none"> • Air pollution is a specific concern of Basse-Normandie region since 2001 • The Regional Plan on Air Quality was adopted in 2001, and has been revised in 2006. The main elements of this plan are monitoring of air quality and public information. A Regional Plan on Health/Environment was adopted in 2006 to assess environmental impacts of policies at local level and exposure to pesticides and allergies.
GHG Emissions	<ul style="list-style-type: none"> • An energy and GHG emissions assessment has been carried out in the region in 2006: GHG emissions amounted to 18,2 Mteq CO₂, of which 8,5 were energy-related emissions. The rest (9,7 Mteq CO₂) are essentially due to agricultural activities. • Buildings and agriculture are the main source of GHG emissions in Basse-Normandie. Their contribution to total regional emissions is higher than the national average, due to specificities such as the average age of the buildings and the predominance of domestic fuel as a heating fuel.
Infrastructure assets	<ul style="list-style-type: none"> • Basse-Normandie's economic development has greatly relied on the activities generated by maritime infrastructures. Cherbourg is the one of the greatest port of the region (12th port in French in 2005, in terms of total tonnage); it represented 2230 direct and

¹²⁰ Basse-Normandie Region, Operational Program FEDER 2007-2013

¹²¹ Basse-Normandie Region, Operational Program FEDER 2007-2013

	<p>indirect jobs in 2002, 2790 for the port of Caen-Ouistreham, of which 3790 correspond to the Trans-channel traffic. The gross value-addition of activities linked directly or indirectly to ports was estimated to 90 million € in 2002. This activity is sustained by the increase of the Trans-channel freight traffic, which has been particularly significantly since a few years. In 2006, the tonnage increased by 9.4% compared with 2005 (3.9 million tons) in Caen-Ouistreham. Concerning passengers' traffic, it increased by 10.5% in the same period, but has been decreasing since 2007, because of the competition with low cost air companies. In Cherbourg, the freight decreased by 9.3% and the passengers traffic decreased by 3.8% between 2005 and 2006.</p> <ul style="list-style-type: none"> • Regarding energy infrastructure, Basse-Normandie is one of France's key region in terms of nuclear energy, both on the production side and for the treatment and storage of radioactive waste. For example, the COGEMA unit of La Hague recycles nearly 1100 tons of irradiated fuels per year from light water reactors. Basse-Normandie is also known for the electronuclear central of Flamanville and the existence of activities related to nuclear power, such as construction sites of nuclear submarines and multiple laboratories specialized in the field of nuclear energy.
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According to the regional authority of Basse-Normandie¹²², the prevention of natural and technological risks is one of the most imperative challenges of the region, because of their potential impacts on biodiversity and landscapes, two of the main natural assets of the region. The attractiveness of the region and its capacity to attract both French and foreign tourists relies heavily on the preservation of this environment.

2.2 Current investment context

The table below shows the financial investments of the Basse-Normandie regional operational programme divided across the 5 priority axes. Each of these axes is given a budgetary share comprised of EU and national public contributions.

Table 30: Breakdown of finances by Priority Axis, in €¹²³

		EU Contribution	National Public Contribution	Total Public Contribution
Priority Axis 1	Developing the region's innovation potential	98,500,000	147,750,000	346,250,000
Priority Axis	Making ICT serve	16,000,000	34,000,000	50,000,000

¹²² Karine BOSSER, ADEME Basse-Normandie
¹²³

http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?qv_PAY=FR&qv_reg=ALL&qv_PGM=1148&qv_def_L=4&LAN=7

2	businesses and local competitiveness			
Priority Axis 3	Contributing to local vitality and cohesion	30,500,000	45,750,000	76,250,000
Priority Axis 4	Boosting the appeal of the region with a view to sustainable development	30,000,000	70,000,000	100,000,000
Priority Axis 5	Technical Assistance	6,354,410	6,354,410	12,708,820
	Total	181,354,410	303,854,410	485,208,820

In terms of environmental implications, investments to support interventions with an indirect impact on the environment outweigh direct investments in environmental interventions. While Axis 4 has a clear environmental dimension, Axis 1, 2 and 3 have only indirect impacts on the environment. The table below presents a list and an analysis of the indirect and direct investments in the environment as part of the Basse-Normandie OP.

Table 31: Indirect and direct investments in the environment

Indirect investments in the environment
Spill-over effects of research and innovation investments to improve regional competitiveness on the environment
<ul style="list-style-type: none"> • Investments to develop innovation at the regional scale • Investments to develop Information and Communication Technologies (ICT) and improve the competitiveness of companies and territories • Investments to improve attractiveness and cohesion of territories <ul style="list-style-type: none"> • These non-environmental investments can have positive side effects on the environment, in terms of air pollution, GHG emissions and biodiversity, thanks to a better management of urban development and increased energy efficiency. However, adverse impacts on the environment related to the economic and industrial activity due to better transport infrastructure (railways and waterways) cannot be ruled out.
Direct Investments in the environment
Investments on mitigation and adaptation to climate change with energy measures, protection and restoration of biodiversity, natural resources and landscapes
<ul style="list-style-type: none"> • Investments to improve attractiveness of Basse-Normandie in a perspective of sustainable development. The main objectives are: <ul style="list-style-type: none"> • The stimulation of energy efficiency and the development of renewable energies, by the establishment of a regional climate plan. The objective is to reduce GHG emissions by 300,000 tCO₂eq by 2013, with the support to biomass energy (wood) and solar thermal energy. Investments also relate to hydraulic infrastructure, such as the Couesnon dam. Concerning energy efficiency, the objective is to reduce annual emissions of 200,000 tCO₂eq by 2013, with the improvement of thermal characteristics of pre-existing building infrastructures.

3.0 Governance mechanisms

Environment commissions composed by regional council officers participate in the process of project selection. This is a specificity of the governance structure for project selection that has been put forward by regional officers during the interviews. The process of project selection in Basse-Normandie is as follows: after the project has been submitted by a client/project manager, two commissions - the sectoral commission and the sustainable development commission - proceed to the evaluation of the project on a sequential basis. The projects are selected according mainly to environmental criteria specified in OP and in other programmes, at regional or national level (*Plan Climat*, *Agenda 21*, etc.). According to the region¹²⁴, this governance mechanism could facilitate integration of sustainable development into Cohesion policy, as the project selection procedure is based on eco-conditionality.

Regional officers suggest that governance mechanisms could be improved by a better participation and consultation of stakeholders, especially inhabitants of the region and local areas concerned by the investments. In order to increase the objectivity of the selection procedure, regional officers favour the development of a set of environmental indicators in order to support decision-making and facilitate the integration of sustainable development into Cohesion Policy.

4.0 Overview of environmental objectives, measures and allocations

The priority axis 4 – improving the region’s attractiveness with a view to sustainable development – has clear direct environmental objectives, especially in the field of climate change mitigation, through projects in the field of renewable and clean energy, energy efficiency and cleaner/more sustainable transportation modes.

The specific objectives set for the 2013 horizon regarding GHG emissions and energy are specified below:

- A reduction of GHG emissions of 500 000 teqCO₂;
- The development of renewable energy sources (biomass :+100 000 t/year, solar thermal: +5.000m²)
- Improvement in energy efficiency in residential and commercial buildings:
 - o 100.000 m² of residential/commercial area covered by VHEP¹²⁵ standards
 - o 50 local authorities engaged in sustainable/low-emitting urbanism planning
 - o 7.000 persons/year receiving technical advice in the field of energy efficiency in buildings
- The reduction of energy consumption and GHG emissions related to tourist activity, especially in renowned areas such as the Mont-Saint-Michel. Projects will be funded to establish green shuttle to reduce the use of fuel consumption to

¹²⁴ Karine BOSSER, ADEME Basse-Normandie and Lionel ROUCAN, Regional Council of Auvergne

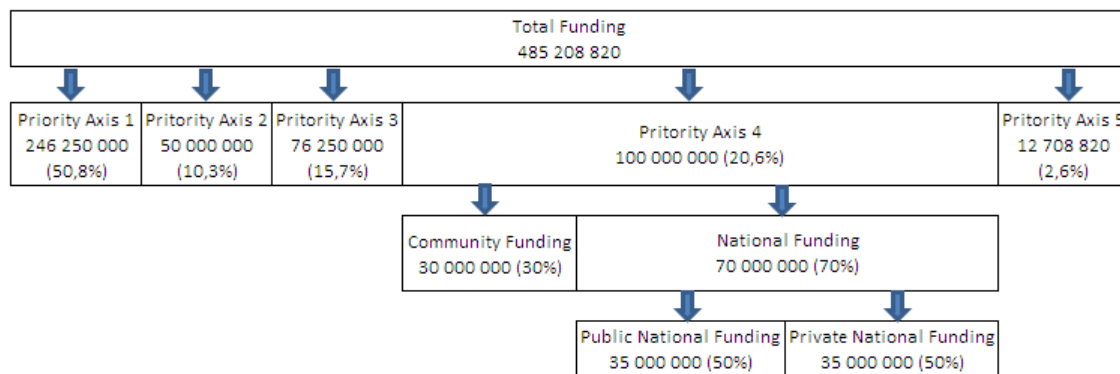
¹²⁵ Very High Energy Performance

access the Mont-Saint-Michel area (objective of 0tCO₂/year with a 100% biofuel shuttle, 42tCO₂/year with a 50% biofuel shuttle)

Several environmental indicators have been implemented to monitor and to assess the impacts of these measures. Necater and carbon-proofing tools are one of them, aimed solely at measuring carbon emissions of a set of projects in areas such as building/construction, transport infrastructure and energy.

This priority axis ranks second in terms of budget, with a total funding of approximately 100 000 000 € (20.6% of the total OP investments). Out of this, 30 000 000 € (30%) is provided by Community funding, and 70 000 000 € (70%) is provided by national funding. Among the national contribution, the contribution of public and private stakeholders is equally split (35.000.000 € each). This illustrates the importance of the involvement of the private sector to achieve in green investments at the regional scale.

Figure 1: Decomposition of total OP funding for Basse-Normandie (in €)



5.0 Analysis of measures and allocations

Win-win

Business support

According to the ex ante assessment, improved information and training on eco-products, eco-industries, green procurement and eco-design are likely to translate into positive impacts on energy use and GHG emissions. The positive impacts of these investments, especially those related to energy control, are reflected in the evaluations carried out using Necater. The adoption of new production behaviours might be costly on the short-term but these costs are likely to decrease rapidly as technology diffusion takes place (learning effects). More importantly, this change in production will lead to less energy intensive processes and directly translate into energy savings. In addition, positive effects related to an improved image of the companies might lead to a strengthening of their position on the world market.

Employment & education

According to the OP, investments in this field will contribute to increase the level of awareness of various regional public bodies, governance and decision structures on energy control and climate change by sharing information and providing training to

energy savings, renewable energies and reduction of GHG emissions. These investments are included in the scope of Necater, under the “transversal actions” category. As an example, in the case of the Auvergne region, these transversal actions contributed to the reduction of 6 KteqCO₂. The same orders of magnitude (in relative terms) are observed for Basse-Normandie. These “soft” investments (as opposed to “hard” investments, such as infrastructure construction) will contribute to bridge information gaps and provide businesses and households with the necessary information to take advantage of potential opportunities in terms of costs reductions and energy savings.

Environment & climate change

Climate change mitigation

These types of investments will promote energy savings and support the use of alternative/renewable energy from businesses and households. This is likely to stimulate growth on the medium-term as increased energy savings and reduced exposure to energy price shocks will be combined with more competitive alternative technologies. According to regional authorities, an example of investments falling under this category for Basse-Normandie is the *Espace Info Energie*, which has been implemented in 2001, with the objective to inform and advise regional public bodies and citizens on energy efficiency and environmental protection.

Adaptation to climate change

One of the objectives of the Regional climate plan is to anticipate the effects of climate change. Adaptation to climate change by up-scaling existing infrastructures and changing behaviours will permit to anticipate and to reduce risks and potential impacts. The costs associated with these measures can be significant and will be supported on the short-term but potential long-term benefits are significantly greater. These are conditional on the magnitude of climate change and depend on the weight given by present generations to the welfare of future generations. However, as the costs of not adapting are most likely to be even higher, there is a clear economic rationale to implement adaptation measures.

Information & communication technologies

Basse-Normandie and other French regions favour the development of communication technologies and information platforms in order to foster the development of new services, promote regional economic potentialities, and optimize transportation needs.

In 2010, Basse-Normandie presented its “digital strategy” based on territorial attractiveness, equity (access to digital technology for all) and prospective vision (to anticipate technological evolutions). This strategy already permitted to support and develop 114 digital public information structures, 40 access points to tele-training, multiservice digital areas, a broadband regional network for education, research and health and a regional platform to develop human resources. The total budget represents 67.2 M€. This digital strategy has both positive impacts on economic growth through an increase of productivity, emergence of new services, increase networking between companies and related positive externalities (such as innovation spill-overs). It is

described in the regional OP. This strategy also have direct positive environmental impacts through the rationalisation of transport demand and the reduction of related GHG emissions, as well as increased product and process innovation due to an improved cooperation and information sharing between companies.

Transport

The development of various alternatives to road transport, such as railways and tramways to reduce individual vehicle use and road emissions is part of the regional strategy to reduce GHG emissions. Regions such as Basse-Normandie also invest heavily on the development of inter-modality and clean public transportation. The economic impacts of these investments will most likely be positive as they will create local jobs (associated with the growth in public transportation) and will favour an optimisation of the supply-chains, by reducing unnecessary transport costs, for example.

Tourism

The development of eco-tourism, which is one of the priorities of the OP, will help mitigate the adverse impacts of tourism related activities on GHG emissions. The focus is on the development of clean public transportation adapted to tourists needs (transport to touristic sites) in order to reduce GHG emissions. Economic impacts are potentially positive for Basse-Normandie as eco-tourism is foreseen to experience a significant growth in the coming years. In general, developing touristic infrastructures and promoting better and more adapted tourist facilities will be beneficial both from an economic and environmental perspective. Box 1 provides the example of the environmental restoration of the Mont-Saint-Michel area and its valorisation.

Box 1 – Operation of the environmental restoration of the Mont-Saint-Michel area and its valorisation

National and regional authorities have designed and implemented a project concerning the restoration of the Mont-Saint-Michel area, combining environmental objectives (pull the sand out of the bay in order to restore the Island status of the Mont Saint-Michel) and economic concerns (rehabilitation of the touristic area, including surrounding shops, car parks, etc.). The works began in 2005 and are expected to end in 2015. The emphasis is clearly put on environmental preservation and eco-tourism.

The project consists essentially of:

- The construction of a dam on Le Coueson, that will permit the clearing of 2,4 million m³ of sediments in 8 years (from a total of 3 million m³ of sediments);
- The destruction of current parking areas that will give back 15 hectares of beach area;
- The establishment of clean road shuttles which will carry visitors from the continent to the Mont-Saint-Michel.

This project will allow:

- The valorisation of sediments by the agriculture sector (rehabilitation of agricultural fields).
- The environmental promotion of wetlands, which are the main producers of

sediments;

- The rise of water levels and the restoration of the hydraulic potential in the Mont-Saint-Michel area (especially in Le Coueson);
- Landscape improvements;
- The disappearance of private vehicles (up to 1000 per hour during peak periods before the project) in the Mont-Saint-Michel.

The overall cost of this operation is 164 million €, of which 12.9% is financed through Cohesion policy funding.

An impact analysis has been realised to assess the effects of land-use changes in the area and (limited) infrastructure construction. The results are positive and indicate that the rich biodiversity and ecosystems, landscapes and various endangered species will be positively impacted by this project.

As the Mont-Saint-Michel is the most visited touristic site in France (excluding Paris), with about 3 million visitors per year, the reorganisation of parking lots and peripheral activities will bring considerable long-term economic benefits to the locality as well as positive environmental amenities.

Urban development

Energy and climate change mitigation

The OP aims at fostering a new way of land and urban management by integrating economic and environmental concerns as well as general living conditions in urban projects. In theory, it could bring both market (increase synergies and spill-over effects due to an improved localisation of activities) and non-market benefits (improved living conditions due to reduced commuting) and contribute to reduce the environmental footprint of inhabitants of the region.

Adaptation to climate change

The OP explicitly mentions that environment and especially climate change concerns will have to be integrated in land and urban management and projects. As mentioned above, these investments are needed to mitigate the projected (higher) costs of climate change impacts.

Win-loss

The city of Cherbourg, which is one of the main urban and economic centres of Basse-Normandie, has the objective to develop its maritime activity by positioning its port infrastructures as a European hub. This is a typical situation involving a trade-off between direct economic impacts which, in this case, are likely to be positive (increase of employment, development of competitiveness, stimulation of the sector and the related activities, etc.), and, on the other hand, environmental impacts which are likely to be negative if adapted flanking and/or complementary measures are not used, because of the degradation of the biodiversity, increased use of natural areas, increased water pollution from port activities, etc. However, projects associated with the expansion of the harbour concern the development of off-shore wind-farms, which could partially

offset the negative impacts on GHG emissions generated by the construction of new infrastructure. According to Associated Norman Ports (PNA)¹²⁶, a call for tender concerning the offshore wind farms will be published in October 2010. Figure 3 presents the extension project in Cherbourg harbour.

However, these impacts are only potential as the project is not well defined yet and the construction phase has been delayed. Environmental concerns are growing amongst the authorities in charge of the Harbour, as both the military and the commercial activities are regulated by two different environmental governance structures. The main challenges that they are facing are the issues of air and water quality (discharges) as well as noise pollution. Projects are already underway to control and monitor air and water quality and other ecological parameters. In addition, PNA is currently testing in collaboration with regional universities several bio-indicators to improve the preciseness of the detection of pollutants.

The ex-ante assessment revealed several weaknesses and vulnerabilities regarding coastal areas, especially in relation to water quality. The addition of new infrastructures would certainly increase the pressure on these areas, both on water quality and on the fauna and flora living in the impacted ecosystems.

Perception of decision-makers on the potential contribution of green investment and trade-offs

According to the regional officers interviewed, green investments have the potential to substantially boost job creation and regional competitiveness. Beyond this consensual statement, regions acknowledge that it is particularly challenging for them to estimate the net impacts of green investments on jobs and regional economic growth, which limits their capacity to increase social and political acceptance for this investments.

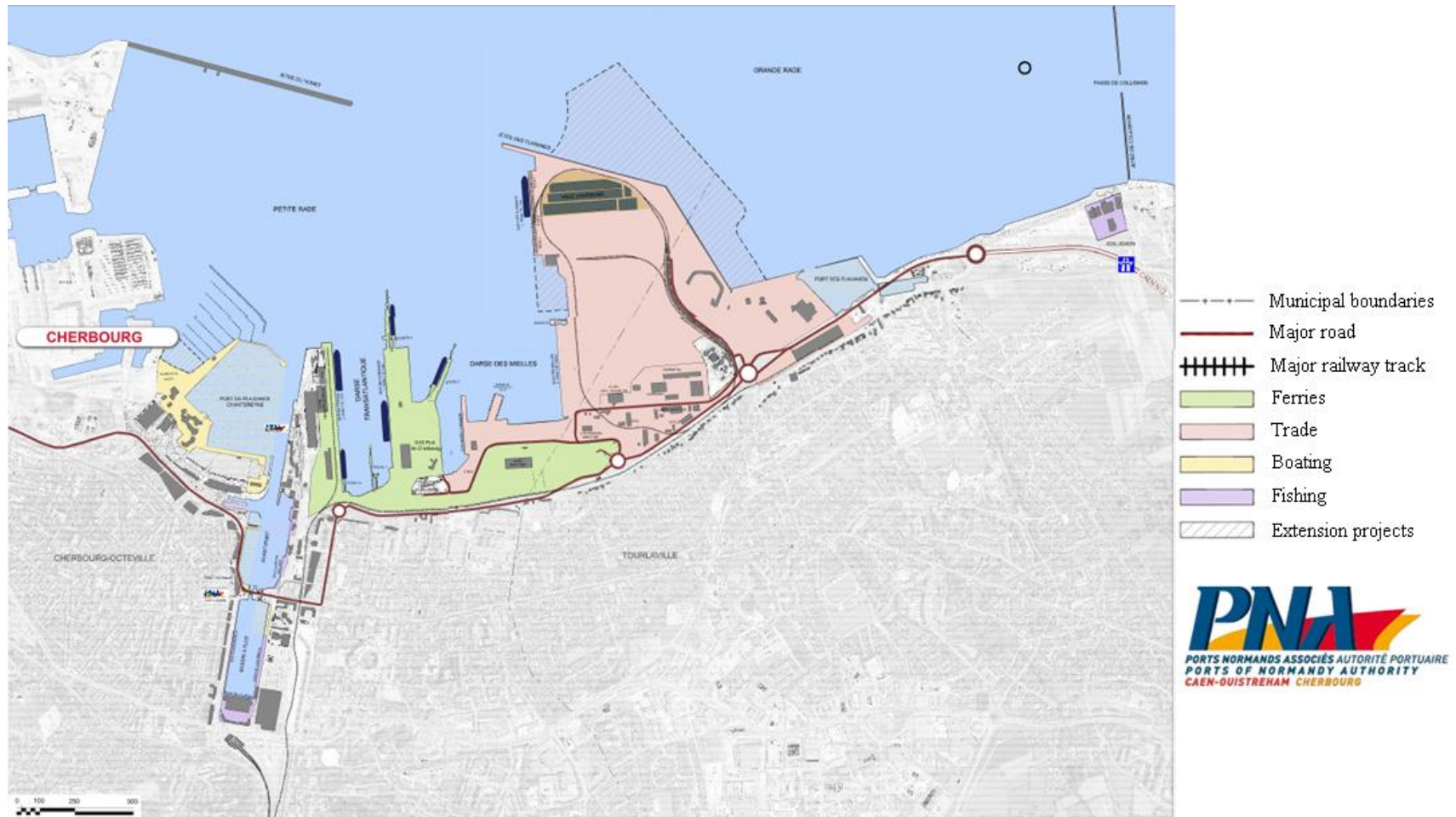
Regarding trade-offs between environment, economic and social considerations, opinions diverge widely among regional officers. For example, one regional officer¹²⁷ is confident that its OP will not yield any negative environmental impacts on the long term, as potentially negative impacts on the short-term (e.g. related to transport infrastructure) will be compensated (e.g. modal shift). In particular, the Basse-Normandie authorities mention that potentially negative impacts arising from the construction and up-scaling of ports will be compensated, at least to some extent, by an increase in fair trade and in the trade of organic products, without however mentioning that these could be potential flanking measures.

Regional officers agree that economy/environment relationships can differ widely according the type of investments. According to regional officers, investments in education, training, research and innovation will have virtuous effects both on the environment and on the economy. If investments are too focused on competitiveness, a trade-off is likely to emerge between environmental and economic objectives.

¹²⁶ Ports Normands Associés

¹²⁷ Jean-François LOUINEAU, Regional Council of Poitou-Charentes

Figure 2: Cherbourg harbour extension project (hatched). Source: http://www.pna-ports.fr/web/cartes_et_plans.html



5.1 Use of conditional instruments

One of the flanking measures often cited by regional officers is the improvement of environmental indicators to improve the monitoring of environmental impacts of projects. In this sense, Necater is a first step but needs to be more adapted to regional specificities and needs.

In addition, it seems that there is a need to adapt indicators provided by European and national authorities to the regional scale by allowing more flexibility and adaptability of the assessment tools and criteria. Environmental authorities of Basse-Normandie stress that the use of national or European level indicators such as Necater to assess GHG emissions arising from regional investments might not be fully relevant because these indicators fail to take into account regional specificities and, as a consequence, are likely to lead to biased results. Recognising this, Basse-Normandie launched a pilot project with the objective to build a regional carbon-proofing tool capable of overcoming the shortcomings of Necater in terms of adaptability to regional specificities.

Decision-makers at the regional and national level agree that eco-conditionality can facilitate integration of sustainable development into cohesion policy. In their view, eco-conditionality is a project selection tool that could be included in the project selection process and included in the environmental assessment grid of projects used by the regions.

They also mention that eco-conditionality could be better integrated in project selection procedures by improving the participation and consultation of different stakeholders. It should also be based on sound quantitative indicators in order to improve the objectivity of the selection process and secure acceptability for projects. In this respect, the development of carbon-proofing tools such as Necater, by contributing to increase the evidence base on climate change impacts of regional investment programs, goes in the right direction.

Environmental assessments, as an objective basis for project selection based on eco-conditionality, could be further improved by including regional specificities and expectations in the assessment. Increasing the frequency of environmental impacts assessments, for example by developing intermediate impact assessments in order to help decision-makers adjust investment programs in the view of regional, national and international commitments is also seen by regional authorities as an action that would facilitate the integration of sustainable development. The Cherbourg harbour upgrading project is a good example; in its initial phase, investments in renewable energies (off-shore wind farms) and other offsetting measures were part of the project and as such were included in ex-ante environmental impact assessments. However, as the project entered its concrete phase, these investments, at least in their initial form, are not likely to be completed. The environmental impacts presented in ex-ante assessments are thus far from the effective impacts that are likely to be observed. Increasing the frequency of impact assessments would help to provide a more realistic picture of the impacts of regional investments and improve integration of sustainable development.

6.0 NECATER

The principle of carbon neutrality of regional investments has been stated in an official communication dating back to 2006. Although this is not a legally binding objective, regions are unlikely to propose programs which are characterised by significant net positive emissions. Projects which emit GHG emissions have to be offset by efforts in terms of energy

control, supply of alternatives to road transport, development of renewable energies and promotion of energy efficiency in order to achieve at least carbon neutrality. This principle of carbon neutrality entered into force for the 2007-2013 phase of the CPER and OPs. Figure 3 presents the projections of GHG emissions for all the French OPs realised by Necater. It shows that on the short-term, GHG emissions generated by investments in economic development (and to a lesser extent in housing and transport) are compensated by reductions due to investments in energy control, renewable energies and in the environment. The impact of the investments in terms of GHG emissions tend to be neutral for all the categories on the long run (>30 years). At the aggregate level, the cumulated impact is estimated at approximately -700 kteqCO₂ (Figure 4).

Figure 3: Annual flows of GHG linked to OP (Source: Datar)

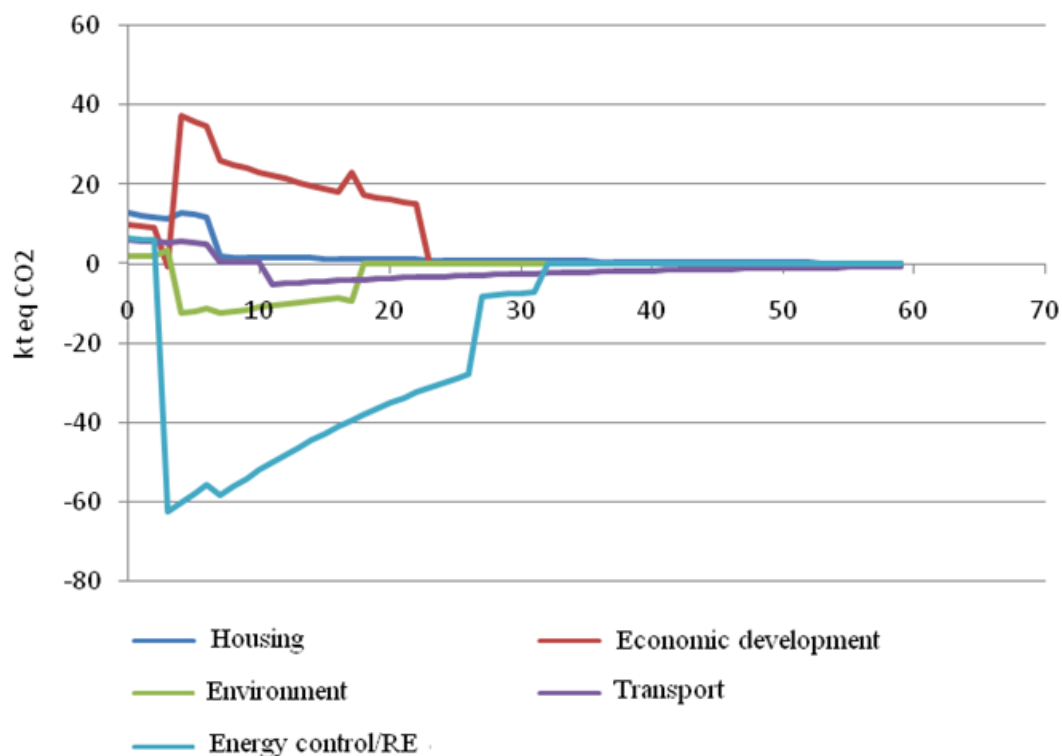
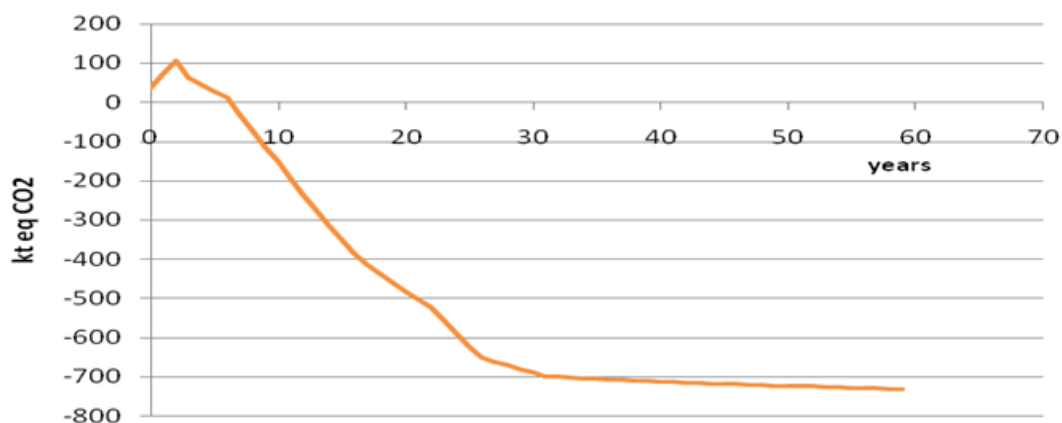


Figure 4: Accumulated annual flows of GHG emissions linked to OP¹²⁸



1

Necater: a carbon proofing tool designed for regional investment programs

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

Unlike the CPER¹²⁹, in which investments in areas such as infrastructures and traditional industrial activities remain significant and, as a result, generate significant net GHG emissions, all the French OPs comply with the principle of carbon neutrality. As specified by national officers, the unofficial objective is now to go beyond the principle of carbon neutrality and present programs characterized by significant net negative emissions.

According to a first evaluation in 2008, the results range from +16 tCO₂eq to -300 tCO₂eq, totalling 730 tCO₂eq saved. Carbon neutrality of programs will be achieved by actions in favour of energy control, renewable energies and waste which compensate emissions of industrial activities, road freight and home/work commuting induced by urban developments, for example.

Governance – How and by whom is Necater used

Necater has been developed at national level by the administration in charge of regional planning (DATAR)¹³⁰. The evaluations are generally performed by the *prefectures*, which are the representatives of the national authorities at regional level. The specific unit actually carrying out the evaluations in each *préfecture* is the secretariat for regional affairs (*SGAR*). Regional authorities (*Conseils régionaux*) are not currently directly involved in the evaluation phase but there are no legal barriers to their implication: as the tool is simplified, regional authorities will get more and more involved in this process.

Training and knowledge sharing on Necater for the users has been limited up to now. In addition, the first versions being not very user-friendly (“black-box”), users have experienced difficulties to use the tool. Concretely, practical difficulties related to the type of data to be used, on how to set the value of some key parameters (for those that can be changed) to reflect more appropriately regional specificities (modal shift, for example) and on the way the results have the presented. These difficulties along with tensions between regional authorities (which had very little access to the tool) and regional state representatives (*préfectures*) explain why this tool was effectively very little used by regional authorities themselves. The DATAR, which is in charge of Necater, will organize regular training sessions and improve the communication and information on this tool in order to facilitate and generalize its use at regional level.

Necater in practice

Necater is addressed to non-technical users. The tool transforms investment amounts in the different sectors concerned by the program into GHG emissions, by applying a set of regional ratios. These ratios, such as the share of a given sector in the region’s value added, or its carbon intensity, for example, are based on region specific data which is provided by regional data centres (INSEE’s¹³¹ regional offices, for example). Users can also change some key parameters of the model in case they have more accurate information, such as modal shift,

¹²⁹ Contrat Plan Etat Région

¹³⁰ Délégation interministérielle de l’Aménagement du Territoire et de l’Action Régionale

¹³¹ French national statistical institute

which can differ significantly across regions, according to the available and projected transport infrastructures, etc. A complementary tool will even be created by Basse-Normandie in order to fully integrate the regional specificities in the modelling.

At the upstream stage, when the investments to assess are not very precise, Necater only translates their overall budget into GHG emissions, by taking into account solely the nature of the investments and the region under consideration. When possible, the tool allows users to add more details about the investments as for instance the number of jobs created, the capacity of generation of investments in renewable energies etc. below provides an insight of the tool's functioning as regards financial data collection.

Figure 5 Calculation process in Necater

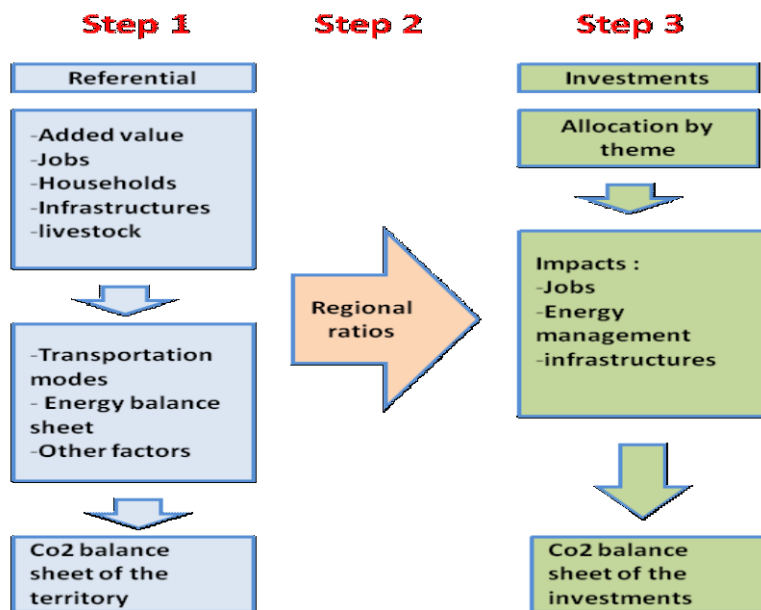
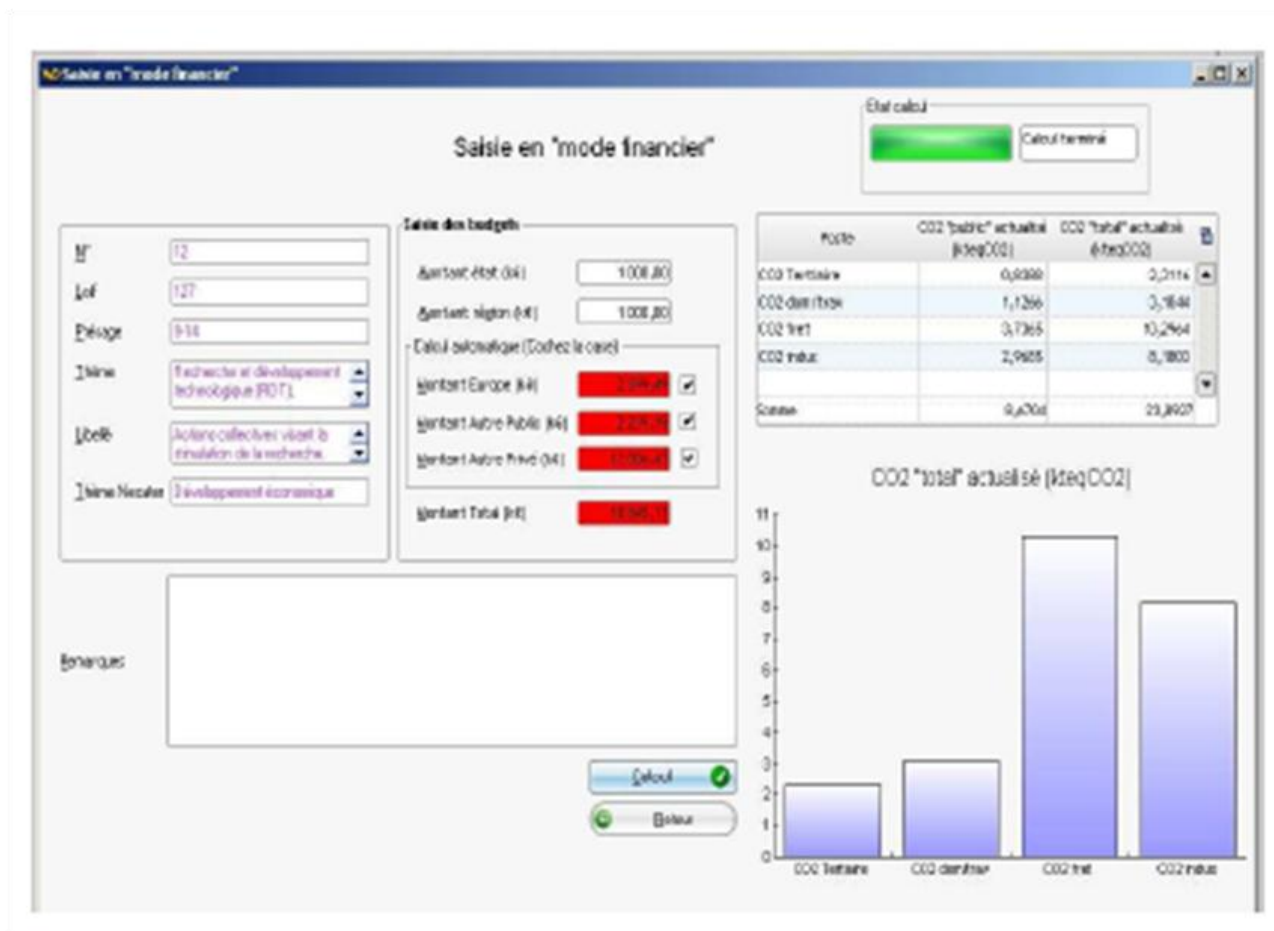


Figure 6 Financial data collection in the Necater tool



Gradually, along the advancement of the project, the ratios used in the initial version are replaced by more precise physical data which refine the assessment until the achievement of the programme. However, Necater is not precise enough to assess individual projects. It is meant to assess the overall carbon neutrality of multi-sectoral group of projects in order to assist public decision, to simulate the effect of various strategies or to evaluate the role of specific domains in the increase or decrease of GHG emissions.

The budget taken into account by Necater includes private funding. The investment realisation phase is distinguished from the exploitation phase. The programme is split into actions grouped in 5 themes: buildings, transport, energy management, environment, economic development. Each action is translated into GHG emissions by pre-calculated ratios specific to each region.

Transferability of this tool to other Member States

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

- The nature of the OPs: this tool has been developed for regional OPs and could not be used as such to evaluate sectoral OPs.
- The existence of socio-economic and technical data (such as region and industry specific emission factors) at regional level, reliable and precise enough to construct the regional ratios necessary to translate the sectoral investment amounts into GHG

emissions. Developed regional information systems do not exist in all the member states, especially, but not only, in the new Member States.

- Finally, the investments have to be different enough for the model to provide reliable and interpretable results: if there are only a few sectors concerned by the investments and if the amounts allocated do not differ significantly, the results will not be clearly interpretable.

These limitations may explain why carbon proofing of OP investments is not widespread. Only a few countries have been conducting similar evaluations, such as the United Kingdom (especially the South-West region).

7.0 Conclusions

Green investments are regarded essential for Basse-Normandie (as well as other regions) as they are likely to provide positive environmental and economic benefits and increase regional competitiveness. However, considerable work still has to be done in order to improve the evaluation of these impacts and show possible win/win solutions. Regarding this aspect, action and guidelines at the European level is essential.

The coherence between regional, national and European indicators has to be improved in order to improve the quality and comparability of impact assessments. This is a pre-requisite for the generalisation of eco-conditionality.

Necater, as a carbon-proofing tool, could be used more widely in impact assessments. However, its transferability to other MS is not immediate. Even if Necater has to be further refined to form the basis of carbon-conditionality, the existence of this carbon-proofing tool introduces de facto eco-conditionality in French OPs (given the countries global GHG emissions targets, this is not a very stringent constraint).

8.0 References

The analysis has been focused on Basse-Normandie, but other regions have been interviewed in order to consider a wider range of views and completeness regarding the use of carbon-proofing tools.

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9.0 Interviewees

- Pierre-François Clerc and Thomas Peguy, **Evaluation unit-Environmental Authority**, DATAR (*Délégation à l'Aménagement du Territoire et à l'Action Régionale*).
- Lionel ROUCAN, **Environmental Authority**, Regional Council of Auvergne.
- Karine BOSSER, **Evaluation unit**, ADEME of Basse-Normandie.
- Jean-François LOUINEAU, **Managing Environmental Authority**, Regional Council of Poitou-Charentes.
- Pierre CHANDELIER, **Environmental Authority**, General Secretary for Regional Affairs (SGAR) of Lorraine.
- Tristan LARSEN, **Managing Authority**, Development Director of Associated Norman Ports (PNA).

Table 7: Allocation of EU budget to the different categories of expenditures in Basse-Normandie

Activity (Codes)	Description	Budget EU
1	R&TD activities in research centres	€ 10,000,000
2	R&TD infrastructure and centres of competence in a specific technology	€ 15,000,000
3	Technology transfer and improvement of cooperation networks	€ 16,000,000
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 17,500,000
5	Advanced support services for firms and groups of firms	€9,000,000
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 1,000,000
7	Investment in firms directly linked to research and innovation	€ 5,000,000
8	Other investment in firms	€ 15,000,000
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 10,000,000
10	Telephone infrastructures (including broadband networks)	€ 7,000,000
13	Services and applications for citizens (e-health, e-government,	3,000,000

	e-learning, e-inclusion, etc.)	
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€5,000,000
15	Other measures for improving access to and efficient use of ICT by SMEs	€ 1,000,000
30	Ports	€ 18,000,000
40	Renewable energy: solar	€ 1,500,000
41	Renewable energy: biomass	€ 6,000,000
42	Renewable energy: hydroelectric, geothermal and other	€ 1,500,000
43	Energy efficiency, co-generation, energy management	€ 6,000,000
51	Promotion of biodiversity and nature protection (including Natura 2000)	€ 2,350,000
53	Risk prevention	€ 4,500,000
56	Protection and development of natural heritage	€ 8,150,000
61	Integrated projects for urban and rural regeneration	€ 12,500,000
85	Preparation, implementation, monitoring and inspection	€ 4,000,000
86	Evaluation and studies; information and communication	€ 2,345,410
TOTAL		€ 181,354,410

1.9 GERMANY: RECOVERING FROM ECONOMIC DOWNTURN WITH RENEWABLES, BREMERHAVEN

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1.0 Executive summary

- This case study focuses on the city of Bremerhaven. The city used investment in renewable energies, in particular off-shore wind energy, to overcome an economic downturn.
- Key to Bremerhaven's coherent actions was a binding decision by the regional government to invest in off-shore wind energy. This long-term strategy ensured the commitment of all relevant stakeholders.
- This wind energy strategy based on existing regional economic and natural assets in Bremerhaven (proximity to the sea, the harbour infrastructure, and a history in maritime R&D) enabled the city to pursue economic and ecological objectives in parallel.
- Cohesion Policy projects were complemented by actions funded under a wide range of other European, national and regional funding.
- A Strategic Environmental Assessment (SEA) was carried out but its findings regarding environmental assets and risk were little considered in Cohesion Policy programming. Job creation was the main driving factor for the city's actions with sustainable development objectives seen as a positive by-product.
- A number of other legislative, administrative and economic tools are applied to enhance environmental integration. Laws and regulations e.g. help start-ups in the field of renewable energy.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	x
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and Context

The city Bremerhaven with an area of approx. 79 km² and a population of 117,000 inhabitants forms together with the city Bremen (327 km² and 545,000 inhabitants) the Bundesland Bremen. Where possible, this case study focuses on Bremerhaven.

Bremerhaven faced an **economic downturn** in the 1990s. The previously dominant industrial sectors of shipbuilding and commercial fishery lost their relevance which led to large-scale unemployment. In 2004, whilst the unemployment rate in Bremerhaven was 20%, the German average only accounted to 11%. Two years prior to the ERDF funding period, unemployment rate in Bremerhaven was reduced to 14.7% (2009).¹³²

¹³² Magistrat der Stadt Bremerhaven, Statistisches Amt, Bremerhaven in Zahlen, Ausgabe Nr. 7, Juli 2010
<http://www.bremerhaven.de/downloads/39/29641/Bremerhaven+in+Zahlen+Juli+2010.pdf>

The **human capital** in Land Bremen is high when compared to the German average¹³³, the city Bremerhaven however benefits from this asset only marginally: Bremerhaven graduates represented only 5.6% of graduates in the Land Bremen.¹³⁴

This scenario is coupled with strong socio-economic segregation within the three boroughs (Grünhöfe, Leherheide-West and Lehe-Goethestraße) having a significant low-income population and unemployment rate up to 40%.

In 1992 the Land had to deal with an extreme budget emergency and had to rely on significant federal resources for the next decade. **Structural adjustment measures such as the establishment of fish-processing industries on the site of the previous fishery harbour and the development of special shipbuilding niche market were implemented.**

As a consequence of negative developments on the labour market in Bremerhaven, the city is characterised by significant emigration. Trend analyses by the Statistical Authority Land Bremen¹³⁵ predict a **decrease of the population** by 11.8% by 2020. The professionally most active part of the population at the age of 30 to 50 years is most affected with 20.1%.

In 2003, Bremen Senate decided to transform Bremerhaven into a centre for renewable energies in order to generate employment and tackle the economic downturn. It developed the **on and offshore wind energy strategy** for Bremen and Bremerhaven (*Konzept für On- und Offshore-Windkraft in Bremen und Bremerhaven*) which set the direction for activities in the fields of R&D, business support activities and qualification measures.

Before the start of the 2007 – 2013 Cohesion Policy funding, Bremerhaven had attracted four major manufacturers of wind turbines as well as companies specialised in offshore wind energy construction. Half of the €500 million invested in offshore wind power development along the German North Sea coastal region went to Bremerhaven alone. The Old/New Harbour (t.i.m.e.Port¹³⁶) has been already developed into a centre of service and technology for companies in the ICT and entertainment field. In addition, the city has created the Centre for Innovation and Business Start-ups (Innovations- und Gründerzentrum, BRIG), the Biotechnology Centre Bremerhaven (Bio-Nord) and the Gründerhaus Bau Bremerhaven (GH Bau).

2.1 Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Quality of the air	<p>The Land Bremen shows some abnormalities regarding climate and air pollution. In 2005, limits for particulate matter and nitrogen dioxide were exceeded for a limited period.</p> <p>Bremen reduced its CO₂ emissions by 500,000 tons per year by 2005. This amounts to 71.6% of the objective set by the Bremen Senat. Most of the CO₂ emission is produced by the manufacturing industry (57.4%).</p>

¹³³ According to Statistisches Landesamt Bremen, the share of high qualified employees out of all employees in 2004 was in Land Bremen with 10.4% higher than the German average (10%). Similarly, the R&D expenditures in Land Bremen in 2004 were with 2.7% of the regional GDP higher than the German average (2.5%).

¹³⁴ Statistisches Landesamt Bremen, 2007

¹³⁵ Statistisches Landesamt Bremen, September 2006

¹³⁶ t.i.m.e.Port stands for the sectors telecommunication, information, multimedia and entertainment

	Despite the achieved CO ₂ reduction there are concerns of opposing trends due to economic growth and a related increase in energy consumption.
Energy consumption	
Water resources	The largest environmental concern in Land Bremen is its ground water . Pollution is mostly due to extensive agriculture, dense living space and former industrial locations. It was estimated that only one out of six ground water bodies are likely to attain the objectives set in the EU Directive 2000/60/EC establishing a framework for Community action in the field of water policy ¹³⁷ by 2005 which is the lowest of all Länder. Regarding surface water , it is estimated that only 18% of Bremen's surface water will comply with the water quality objectives as stated in the Directive 2000/60/EC.
Natural risks	
Biodiversity	Bremen's large assets are its natural reservoirs which cover 21% of the Bundesland , more than double the German average of 10%. These areas present potential for tourism and contribute to biodiversity. The permanent green space represents 63% of the total area. In fact, in the period 1997-2003 this share increased by 7%, while at the national level, the share of permanent green space decreased by 12% between 1990 and 2003. Despite the fact that Bremen's share of forests represents only 1.9% of the national total, 69% of this is classified as healthy (damage level 0) and 29% shows only minor damages.
Population and Human Health	With approximately 56.2% of settlement and traffic areas, Bremen's share as a Stadtstaat (city region) is considerably larger than in regional Länder (Flächenstaat) but smaller than in other city regions such as Berlin (69.4%) and Hamburg (58.6%). This share has increased by 5% due to demand for settlement area since 1997. The expansion of settlement and traffic area has negative environmental consequences. E.g. loss of land, increase in water demand. In Land Bremen 3,017 areas have been identified as a contaminated land , a number relatively low when compared with other Länder. The concentration of heavy metal occurs in particular in the city Bremen due to its higher population density, emission and fertilisers but is low compared with other Länder. Noise disturbance is an important issue in the Land Bremen given the central location of the airport in the city Bremen. Each of the environmental challenges presented above, in particular, air pollution, water pollution and soil pollution, has a relapse on human health.

¹³⁷ Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327, 22 December 2000, p. 1 - 73

2.2 Current investment context

More than half of **2007 – 2013 Cohesion Policy funding** is used to promote growth, innovation and knowledge. For Bremerhaven, these activities are related to establishing off-shore wind energy as new sector and include R&D, knowledge transfer, attracting investors and networking.

Besides investments allocated through Cohesion Policy, Bremerhaven benefits from other European and national funding that finance the **on and offshore wind energy strategy** for Bremen and Bremerhaven. This comprehensive strategy is based on coordination of multiple aspects and policies (e.g. R&D, environmental sustainability, labour market policies, etc); which requires a coordination of multiple funds in order to achieve the overarching strategy objectives. At the European level, funding is received from the European Fisheries Fund (EFF), the European Agricultural Fund for Rural Development (EAFRD) and by the ERDF under the “European Territorial Co-operation” instrument. While all these funds are directed towards the achievement of the same overarching objectives, they target different aspects of the wide strategy and thus avoid double-funding of the same measures.

- The Land Bremen declared Bremerhaven’s fishery harbour as commercial fishery area and anticipates supporting businesses in the field of fish-processing and marketing as well as measures to promote the touristic centre in the oldest part of the harbour. In this sense **EFF** funding is a complement to ERDF priority axis 2.
- The Land Bremen in a consortium with Land Niedersachsen receives **EAFRD** funding to strengthen the competitiveness of the agriculture and forestry in the area, to improve the environment and nature and to increase the quality of life in the rural area. The “development measures for nature and landscape” (code 323) in particular complement the ERDF funded measures under 2.3 “Promotion of the cities Bremen and Bremerhaven”.
- The Land Bremen receives **ERDF funding under the instrument “European Territorial Co-operation”**. The North Sea programme INTERREG IV B supports Bremerhaven’s activities on offshore wind energy in the context of “Power Cluster” project¹³⁸. These activities are led by BIS Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH on behalf of the Senators für Bau, Umwelt und Verkehr. 18 partners from UK, Denmark, the Netherlands, Sweden and Germany participate on this project.

At Land level, a number of programmes have been initiated to complement these activities. While national funding are available, stakeholders have argued that they would not have been sufficient to ensure the success of the on and offshore wind energy strategy.

- **Land Programme “Arbeit and Technik”**: The Land Bremen supports SMEs to introduce new technologies, techniques, qualifications and to organise¹³⁹ complementary measures to improve business productivity and adaptability under ERDF priority axis 1.

¹³⁸ www.power-cluster.net

¹³⁹ <http://www.soziales.bremen.de/detail.php?gsid=bremen69.c.3281.de>

- **Strukturentwicklungskonzept Bremerhaven 2020:** This long term strategy started in 2003 aims at overcoming the city's structural crisis by upgrading the harbours and infrastructure, developing science and education as a complement to priority axis 1 of ERDF funding.¹⁴⁰
- **The State Investment Programme (Landesinvestitionsprogramm-LIP)** for Bremen¹⁴¹ subsidises businesses that decide to settle in the Land and create jobs. In 2008/2009 the programme supported companies such as WeserWind GmbH, Innovative WindPower AG, and Power Blades GmbH.¹⁴²

While multiple financial tools are in place to support economic growth and innovation in Bremerhaven, an independent evaluation¹⁴³ has stressed how the role of the ERDF is crucial to foster regional innovation systems. Stakeholders at the national and European level have confirmed this. In particular, the multiannual nature of the ERDF support has ensured continuity and stability and the attention of ERDF to the environment has initiated a path of sustainable development. At the same time, according to the independent evaluator, 'a centrally organised programme does not offer the same advantages for strengthening a regional innovation system'¹⁴⁴. Therefore, it concludes that **national funds can complement the ERDF, but not substitute it.**

3.0 Governance mechanisms

With the strategic decision of the Bremen Senat to establish off-shore wind energy as a new sector to promote employment, great conditions were created to combine employment and environmental objectives in Bremerhaven. Coordination across different departments appeared to be particularly efficient, since this strategy was binding for all government departments. Moreover, it enhanced the collaboration between the departments and forced decision makers to sit at one table to discuss actions and the contributions of each department.

Similarly, all relevant stakeholders participated in the planning and programming process from the beginning. Stakeholders consultation were carried out and, according to the Commission Programme Manager, they did not simply constitute a tick boxing exercise. The Bremerhaven community (both citizens and business) was consulted during the development of the wind energy strategy to ensure agreement and support. In this context, both economic and environmental actors discussed the following steps in implementing the wind energy strategy.

The Bremen senator for Economy and Harbour became the main decision making body related to Cohesion Policy instruments. The department 23 "Regional and economic programmes, external trade and international economic relations" manages the activities under the Cohesion Policy, the Department 03 "Budget" approves financial decisions and the Internal revision department is the audit authority.

¹⁴⁰ <http://www.senatspressestelle.bremen.de/detail.php?id=15058>

¹⁴¹ Der Senator für Wirtschaft und Häfen, Förderung nach dem Landesinvestitionsförderprogramm (LIP 2008), 2009

¹⁴² Förderung der gewerblichen Wirtschaft, Verzeichnis der Begünstigten für das Land Bremen, LIP 2007/2008, Zuschussförderung

¹⁴³ <http://www.efre-bremen.de/sixcms/media.php/13/Prognos%20Bremen%20Presentation%20Bruxelles%2014092010%20FINALS.pdf>

¹⁴⁴ See note 14

Other relevant stakeholders are the Chamber of Commerce, Deutscher Arbeitgeberbund (DGB, German employers' association), Arbeitnehmerkammer (Chamber of Employees), Gesamtverband Natur und Umweltschutz Unterweser (GNUU, Association for nature and environmental protection at the river part Unterweser), and Zentralstelle für die Gleichberechtigung der Frau (equality authority) participated in the decision making process for Cohesion policy instruments by submitting statements to the ERDF OP draft.

A private consultancy firm involved in the programming phase confirmed the good cooperation between different departments of the Bremen Senat. The interviewee emphasised the early and pro-active involvement of the Senator for Environment in the context of the SEA.

A wide range of tools such a SWOT analysis, an ex ante evaluation of the ERDF programme and a Strategic Environmental Assessment (SEA) was applied in order to ensure that the interventions are coherent, effective and efficient, and contribute to both growth and employment (Lisbon Strategy) as well as sustainable development (Goteborg Agreement). Additionally, an impact assessment of ERDF support on regional innovation systems in Land Bremen was completed in 2010.¹⁴⁵

- The **ex ante evaluation** confirms a smooth decision making process and highlights the participation of the relevant stakeholders (economic and social partners) from an early stage of the process which led to the fact that GNUU for example did not have express any concerns to the SEA draft circulated among the stakeholders for comments. An ex ante evaluation of the ERDF programme was commissioned to assess the relevance, the internal coherence of the proposed interventions, the external coherence of the programme with other regional, national and European policies, the impacts of the interventions and the governance structures and processes. The evaluation confirms that the ERDF programme successfully addresses both the economic and environmental objectives of the Land Bremen.
- The **SEA** did not discuss alternatives to the planned interventions but instead measures were outlined to minimise potential negative impacts of some interventions such as the usage of fallow land for measures for 2.1 (development of boroughs and communities, revitalisation of business locations) and 2.2 (development of urban areas with specific economic potential) and the support of energy efficient technologies and renewable energies for 1.4 (business investment support). Furthermore, requirements for an effective monitoring system were presented.
- Separate **Environmental Impact Assessments (EIA)** were not conducted at project level. However, national law requires Umweltverträglichkeitsprüfungen (UVP) (Environmental Impact Assessment) for all projects that might have consequences to the environment. The UVPs apply indicators similar to those in an EIA.

According to public sector interviewees, the process was perceived as transparent by all relevant stakeholders. Responsibilities were clearly defined. During the project selection process, the Land Bremen established **selection criteria**¹⁴⁶ to be applied for each of the

¹⁴⁵ Prognos AG, Analyse zu den Wirkungen der EFRE-Förderung auf das regionale Innovationssystem im Land Bremen und daraus abgeleitete Handlungsoptionen für die Fortführung des RWB-Ziels nach 2013, Endbericht, 3 March 2010

¹⁴⁶ ERDF Bremen site, <http://www.efre-bremen.de/sixcms/detail.php?gsid=bremen59.c.2511.de#Projektauswahlkriterien>

proposals. One of the sections in the ‘Checklist for project selection for the ERDF Programme 2007 – 2013’¹⁴⁷ refers to the project contribution to cross-cutting environmental targets (e.g. soil, water, biodiversity, etc.).

A **Monitoring Committee** (Begleitausschuss)¹⁴⁸ was set up by the Land to accompany the implementation of the 2007 – 2013 Cohesion Policy. It supervises the compliance with the selection criteria, assesses the project progress and the achievement of the objectives, and approves the annual reports. **The composition of the Monitoring Committee ensures that environmental objectives are reasonably considered**, since environmental players from the government and non-governmental sector are involved. They include:

- Senators of Land Ministry for environment, construction, traffic and Europe (Umwelt, Bau, Verkehr und Europa der Freien Hansestadt Bremen)
- Association for nature and environmental protection at the river part Unterweser (GNNU, roof organisation of natural protection organisation in Bremen and Bremerhaven)

The Monitoring Committee meets once or twice a year and revises ERDF projects once a year.

4.0 Overview of environmental objectives, measures and allocations

The thematic and financial emphasis of the Bremen 2007-2013 OP is on the ongoing development and implementation of Bremen’s regional innovation strategy ‘**InnoVision 2010**’. The intention of Bremen’s “InnoVision 2010” Programme is to make Bremen one of Germany’s top ten locations for technology by 2010. This aim is taking up the European “Lisbon Strategy”. The three main pillars of the InnoVision 2010 strategy are:

- strengthening existing and fostering new clusters of excellence in the field of innovation;
- expanding research and development capacities and corresponding training courses in application-related fields;
- creating a suitable environment to foster innovation.

The ERDF (and in particular Priority Axis 1 of the OP) and complementary national and private funds contribute to the achievement of these goals. Given the high level of unemployment, in particular in Bremerhaven, as a consequence of the economic downturn in the 1990s, **growth-induced job creation** became an essential goal and still **is the main objective** to be achieved with ERDF funding 2007–2013. The programme aims inter alia at creating and maintaining up to 5,000 jobs. Its indicative share of Lisbon-relevant categories of expenditure amounts to 69%.

Sustainable development is one of the cross-cutting objectives outlined in the OP. Specific environmental objectives are:

- Usage of primary energy
- Reduction of CO₂ emission

¹⁴⁷ Available at <http://www.efre-bremen.de/sixcms/detail.php?gsid=bremen59.c.2511.de#Projektauswahlkriterien>

¹⁴⁸ <http://www.efre-bremen.de/sixcms/detail.php?gsid=bremen59.c.2930.de>

- Development of innovative environment friendly and resource conserving technologies
- Promotion of natural potentials

It is further highlighted that negative environmental impacts should be avoided as far as possible, e.g. through the usage of fallow land.

The "**Operational Programme Bremen 2007-2013 ERDF** (OP) reflects these objectives. The European Commission approved this regional OP on 5 July 2007. This programme involves Community support for Bremen within the framework of the "Regional Competitiveness and Employment" objective. The total budget of the programme is around € 322m and Community assistance through the ERDF amounts to € 142m (approximately 0.54% of the total EU structural funds as fixed in the German NSRF for 2007-2013). Table 32 provides an overview of priority axes, measures and the financial contributions of the Commission and national sources.

Table 32: Overview of funding 2007-2013¹⁴⁹

Priority axes	EU Contribution	National Public Contribution	Total Public Contribution
1. Promote growth, innovation and knowledge	94 800 000	55 510 000	150 310 000
2. Activate urban living spaces and markets	45 000 000	43 500 000	88 500 000
3. Technical assistance	2 206 631	2 206 631	4 413 262
Total	142 006 631	101 216 631	243 223 262

Source: DG Regio, Inforegio

Priority axis 1 comprises activities to support innovative technologies, knowledge and technology transfer through competency centres and clusters, increased business productivity and adaptability through innovative start-ups and the use of modern ICT and business investments. The vast majority of activities related to the promotion of off-shore wind energy are linked to this priority axis.

Priority axis 2 includes the development of boroughs and communities through the support of ICT infrastructure and green space, the revitalisation of business locations, the development of urban economic areas with specific potential through infrastructure measures and the promotion of the cities Bremen and Bremerhaven through upgrading measures at the Weser littoral zone and support of sciences in society. Technical assistance covers costs for administration, evaluations and assessments, publication of reports and knowledge exchange.

The establishment of off-shore wind energy in Bremerhaven is well aligned with both the economic and environmental objectives of the OP for Bremerhaven. The support of a new sector helps creating jobs, the qualification of former shipyard workers helps them get back on the labour market, and investment into R&D on renewable energies and materials creates jobs for researchers, developers and support staff.

¹⁴⁹

http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=DE&gv_reg=ALL&gv_PG=1090&gv_def_L=9&LAN=7

Similarly, wind energy promotion directly follows the objective of using more primary energy and developing innovative and environment-friendly technologies since off-shore wind energy is a new sector in general and in Bremerhaven in particular.

However, direct links to the results of the Strategic Environmental Assessment could not be found. The state of the environment, e.g. the worrying situation of the ground water, is not explicitly considered when planning and programming the implementation of the off-shore wind energy strategy. This was explained by public sector interviewees by the fact that the main objective was and is to create jobs to overcome the high unemployment rate and to prevent further immigration. However, it was also highlighted that **all job-creating activities do promote green economy and follow the OP’s environmental objectives even if the stage of the environment was not the main driver of the activities.**

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

Overall, the activities under the ERDF programme for Bremerhaven successfully address both socio-economic (Lisbon) and environmental objectives (Goteborg). A number of interventions produce synergies between growth and employment on one side and energy efficiency and the support of renewable energies on the other as outlined in more detail below.

The risk of potential trade-offs between economic and ecological objectives are considered during the whole process of programming, tendering, project selection and project implementation.

The ex ante evaluation of the Land Bremen ERDF programme 2007 – 2013 assesses the coherence between planned measures and environmental objectives. While most measures are estimated to be neutral to the environment, potential synergies (win-win) and trade-offs (win-loss) have been identified as well, see Table 33.

Table 33: Coherence between measures and environmental objectives

Priority axes	Measures	Environmental impact
1. Promote growth, innovation and knowledge	1.1 Innovative technologies	N/+
	1.2 Knowledge and technology transfer	N/+
	1.3 Business productivity and adaptability	N
	1.4 Business investment support (infrastructure measures)	-/+
2. Activate urban living spaces and markets	2.1 Development of boroughs and communities, revitalisation of business locations	-/N
	2.2 Development of urban areas with specific potentials	-/N
	2.3 Promotion of the cities Bremen and Bremerhaven	+

Source: Ex ante evaluation, p 36

Notes : 'N' – neutral, '+' – win/win, '-' – win/loss

Priority axis 1 is particularly relevant for analysing activities related to the establishment of a wind energy sector in Bremerhaven. Measures related to the support of innovative, applied environment friendly technologies (1.1) and knowledge and technology transfer through the upgrading of competence centres and networks (“Ecological intelligence”) (1.2) will focus on the areas renewable energies, in particular offshore wind energy, and on efficient energy generation and energy consumption, and therefore **positively contribute** to achieve the environmental objectives outlined in Chapter 4.

The support of business investment (1.4) may **lead to positive as well as negative environmental impacts**. On one hand, planned constructions will lead to increased land consumption and to higher energy demand, on the other the use of renewable energies and environment friendly and resource conserving materials and processing methods contribute to and promote energy efficiency and therefore have positive environmental impacts. Activities under this category are a good example to assess how investments integrate environmental and economic considerations to avoid a win-loss situation.

Direct support of businesses to adjust and settle in Bremerhaven (1.3) is considered to be **neutral** to the environment.

As mentioned above, the off-shore wind energy strategy for Bremerhaven formed the basis for policy planning and programming in all departments and, according to public sector stakeholders, achieved a **wide commitment among all relevant decision makers** at Länder level. The three departments (Senators) for Economy, Education, and Sciences and Environment combined their efforts and contributed to the implementation of the strategy with specific activities:

- **Senator for Education and Sciences: R&D**

The Fraunhofer Institute for Wind Energy and Energy System Technology (IWES) was established in 2009. Research focuses on material sciences related to wind farms, meteorology and flora and fauna. At Hochschule Bremerhaven a master programme on wind energy technology was created.

A number of research projects at various academic bodies were dedicated to the development of wind generators under the programme “product innovation”. Pilot versions were developed and test fields were approved in the North and Baltic Sea to check the pilots under real conditions.

- **Senator for Economy and Harbours: Infrastructure and business support**

The pier around the old harbour was restored in order to be fit for handling heavy duty. Wind energy related firms received subsidies to start up their business in Bremerhaven.

- **Senator for Labour, Women, Health, Youth and Social Affairs: Qualification**

Vocational training, related to the needs in the wind energy technology sector, was provided to unemployed persons.

- **Networking**

The Windenergieagentur Bremerhaven e. V. (WAB) was created in 2002. It fulfils the functions of bringing wind energy related players in Bremen and Niedersachsen together. To date, WAB counts 300 members.¹⁵⁰

A public sector stakeholder highlighted in particular **the coherence and consistency of actions in Bremerhaven** during the past seven years. All activities outlined above draw from existing potential and have contributed to establishing of wind energy as the main sector for the region. The fact that the ERDF funds a wide variety of projects, from R&D to infrastructure to networking, forces all stakeholders to sit at one table and to agree on a common strategy. This is seen as key for the successful development in Bremerhaven.

All public sector interviewees agreed that the wide funding frame of the ERDF was essential to achieve the win-win outcomes presented above. In order to increase the use of renewable energies in the long term, **not only directly related activities such as R&D and knowledge transfer are necessary but also indirect measures such as infrastructure development and setting incentives for businesses** to establish offices in Bremerhaven.

The example of large-scale infrastructure measures was controversial from the beginning. The activity involved construction work aiming to enable heavy load transport on the premises of the business park Luneort. The construction activities would lead to increasing soil sealing and therefore were problematic in an environmental sense.

According to interviewees, the infrastructure measures were eventually agreed because:

- The off-shore wind energy strategy for Bremerhaven clearly focused on creating new jobs. By enabling the transport of heavy loads, the upgrade of the business park Luneort would clearly enhance its attractiveness for businesses and therefore would lead to job creation.
- The construction measures were necessary to be able to make full use of support for innovative technologies (1.1), knowledge and technology transfer (1.2) and support of business productivity and adaptability (1.3).
- The infrastructure measures absorbed €5,829,692 ERDF funding in the period 2008 - 2010. This presents only 4.1% of total ERDF funding which amounts to €142,006,631 in the period 2007 – 2013. Within priority axis 1, the infrastructure measures absorbed 6.1% of ERDF funding. As a result of proportionality of shares, the measures show clear positive environmental impact.
- According to the German law, law compensation measures must be adopted in case of sealed soil. Accordingly, measures are to be undertaken to upgrade soil at other places by rehydrating agricultural land to transform it into natural reservoir.

The establishment of Windenergieagentur Bremerhaven/Bremen (Wind Energy Agency) under 1.2 is expected to be a sustainable investment. The agency was set up in 2002 and two full-time positions were funded initially. By now, 70% of the budget is covered by its own resources and the objective in short-term future is to become independent from public funding. The agency was also able to establish a study programme on wind energy in

¹⁵⁰ WAB website, http://www.windenergie-agentur.de/deutsch/aktuelles/wab_news/20100920.html

cooperation with the university Oldenburg which solely operates on the basis of fees. However, a representative pointed out that the coverage area of the OP for Land Bremen is too limited given the wide sea coast at the northern German border and the interest in cooperation expressed by wind energy businesses.

In summary, wind energy investment in Bremerhaven **falls within decoupling development path (path F)**. Although the German wind energy concept is in general highly praised¹⁵¹, some stakeholders question the sustainability of the large-scale wind parks. According to an article by Vandale (2010), the offshore wind park “Alpha Ventus” will be subsidised for 14 years. The author expects the park to be shut down right afterwards since the remaining subsidies of 3.5c/KWh will not cover the operation costs.¹⁵² Additionally, critics claim that Germany’s CO₂ emission has actually risen since its increased use of wind power. The director of the UK-based Renewable Energy Foundation (REF) says that Germany is building five new coal power stations purely to provide covering power for the fluctuations from its wind farms.¹⁵³ It was further criticised that a number of large scale wind energy projects are in the pipeline but procedures are time-consuming and ineffective, e.g. connecting wind parks to the energy net.¹⁵⁴

Given the long term funding schemes and wide commitment by the relevant policy makers in Land Bremen, this strategy is believed to be sustainable both economically and ecologically. According to all interviewees, the off-shore energy strategy has proven successful so far. While it is not possible to measure to what extent ERDF investments in wind energy (or in the green economy more in general) have contributed to job generation, the German Wind Energy Association (BWE) claims that the wind energy market in Germany employs up to **100,000 people**¹⁵⁵. Moreover, the European Wind Energy Association¹⁵⁶ suggests that, on average, the wind energy sector in Europe has created **33 new jobs every day, seven days a week over the past five years**. Consequently, the wind energy sector appears to be a fast growing market with large potential in terms of job creation.

5.2 Other tools to enhance environmental integration

A number of other economic, administrative and legislative tools are in place to stimulate and support green investment. The biggest driving force is the German federal law related to construction and CO₂ in general, and on renewable energies and energy infrastructure in particular. States and public administration bodies are expected to target resources to achieve the standards and comply with these regulations. Additionally, Bremen applies specific measures such as green procurement obligations within the administration and construction standards that are stricter than federal obligations in terms of energy efficiency:

¹⁵¹ ‘Germany’s Encouragement of Renewable Energy’, Renewable Energy Policy Project, 1999, http://www.repp.org/repp_pubs/articles/issuebr14/03German.htm. ‘Wind energy in Germany – current market situation and future perspectives’, German WindEnergy Association (BWE), 2009, <http://www.wind-energie.de/en/wind-energy-in-germany>

¹⁵² Vandale, Ein wenig Kritik an der Windenergie, 02.05.10, oekoreligion.npage.de/get_file.php?id=12259500&vnr=776355

¹⁵³ , Does money grow in wind farms?, Telegraph, 13 Jun 2010

¹⁵⁴ , RWE und Siemens bauen größten Windpark der Welt, Zeit Online, 4.6.2010

¹⁵⁵ <http://www.wind-energie.de/en/wind-energy-in-germany/>

¹⁵⁶ Nicolas Fichaux, Head of Policy Analysis, European Wind Association, ‘Wind at work; Wind energy and job creation in the EU’, 22 June 2009

- The 2009 federal law on renewable energies (**Erneuerbare-Energien-Gesetz (EEG)**¹⁵⁷) determines the share of renewable energies in the energy grid and in this way guarantees demand and revenues to providers of renewable energies for up to 20 years.
- The infrastructure acceleration law (**Infrastrukturbeschleunigungsgesetz**) obliges large energy providers to ensure providers of renewable energies have access to their networks. However, a 2009 article criticises the law as not very effective so far.¹⁵⁸
- The Land Bremen committed itself to stricter regulations on **energy standards in construction and refurbishment** compared to federal standards.¹⁵⁹
- The regional government coalition agreed on **ecological standards** to be applied **in its administration** for the election period 2007 – 2011. According to this agreement, procurement has to happen across the departments to save resources.¹⁶⁰

These laws and regulations are certainly environment-friendly and prove that there is a political commitment to the green economy though they are not always fully implemented and enforced.

6.0 Implementation and absorption

6.1 Absorption

By the end of 2009, the Managing Authority reported that it had spent approx. €111m in the funding period 2007 – 2009 which is a little less than half of the total funding approved for 2007 – 2013 (€243,223,262). Funding received from the ERDF amounts to €23.4m by the end of 2009. For priority axis 1 which is relevant for wind energy activities, the ERDF allocated approx. €20.2m which is less than one fourth of the total €94.8m agreed for the whole funding period.

A few examples should illustrate how the funding was used in the funding period 2007 to 2013. They are based on the impact assessment on regional innovation systems report 2010.¹⁶¹

- In 2009, the Fraunhofer institute for wind energy and energy technology (IWES) was set up. It conducts R&D along the supply chain in the wind energy sector, e.g. on materials. The total investment is €10m out of which €4.5m is ERDF funding. This project falls under priority 1.1
- Priority funds R&D co-operations between academia and business. Under the programme “Applied Environmental Research” (AUF) 3 projects have been funded so

¹⁵⁷ Erneuerbare-Energien-Gesetz, <http://www.erneuerbare-energien.de/inhalt/40508/>

¹⁵⁸ ‚Experten verreißen pompöse Windpark-Pläne‘, Spiegel Online, 14.09.2009

¹⁵⁹ Senator für Umwelt, Bau, Verkehr und Europa, Energetische Anforderungen an den Neubau und die Sanierung von öffentlichen Gebäuden der Freien Hansestadt Bremen (Land und Stadtgemeinde), Directive, 2010

¹⁶⁰ Sozialdemokratische Partei Deutschlands, Landesorganisation Bremen and BÜNDNIS 90/DIE GRÜNEN, Landesverband Bremen, Vereinbarung zur Zusammenarbeit in einer Regierungskoalition für die 17. Wahlperiode der Bremischen Bürgerschaft 2007 – 2011, 2007

¹⁶¹ Prognos, Analyse zu den Wirkungen der EFRE-Förderung auf das regionale Innovationssystem im Land Bremen und daraus abgeleitete Handlungsoptionen für die Fortführung des RWB-Zieles nach 2013, Endbericht, März 2010

far. The total investment is €680,000, the ERDF share is €330,000. The Programme on the Support of applied Environmental Technologies (PFAU) funded 7 projects within the current funding period. The total investment was €1.4m out of which €617,000 was funded by the ERDF.

- The business park Luneort falls within priority 1.4 infrastructure measures. The project funded construction measures to enable heavy loads to be transported across the business park. The total investment up to 2010 is €10.7m, the ERDF share amounts to €5.8m.
- In April 2010, Germany's first off-shore wind park alpha ventus was opened.¹⁶² The park does not only serve as an energy generator but also as test field for R&D in the environmental field.

6.2 Preliminary outcomes

It is still too early to assess impacts of Cohesion Policy funding 2007 – 2013. While it is difficult to attribute economic performance directly to ERDF funding, the unemployment rate in the Land Bremen decreased from 13.2% in 2008 to 12.7% in 2009 while the investment rate¹⁶³ increased from 13.2% to 14.1% in the same period. While the unemployment rate (especially in Bremerhaven) is still higher than in the rest of Germany, the rate has been decreasing substantially in the past decade and, according to national and EU level officials, structural funds have definitely contributed to this achievement¹⁶⁴.

In terms of immediate outcomes it can be reported that 10 co-operations between academia and business had started by end of 2009 and 44 business start-ups had been reported although it is not specified what share falls under the green economy.¹⁶⁵

7.0 Conclusions

All stakeholders emphasised that in particular the 2003 Senat decision to establish off-shore wind energy as a new sector in Bremerhaven was the driving factor combining forces and setting up joint planning and programming among the relevant regional departments. More than **half of the €500 million invested in offshore wind power development along the German North Sea coastal region during the past years went to Bremerhaven alone.** This is probably explained by the existing regional economic and natural assets in Bremerhaven (proximity to the sea, the harbour infrastructure, and a history in maritime R&D), which enabled the city to attract funds and at the same time pursue economic and ecological objectives in parallel. Moreover, the off-shore wind energy strategy for Bremerhaven clearly focused on creating new jobs in order to counter the high unemployment rate in the region.

Cohesion Policy is perceived as a relevant instrument by all interviewed stakeholders. It was highlighted that not only the funding plays an essential role to achieve the employment and

¹⁶² Deutschlands erster Offshore-Windpark alpha ventus wird feierlich eröffnet, press release, 27 April 2010, <http://www.alpha-ventus.de/>

¹⁶³ Gross investment in equipment / BIP

¹⁶⁴ The Commission Desk Officer for Bremer has confirmed that, even though it is hard to investigate the direct relation between the unemployment rate and structural funds, the latter have definitely contributed to the reduction in unemployment rates.

¹⁶⁵ Annual report 2009, Annex IIa, p V

environmental objectives of the OP. Cohesion Policy additionally worked as a driver for coordination among the relevant decision makers. Due to the fact that a wide range of activities is funded over a long period, the regional departments of the Land Bremen, i.e. Economy, Education and Sciences, Labour and Social Affairs as well as Environment, had to agree on a joint programme for the Land for 2007 – 2013. Consequently, long-term commitment was secured from all relevant players which positively influenced the implementation of the ERDF projects. Independent evaluators have also stressed that **the success of ERDF support, as opposed to national funds support, is based on multiple factors**: for instance, the capacity to address multiple groups of stakeholders, the ample toolbox of instruments to address different needs, the multiannual support horizon and the de-centrally organised project selection system. In conclusion, the ERDF support ‘played a vital launch role for the offshore wind energy industry and the development of the regional innovation system’¹⁶⁶.

Additionally, Bremerhaven has been able to coordinate, under the **shared management of resources**, the contributions of multiple funding tools (i.e. ERDF, EARDF, EFFs) for the financing of a wide range of activities and for the achievement of long-term objectives. Each of these instruments focuses on specific aspects, as defined by EU regulations, but they complement ERDF in the achievement of the priorities identified in the OP. Bremen’s strategy to invest into renewable energies comprises a wide diversity of activities such as R&D, qualification of workers, networking between business and academia and investment into infrastructure to attract businesses. Frequent progress updates in the Monitoring Committee ensure coherence between the activities across all stakeholders and across all funding sources.

Job creation is the overall objective that the Land Bremen wants to achieve using Cohesion Fund. The state of the environment, e.g. the worrying situation of the ground water, is not explicitly considered when planning and programming the implementation of the off-shore wind energy strategy and EU funds are not used to address the most pressing environmental challenges, as identified in the Strategic Environmental Assessment. EU funds are instead used to address the most pressing economic issues, by **investing in the environment where this has strongest synergies with economic development**.

Nonetheless, sustainable development objectives are identified in the OP as well. Even more, a development strategy was chosen which pursues both economic and environmental objectives and seeks to produce win-win situations. Proximity to the sea, history of maritime R&D and manufacturing and harbour infrastructure were the driving factors for “decoupling” and Cohesion Policy helped to put this development path into practice. It was also highlighted that all job-creating activities do promote green economy and follow the OP’s environmental objectives.

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9.0 Interviewees

- Bremen Senator for Economy and Harbour, Department 23 “Regional and economic programmes, external trade and international economic relations” (Managing authority), Melanie Hoffarth
- Bremen Senator for Economy and Harbour, Department 12 “Angelegenheiten Bremerhaven, Fishery”, Jörg Peters
- Senator für Umwelt, Bau, Verkehr und Europa, Leiterin Referat 20 - Umweltinnovation, Kommunikation, Gertrud Schumpp, Dr. Ulrike Christiansen, Referat: Umweltinnovation, Kommunikation, Der Senator für Umwelt, Bau, Verkehr und Europa, Email contribution 22/09
- Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH (BIS), Nils Schnorrenberger on behalf of Magistrat Stadt Bremerhaven, Bau- und Umweltausschuss
- Desk Officer, European Commission, DG REGIO, Programme Manager - EU policies - Germany: Berlin and Bremen, Franck Elholm
- Windenergieagentur Bremerhaven / Bremen e.V. (WAB), Ronny Meyer
- Rambøll Management, Annegret Bötzel (ex ante, SUP)

1.10 HUNGARY: FLOOD MANAGEMENT ALONG THE TISZA RIVER IN HUNGARY

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1.0 Executive summary

- This case study focuses on the major project on flood management along the Tisza River in Hungary.
- 23% of the territory of the Hungary is threatened by floods. Together with inland waters they cover almost 50% of the country, or two thirds of the land under cultivation. Currently the number of population potentially affected by flood damage is approximately 2.3 million.
- The condition of flood protection structures is not satisfactory: 35% of the main flood protection dykes do not reach the necessary height.
- Hungary's second largest river Tisza and its floodplains have been heavily modified over the past 130 years. To cater for large-scale monoagriculture and river transport the river was canalised and straightened and the floodplains drained.
- The Vásárhelyi Plan (VTT) provides a national framework for the flood management investments in Hungary since 1999. The VTT combined classical flood protection measures (dykes, drainage, mono-purpose reservoirs) with concepts of floodplain management and rural development. However, the currently observed focus narrowed to implementation of individual EU-funded projects, which concentrate only on classical flood protection measures, could undermine the comprehensiveness of the program in the longer term.
- Six big flood reservoirs in Upstream and Middle Tisza are being built as part of the new Vásárhelyi Plan. 1.2 billion Euro from EU funds in period of 2007-2013 is earmarked for flood management measures. 4 of the 6 reservoirs foreseen for Tisza valley in the new Vásárhelyi Plan were and will be funded under EU Cohesion Policy.
- There is a threat, mainly due to poor governance, that the implementation of projects will not generate the results originally envisaged in the VTT. It may happen that the chance to initiate a land use change along the river Tisza on the former floodplains will be missed, although the land use change would have positive impacts on the water balance as well as the habitat diversity and biodiversity of this large area
- A key success factor to the implementation of the VTT would be better coordination of the physical investments financed from Cohesion Policy with agricultural subsidies system, which would allow introduction of desired changes in land use in the floodplain areas.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	X
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	X

2.0 Background and Context

Hungary joined the European Union in 2004 and in the 2004-2006 programming period, a total of €2 billion were granted from EU budget to Hungary. For the period 2007-2013 a total of 25.3 billion Euros has been made available through Cohesion Policy instruments for Hungary.

The main framework for use of 2007-2013 structural assistance is provided by the National Strategic Reference Framework (NSRF) – the New Hungary Development Plan. It has 15 Operational Programmes (OPs) that define the areas in which the available funding could be used either at sector or regional levels. The key OP in the context of flood management is the Environmental and Energy OP.

2.1 Current status of the environment

According to the analysis presented in the Environment and Energy Operational Programme (OP), the negative impacts of economic development on the environment have been significantly reduced since the fall of centrally planned economy. The state of the environment is generally improving while new challenges are however arising.

Major towns and the agglomeration of the capital city have become such a pollution source that they have large polluting effects even outside their area. The amount of municipal solid waste generated keeps growing in spite of the increasing reuse and recycling rates because of a lack of waste reuse and recycling infrastructure.

Until recently, developments in the transport sector and investments in transport infrastructures have led to negative changes in terms of environment and health protection. In the last 15 years, public road transport has become the most problematic sector from the point of view of air quality and protection against noise. Parallel to the decrease of industrial emissions, emissions from public road transport have increased. Personal transport is gaining ground over public transport and public road transport is preferred to railway transport.

Environment and Energy OP underlines the role of energy sector as one of the biggest polluters besides transport. Thermal power plants are responsible for more than 30% of CO₂ emissions, about 68% of sulphur emissions, 16% of nitrogen dioxide emissions and 10% of particulate matter. In 2006, the consumption of electricity produced from renewable sources was 3.6% of the national electricity production. Hungary's energy intensity indicator - energy needed to produce one unit of GDP - is 3-3.5 times higher than the EU average.

Half of the agricultural land is being cultivated by farms using intensive technology. The food industry, which is separate from raw material production, consists of concentrated companies for the most part. Soil and surface waters are generally less polluted than in other EU countries. The soil for agricultural production is generally good, the conditions are satisfactory for multi-function agricultural activities, and farmers still possess a traditional knowledge of extensive agricultural practices. The areas of fields used for bio-farming are growing steadily, but they are still relatively small areas.

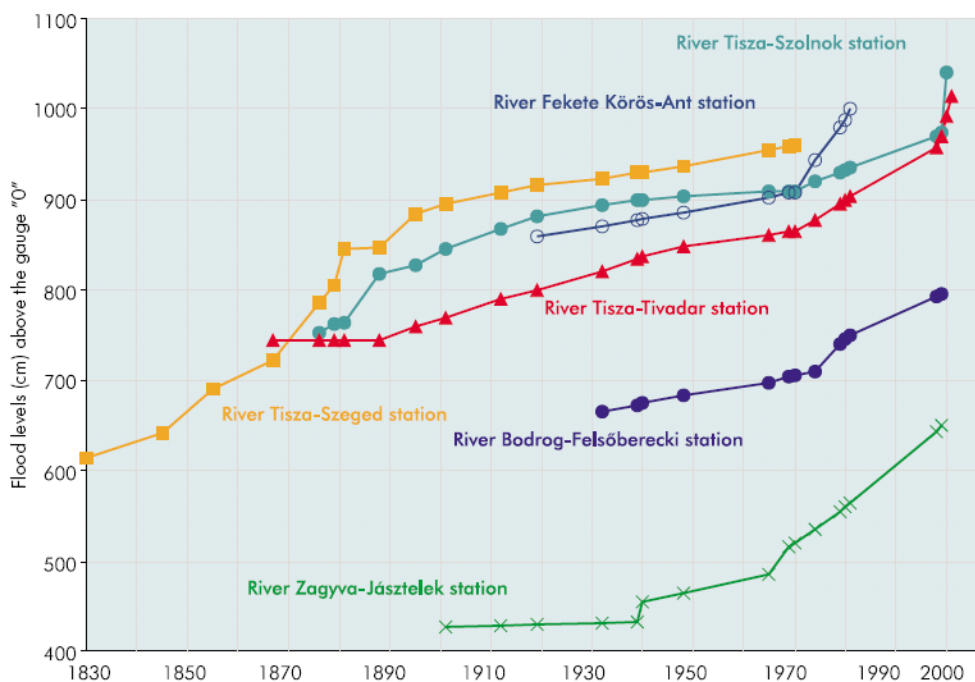
Environment and Environment OP lists two factors that determine sustainable water management in Hungary: the continental climate and the basin effect. Both bring about extreme conditions. Water protection is especially significant because of the probable

negative effects of climate change. In the 19th and the 20th century, climate change and human activities (deforestation, water regulation etc.) have caused the destabilisation of water balance. Besides inland water and flooding problems, this has also caused droughts in large areas.

Over 50% of Hungary is flat land. The area threatened by floods covers 21,088 km², which is 23% of the territory of the country. The areas threatened by floods covers two thirds of the land under cultivation and are mainly situated close to the rivers, the lower parts of the Great Plain and the Little Plain, the edges of the North-Central mountains, the Transdanubian hills and the slopes of West Hungary.

It is estimated that the number of population potentially affected by flood damage is approximately 2.3 million. As SWOT analysis carried out during 2007-2013 programming process indicated, the condition of flood protection structures is not satisfactory, 35% of the main flood protection dykes do not reach the necessary height. The vulnerability of the Tisza basin to floods has risen significantly during the last century, which is illustrated by the ever-increasing levels of flood peaks on Tisza and its tributaries (Graph 1).

Figure 1. Rising level of flood peaks in Tisza and its tributaries

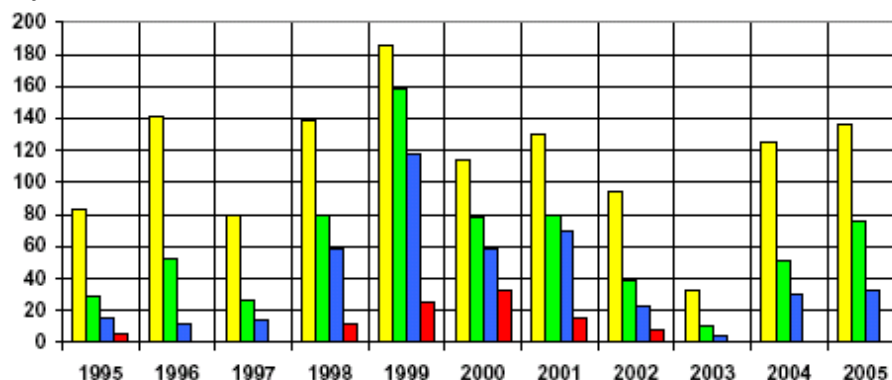


Source: Szlavik, L., Varadi, J., 2003

The most significant flooding remain for 5 to 10 days in the upper sections of the rivers on Hungarian territory, while on the lower sections of low gradients they can remain for up to 50 to 120 days. Other European rivers do not have such long lasting floods. The upper sections of rivers have rapid flow rates: after fast melting of snow or a lot of precipitation floods appear in one or two days, causing floods of several meters in height. In that respect, a threat is posed especially by North Tisza and its tributaries, and the Körös Rivers, where within 24 to 36 hours following precipitation, water levels can rise by 8 to 10 meters at the national borders. The significant size and frequency of the floods between 1998 and 2001 sparked action (see Graph 2) When after a ten year dry period, extreme floods arrived one after the other with new flooding records set each year. Between November 1998 and March 2001,

within only 28 months, there were four extraordinary floods in the Tisza valley causing inland waters and series of extraordinary floods in the small watercourses.

Figure 2. Days spent fighting floods (yellow – level 1, green – level 2, blue – level 3, red – extraordinary level of flood)



Source: Environment and Energy Operational Programme

2.2 Current investment context

Support by the European Union for reaching Hungary’s environmental objectives is mainly channelled through the Environment and Energy Operational Programme (OP). The total amount of Community funding for this OP is 4.2 billion Euro for 2007-2014. There are eight priority axis in the Environment and Energy OP:

- Healthy and clean settlements
- Wise management of waters
- Wise management of natural assets
- Increase of the use of renewable energy sources
- Efficient energy use
- Sustainable lifestyle and consumption patterns
- Project preparation
- Technical assistance

The table below presents the budget allocated to each of the Priorities.

Priority Axis	EU Contribution	National Contribution	Public Contribution	Total Contribution
Healthy and clean settlements	2 217 569 580	391 335 808		2 608 905 388
Good water management	1 199 328 900	211 646 276		1 410 975 176
Wise management of natural assets	114 989 621	20 292 286		135 281 907
Increasing the use of renewable energy sources	215 113 165	37 961 147		253 074 312
Efficient energy use	131 215 775	23 155 725		154 371 500
Promotion of	65 928 350	11 634 415		77 562 765

sustainable production and consumption habits			
Project preparation	167 571 738	29 571 483	197 143 221
Technical assistance	67 129 212	11 846 332	79 975 544
Total	4 178 846 341	737 443 472	4 917 289 813

Flood management measures are included to the ‘Wise management of waters’ priority axes.

In case of Tisza river the flood management is by nature a cross-border issue. Tisza is the largest tributary of the Danube and stretches across five countries (Slovakia, Ukraine, Romania, Hungary and Serbia). The river basin covers 157,000 km² and has a total length of 966 km. Thus permanent solutions to the problem of floods can be achieved only through international cooperation. Hungary has taken the lead launching the Budapest Initiative in 2002. As part of the initiative, a joint statement was signed on December 1, 2002 to define measures needed to better respond to flood threat. The statement was signed by the Prime Ministers of Hungary, Czech Republic, Slovakia, Romania and Brandenburg, together with the Minister of Foreign Affairs of Austria.

Additionally, the EU Directive 2007/60/EC on the assessment and management of flood risks provides a binding international agreement which has direct impact on flood management plans for river Tisza. The Directive requires Member States to assess if water courses are at risk from flooding, to map the flood extent and assets and humans at risk in these areas and to take adequate and coordinated measures to reduce this flood risk. To fulfil the guidelines set by the Directive, the Government of Hungary is required to come up with the preliminary flood risk assessment (due December 2011), flood risk map and flood risk management plan for Tisza (due December 2013 and December 2015 respectively).

The key framework for development of flood management systems along Hungary’s second largest river Tisza is provided by the Vásárhelyi Plan, which dates back to 1999. The principle of the plan is for potentially damaging surplus floodwater to be diverted - in a controlled way - into retention reservoirs constructed along the river, precisely for this purpose. In its early stages the plan concentrated only on flood protection and failed to incorporate objectives on rural development and nature protection.

Flood fighting and emergency measures linked to 1998-2001 extraordinary flood waves in Tisza valley depleted the central budget of Hungary by some 462 million Euro (HUF 120 billion). As one of results, the Government of Hungary approved the conceptual plan of enhancing flood safety in the Tisza valley in February 2003. In October 2003 the new Vásárhelyi Plan (VTT) was approved by the Government Decision 1022/2003 and endorsed by the Hungarian Parliament (Law 2004/LXVII).

Graph 3. Location of reservoirs in Tisza valley scheduled for Stage I of the new Vásárhelyi Plan (2003-2007)



Source: Vásárhelyi Plan Intersectoral Committee

Along the Upstream and Middle Tisza sections 30 potential reservoir sites were identified. Stage I entailed the construction of six of these reservoirs by 2007 (see Graph 3) but the implementation is still ongoing – next stages of the plan's implementation have not been developed yet. The six reservoirs are the ones of Cigánd-Tiszakarád, Inter-Szamos-Kraszna, Hanyi-Tizasüly, Nagykunság, Tiszaroff and Bereg. It must be noted that Tisza and its floodplains have been heavily modified over the past 130 years. To cater for large-scale monoagriculture and river transport, the river was canalised and straightened and the floodplains drained.

The response to the harmful excess of flood waves passing down is discharged under controlled conditions into the new overflow reservoirs constructed alongside the river, which may serve both landscape management purposes and balanced water supply during low-water periods. These six reservoirs would have total surface of 240 km² and a capacity of 761 million m³. The reservoirs will make it possible to reduce the floodwater level in the most critical segments of the Tisza in Hungary by 50-60 centimetres. It is calculated that the statistical probability of the need to use these reservoirs for flood protection is once in 30-40 years. The compensation mechanism was established for farmers when they make their fields temporarily available for the purpose of flood storage and methods of subsequent farming were decided upon. The planned budget for Stage I was 500 million Euro (130 billion HUF).

Table 1. Budget of the Stage I of new Vásárhelyi Plan (2004-2007)

Emergency reservoirs	HUF 50 billion
Flood bed improvement	HUF 15 billion
Rural development, agro-ecological farming	HUF 30 billion
Infrastructure development	HUF 35 billion
TOTAL	HUF 130 billion

Source: Government of Hungary

During the programming period 2004-2006 the European Union supported construction of several reservoirs – Bodrogeköz, Cigánd-Tiszakarád and Tiszaroff. The 2007-2013 Environment and Energy Operational Programme lists a few reservoirs as major projects. In 2009, a decision was made to grant EU support for two of these projects: Hany-Tiszasüly reservoir (81 million Euro) and Nagykunság reservoir (43 million Euro). Both reservoirs are due to be completed by December 2011.

The good ideas included in the original Vásárhelyi Plan have so far not been fully taken advantage of during the physical implementation of the Plan, which began in 2004. Reasons for this could include the political change which took place that year (new government), and the focus on project-level decisions in order to absorb the available EU financing. In spite of the existence of an overall strategy, the tendency so far is to focus on ‘traditional’ flood protection investments only, which raises questions about the ability to sustain the ‘broad picture’ and appropriate attention to the cumulative effects. The overall coordination and integration of measures would require renewed efforts in order to use the potential of the Plan to provide effective flood protection solutions.

Cohesion Policy itself cannot finance the entire scope of the Vásárhelyi Plan, in particular the specific agricultural subsidy schemes needed to support the desired management of floodplains. In fact, in this wider policy context – coordination of Cohesion Policy investments with agricultural subsidies – would be required in order to ensure full effectiveness of physical investments in line with the original objectives and environmental sustainability considerations. At this point the overflow reservoirs cannot be flooded as the desired land use change did not take place, although the original Plan aimed at delivering this.

The system of agricultural subsidies introduced in 2004 failed to successfully address both the complexity and the relatively high costs of floodplain management as a land use option. At the stage of the Vásárhelyi Plan’s development, studies were carried out in order to provide optimal subsidy schemes for the floodplains, resulting in as many as 16 possible packages:

- Establishment of permanent wetland habitats
- Management of permanent wetland habitats
- Management of reed fields
- Establishment of temporary wetland habitats
- Management of temporary wetland habitats
- Management of marsh meadows
- Mosaic-like habitat development
- Management of grove grasslands
- Management of deep floodplain grove grasslands with park
- Management of water channels, hollows
- Management of fresh meadows
- Establishment of extensive orchards
- Management of extensive orchards
- Chemical-free cultivation of areas with regular floods
- Management of fugitive hills on floodplains
- Management of mesophil meadows

However, the subsidy system finally approved in 2004 was radically simplified, allowing only two packages: ‘establishment of wetland areas’ and ‘management of natural wetland areas’ with payments of 195 and 115 euro per hectare. In practice, the offered system was not attractive for farmers. In addition, the planned land use change was not consulted with farmers along with the construction of the flood reservoir. The Cigánd flood reservoir still has no operational plan for the regular water supply and water management on the area, although it would be a basis of this new land use scheme.

Ensuring the proper coordination of Cohesion Policy investments with the system of agricultural subsidies attractive enough to enable the desirable change in the land use of floodplain areas would be a decisive factor in implementation of the entire Plan. It should be noted that the areas concerned constitute a minimal part of Hungary’s arable land, while at the same time, their ecological services and biodiversity protection role could be vital.

The necessary steps to be taken in order to reach the optimal coordination would entail:

- Harmonizing subsidies - elaboration of a more diverse flood plain management payment package, preferably by using the study prepared originally for the Plan ;
- Calculation of payments which would acknowledge and cover the special costs of wetland habitat maintenance, biodiversity protection and other ecological services;
- Regular consultations with the farmers about the land use change, participatory planning of the operational plan of regular water supply and water management;

3.0 Governance mechanisms

At the national level, the new Vásárhelyi Plan (VTT) provides framework for investments for the flood management. The Plan got started in 2000 and its implementation is ongoing.

For guiding the use of EU Cohesion Policy instruments, the National Strategic Reference Framework (NSRF) of Hungary 2007–2013 has been adopted. According to the NSRF the prevention of floods and other damage related to water is a priority to maintain natural, economic and cultural values in Hungary. NSRF prescribes that the construction of the flood preventive system of the Danube will be completed and the implementation of the new Vásárhelyi Plan continued in the Tisza region.

An inter-ministerial committee was established for the co-ordination of the implementation of the new Vásárhelyi Plan. The committee was open to participation by NGO experts. The involvement of stakeholders was active and professional during the first phase of development of the Vásárhelyi Plan (2000-2004). Later, as the complex plan got implemented through concrete projects, the level of transparency decreased. The reason is probably that private companies with little experience on the involvement of stakeholders have been assigned, through public procurement, the implementation and management of projects.

The Ministry of Environment and Water is having central role in the institutional setup for managing the funding for flood protection provided by the Cohesion Policy. The tasks of the Managing Authority (MA) in case of the Environment and Energy OP are carried out by the Directorate General of the National Development Agency (NDA). The Managing Authority is responsible for coordination of the planning of the OP and for sound management of the funds.

Administrative, financial and technical tasks of implementation of OP are delegated to the Intermediate Bodies (IB). The IB for the flood management operations is the Development Directorate of the Ministry of Environment and Water. Typically the beneficiary of the flood management projects is the Central Directorate for Water and Environmental Protection (VKKI).

For activities foreseen in Environment and Energy OP there are four different procedures for project selection: (1) major projects, (2) key projects, (3) one-stage calls for proposals, (4) two-stage calls for proposals.

Priority list of planned investments are provided in ‘major projects’ section of the Environment and Energy OP. Major projects are environmental projects with total costs exceeding 25 million Euro. The list of major projects foreseen includes:

- Tisza flood plains project (expected costs 42 million Euro)
- Reservoir for flood level decrease at Hany-Tizasüly (100 million Euro)
- Nagykunsági Reservoir for flood level decrease (41 million Euro)
- Reservoir for flood level decrease of Szamos-Kraszna interfluvia (55 million Euro)

According to the Environment and Energy OP the key projects can be supported without a call for applications. Such projects are appraised in an application assessment procedure, where they are first pre-selected in an action plan (based on preliminary project proposal) and then approved for implementation (based on detailed project proposal). One-stage calls for proposals are used whenever – mainly due to the expected high number of applicants (i.e. private organisations) – it is reasonable to select beneficiaries on the basis of a fully competitive procedure. Two-stage calls for proposals are used mainly in cases where the size of the target group and the expected number of applications is more limited (typically: public investments), and projects to be financed are more complex. In such cases, projects are first pre-selected on the basis of preliminary (less detailed) proposals. Proposals successful in the first stage then receive assistance, through the IB, during their elaboration into fully fledged, fundable projects.

The selection criteria in the Environment and Energy OP were set to ensure that projects:

- contribute to the social-economic objectives of the NSRF, of the operational programmes, as well as the given priority;
- have objectives that are definite, measurable, and achievable;
- are cost-effective;
- are sustainable from a financial and organisational point of view;
- contribute to the enforcement of sustainable development, equal opportunities and the principle of non-discrimination
- demonstrate the existence of all necessary pre-conditions for their successful implementation.

In the process of drafting the NSRF and OPs, a SWOT analysis, an ex-ante evaluation and a Strategic Environmental Assessment (SEA) were carried out. Companies or consortiums in charge of carrying out ex-ante and SEA were identified through public procurement procedures. As a result, the ex-ante and SEA were done by different consortiums.

Both the ex-ante and the SEA outlined many challenges in relation to achieving sustainable development. The Ex-ante evaluation of Environment and Energy OP concludes: *“Currently the major danger is the fact that the funds, due to the sudden abundance of sources, are used for the servicing of such structures that are not sustainable. Therefore, the causes of the real problems remain, which also means that end-of-pipe solutions preserve the structures representing the causes of the environmental problems and assist in reproducing them on a larger scale.”*

The consortium behind SEA also underlines several critical problems about enforcement of horizontal policies. When assessing the set of objectives and priorities of the programme, evaluators found that there are no environmental connections and links among the individual priorities in fields supporting the implementation of the objectives. Evaluators also pointed out that there is a high risk that environmental and sustainability aspects will become marginalised during the implementation of measures defined under the priorities. Evaluators stressed that under such circumstances, the strict following of horizontal policies is of special importance. Evaluators drew attention to another risk factor, namely, aspects of local and regional landscape and environment may become marginalised in a plan setting growth as a primary objective. In addition to that, the evaluators also pointed out the danger of the considerable reduction of the outstanding biodiversity entailed by infrastructure investments, especially in the field of roads and motorways.

4.0 Overview of environmental objectives, measures and allocations

The National Strategic Reference Framework of Hungary 2007–2013 (NSRF) lists following key objectives for improving the environment:

- Achieving healthy and clean settlements including:
 - waste management
 - waste water management
 - improvement of drinking water quality
- Wise management of our waters including: protection against floods
- Protection of the quality and quantity of our waters, prevention of further pollution of waters (protection of water bodies of high importance, water aquifer protection, recultivation of waste deposits and environmental remediation), state measures of Water Framework Directive implementation
- Wise management of our natural assets
- Promotion of sustainable production and consumption habits, raising awareness of environmental and climate issues
- Regional dimensions of environment developments. Environment-friendly energy developments, the planned tools of which are:
 - the promotion of developments aimed at energy efficiency and saving and
 - at the production and utilisation of renewable energy.

Table 2. Allocations of the Environment and Energy Operational Programme 2007-2013 (million Euro at current price)

Priority axis	Fund	EU financing	National financing	Total financing
Healthy and clean settlements	CF	2 218	391	2 609
Wise management of our waters	CF	1 199	212	1 411
Wise management of our natural	ERDF	114	20	134

assets				
Increase of the use of renewable energy sources	ERDF	215	38	253
Efficient energy use	CF	131	23	154
Sustainable lifestyle and consumption patterns	ERDF	66	12	78
Project preparation	CF	168	30	198
Technical assistance	CF	67	12	79
TOTAL		4 178	738	4 916

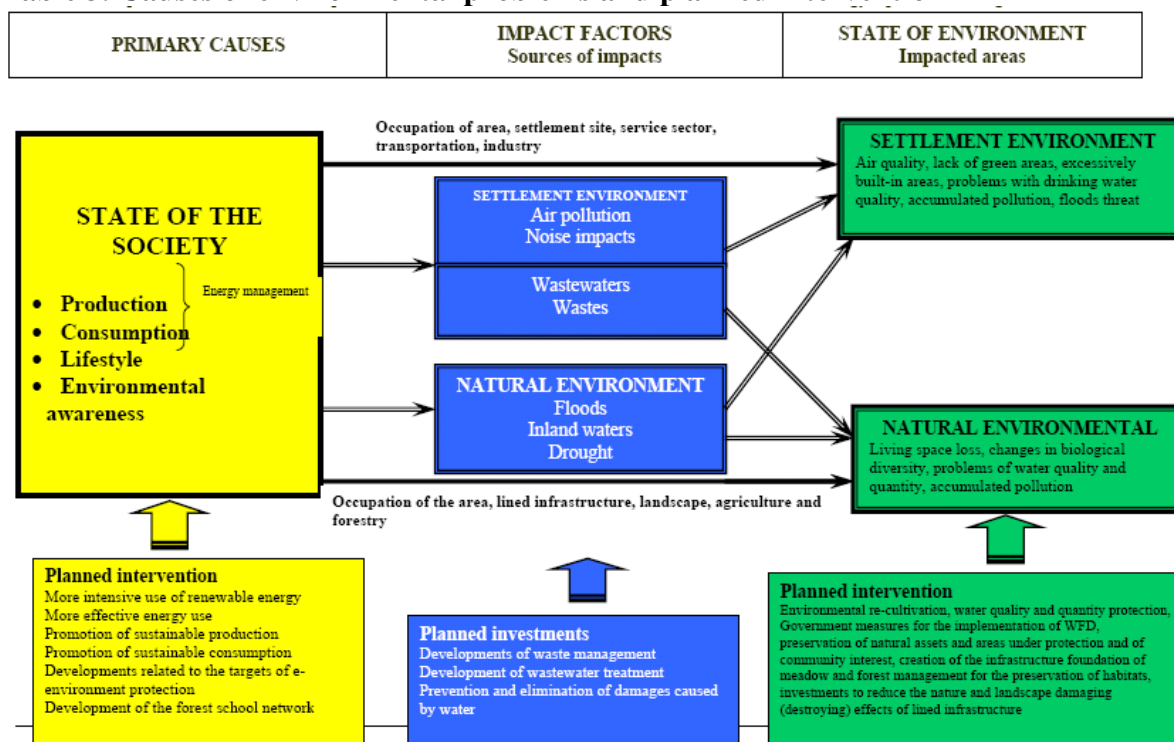
Source: Environment and Energy Operational Programme

As the allocations of the Environment and Energy Operational Programme for 2007-2013 reveal, roughly half of the funding has been dedicated for priority axes ‘Healthy and clean settlements’ (see Table 2). Waste management, wastewater treatment and drinking water quality projects are supported in this priority axis. 29% of the funding from the OP is earmarked for water management axis.

Within the water management priority axis the establishment of a proper flood control practice is the key priority. Secondly the need to retain waters and thus collect waters to be used during times of low precipitation has been underlined.

The graph below provides a national perception of the state of environment in Hungary, divided into ‘settlement environment’ and ‘natural environment’, including the primary causes of existing problems, as well as factors which have the most impact on the state of environment. At the same time the graph links the issues with proposed Cohesion Policy (and other) interventions. ‘Prevention and elimination of damages caused by water’ is listed among the planned investments, responding to the challenges such as like floods and drought.

Table 3. Causes of environmental problems and planned intervention



Source: Environment and Energy Operational Programme

In regard to flood management, there are two indicators for success provided by the Hungarian Environment and Energy OP. Both objectives are quantitative:

- population with adequate flood damage protection
- number of flood protection projects

Table 4 reveals the importance of the EU Cohesion Policy funding for the flood protection in Hungary. For period 2007-2013, no national-level funding has foreseen outside actions planned in Operational Programmes.

Table 4. Objectives of the flood management measures in Environment and Energy OP 2007-2013.

Indicator	Starting value	Predicted target figure in 2015	
	2006	as result of OP investments	as result of all national investments
1. Proportion and number of population with adequate flood damage protection (in line with legislation) compared to the number of those affected [million persons / %]	0,94 / 41%	1,63 / 71%	1,63 / 71%
2. Number of flood protection projects [pieces]	0*	40	..

* 2007

Source: *Environment and Energy Operational Programme*

5.0 Analysis of measures and allocations

As part of the EU funded ADAM project, an international group of researchers has thoroughly analyzed the drivers, barriers and opportunities linked to the flood management policies in Tisza river (Werners, S. *et al*, 2007). Researchers pointed out a number of challenges and named poor governance as one of the key obstacles.

The results of ADAM (Adaptation and Mitigation Strategies: Supporting European climate policy) project reveal that many socio-economic considerations have been neglected in the planning and implementation stages of the flood management projects as part of new Vásárhelyi Plan (VTT). Current land-use patterns conflict with the natural capacity of the area to adapt to (climate) change. Due to the relatively poor socio-economic conditions in the Tisza region, the region is more sensitive to climate change and it has less means to improve adaptive capacity. Uncertainty about compensation schemes, property rights, the virtual non-existence of insurance schemes as well as non compliance with existing national regulation add to the individual uncertainty and the willingness of local population to engage in community action. The retarding implementation of nationally agreed programs like the VTT adds to the political uncertainty.

According to the ADAM project, the region is struggling socio-economically, local markets are weak and the attachment of local people waning. Globalisation and monoculture have disrupted local markets and the interdependence between the rural and urban subsystem. Local parties respond to the interests of “outside” parties rather than to local markets. The relatively isolated and poor socio-economic position of the area requires regional development to be incorporated in any intervention, including mitigation and adaptation to

climate change. Water and land-use management are tightly connected to regional development through agricultural production, energy production, transport and markets for local products.

Development of the region does not have a high national and regional priority. The area depends on local, regional, national and trans-national cooperation. The part of Tisza region covered in the VTT lies in the far eastern part of Hungary and it stretches over three administrative regions. National and local attitudes to the socio-economical and environmental problems of the Tisza area differ. At the same time, planning and budget allocation are highly centralized.

As a consequence of this, researchers involved in ADAM project highlight the poor governance as the main barrier for adaptive floodplain management and implementation of the new Vásárhelyi plan (VTT). Governance shortcomings have been explained by four claims:

- lack of credibility,
- lack of stability,
- lack of adaptiveness,
- lack of inclusiveness.

The four claims are briefly described below.

Lack of Credibility. The different parts of the VTT plan are implemented at different speeds. The implementation of the agro-environmental elements is lacking behind implementation of the flood protection measures. Although the VTT was a highly appreciated program it did not receive the appropriate funding. The focus of the national government in using EU funds does not support implementation of the VTT.

Lack of Stability. Although the VTT's regional development plan is included in the NSRF, it is not included in the (regional) Operational Programs that are crucial for the allocation of funds. The focus in the implementation is on short-term events and solutions. Flood prevention measures can be realised relatively quickly, whereas the implementation of agro-environmental schemes requires intensive cooperation of many farmers, which takes a long time to realise. In addition prioritisation is dominated by disaster relief and not by prevention measures.

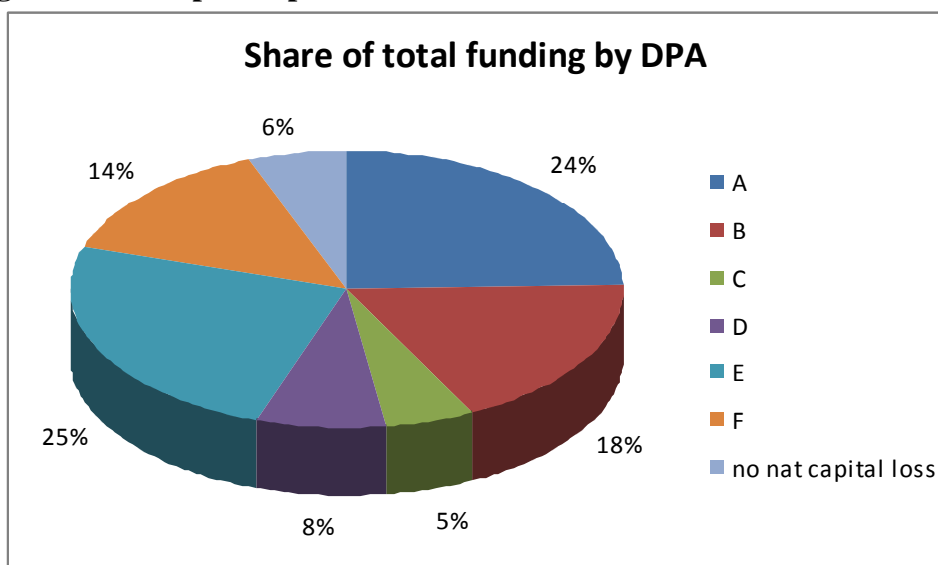
Lack of Adaptiveness. The sector approach and disagreement between ministries on how to prioritise regional plans and spend the available finances at the start of the implementation led to an impasse. Existing subsidies have not been changed to support floodplain management but continue to favour monoculture and non sustainable land use (e.g. compensation for agriculture in waterlogged areas).

Lack of Inclusiveness. There are gaps in the institutional structure. There is no clear body responsible for the implementation, for securing finances or for facilitating the cooperation between different parties (at all levels of governance). Actors are pointing at each other for implementation and finances. Communication is disrupted. The different sectors that were involved in the design of the plan have not been prepared for its implementation in an equal way. NGOs are actively involved in the development of plans but less in their implementation. A detailed land use vision and land consolidation plans are missing.

In order to place flood management measures into context of environmental integration, a Development Path Analysis (DPA) was carried out on all 15 Operational Programmes (OP) of Hungary for 2007-2013.

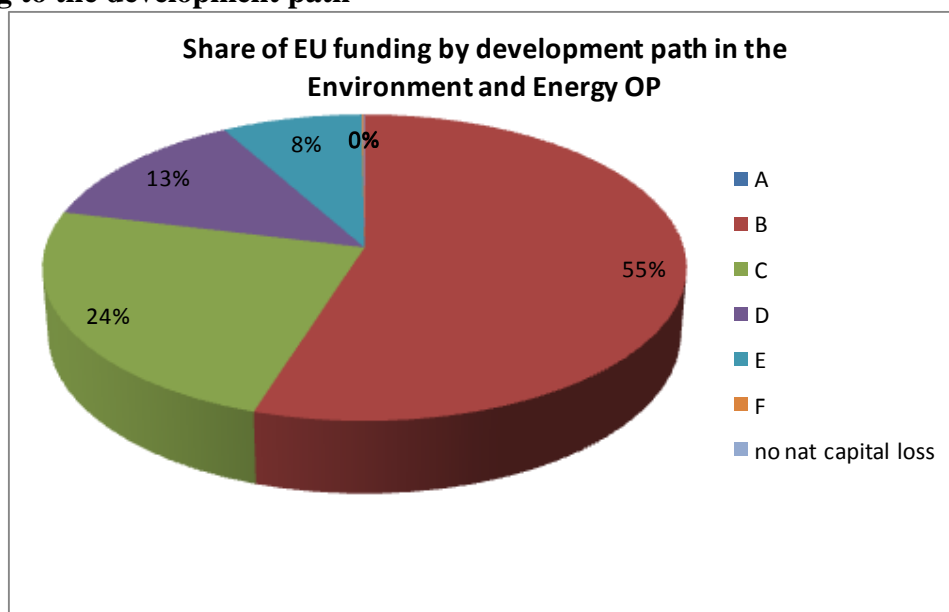
As the analysis reveals (see Graphs 4 and 5), 25% of the funding is allocated for activities which fall into development path ‘E’. This is a promising result as path ‘E’ includes actions that are targeted at improving the resource efficiency (“eco-efficiency”). At the same time it is alarming that 24% of funding (4.7 billion Euro) is set for activities in development path ‘A’ or, ‘business as usual’.

Figure 5. Share of EU funding (through ERDF, ESF and CF) in Hungary for 2007-2013 according to the development path



Source: calculations by author

Figure 7. Share of EU funding for Environment and Energy OP for 2007-2013 according to the development path



Source: calculations by author

The practical design and implementation of the flood management projects with funding from EU funds could create many win-win situations while there are also clear threats for win-loss outcomes.

If being implemented according to the complex new Vásárhelyi Plan (VTT) and in open and inclusive process, the flood management infrastructures in Tisza valley could constitute a win-win case. Once in place, the infrastructure will first of all help to minimise human and economic losses during severe floods in the future. If the complexity of the approach is maintained (e.g. concepts of floodplain management and rural development will be attached to the traditional flood protection measures) than the projects will also help to save biodiversity and improve local socio-economic situation. There clearly is a possibility to make land-use more sustainable and climate-proof using the natural capacity of the floodplain, locally adapted agricultural practices and local markets. Land-use and water management could help to reduce flood and drought risks and creating diverse local job opportunities.

The win-loss scenario may materialise if the governance problems of the flood management in Hungary are not solved. On the one hand, the flood prevention part of the projects will be constructed and it will save lives during the floods. However, on the other hand, it may happen that due to various reasons, potential negative environmental impacts will be neglected. Emphasis on large mono-purpose reservoirs can lead to further loss of biodiversity and abundance of local products like fish and fruits. It may happen that the chance to initiate a land use change along the river Tisza on the former flood areas will be missed, although this land use change would have positive impacts on the water balance as well as the habitat diversity and biodiversity of this large area. Floodplain management and regular water supply from floods, the storage of excess water in the landscape close to natural circumstances would have very important climatic advantages too, by minimising water management extremities (flood, inland water, draught) along the river Tisza. If complex regional development measures will not make it to the flood management projects, the socio-economic situation in the already peripheral areas will further worsen and the expropriation of the land may lead to increasing urbanisation and loss of both cultural and ethnic diversity in the Tisza valley.

6.0 Conclusions

23% of the territory of Hungary is threatened by floods and currently the number of population potentially affected by flood damage is approximately 2.3 million. The condition of flood protection structures is not satisfactory, as 35% of the main protection dykes do not reach the necessary height.

EU Cohesion Policy instruments are used as the main funding source for the construction of flood management infrastructures along Tisza river. Four of the six reservoirs foreseen by the Government for the Tisza valley will be co-financed by the EU funds with 1.2 billion Euro being earmarked for flood management measures for the period 2007-2013.

At first glance the use of EU Cohesion Policy funding for flood protection in Hungary has potential to be efficiently used. Since 1999, the Vásárhelyi Plan (VTT) provides a framework for the flood management investments in Hungary and at the conceptual level the VTT has backing of various stakeholders. VTT combines classical flood protection measures (dykes,

drainage, mono-purpose reservoirs) with concepts of floodplain management and rural development. Unfortunately the complexity of the program-based approach could be undermined in the longer term as the implementation is now done through individual projects which concentrate only on classical flood protection measures. The application for EU funding in fact requires a project based approach which should not, however, lead to the loss of the "big picture". The Hungarian authorities have confirmed their commitment to increase policy co-ordination efforts in order to successfully implement the VTT, and committed themselves to better harmonise agricultural subsidy schemes with the goals of the plan for the upcoming financing period starting in 2014.

There are fears that mainly due to poor governance the implementation of projects will not generate the results originally envisaged in the VTT. It may happen that the chance to initiate a land use change along the river Tisza on the former flood areas will be missed, although this land use change would have positive impacts on the water balance as well as on the habitat diversity and biodiversity of this large area. As the implementation has been somewhat delayed, it still remains to be seen if one can see a win-win or win-loss result of the Hungarian flood management projects, co-financed by the EU.

Better coordination of Cohesion Policy investments with the system of agricultural subsidies could be a key success factor for the further implementation of the VTT. In particular, the system of subsidies would need to be made financially attractive and more complex in order to satisfy the needs of farmers managing the floodplain areas. Planned changes in land use, together with the payment schemes, should undergo a consultation process aimed at ensuring that the envisaged use of overflow reservoirs is accepted by land owners.

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8.0 Interviewees

- László Kóthai, Director, Water Management Centre Directorate (VKKI), former Secretary of State (2007-2010)
- Dr. József Váradi, Head of Water and Environmental Damage Prevention Department, Water Management Centre Directorate (VKKI), former Secretary of State (2001-2004)
- Göncz Benedek, Head of Flood Defence Department, Ministry of Environment and Water Management
- Dr. Lajos Szlavik, Chairman of the Hydrological Society, former Secretary of the Vásárhelyi Plan inter-ministerial committee
- Géza Molnár, Chairman, NGO Bokartisz
- Nándor Veres, Mayor of Nagykörú and President of the new Vásárhelyi Plan Council of Municipalities
- Mátyás Maksi, DG Regional Policy, European Commission

	DPA	Description	Budget EU
1	E	R&TD activities in research centres	€ 79 905 116
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 151 174 767
3	E	Technology transfer and improvement of cooperation networks	€ 244 622 939
4	E	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 378 146 283
5	E	Advanced support services for firms and groups of firms	€ 375 852 080
6	E	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 15 663 315
7	F	Investment in firms directly linked to research and innovation	€ 218 515 814
8	B	Other investment in firms	€ 2 035 673 688
9	E	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 400 419 092
10	E	Telephone infrastructures (including broadband networks)	€ 20 835 937
11	E	Information and communication technologies (...)	€ 340 792 176
13	E	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	€ 241 421 983
14	E	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€ 3 136 531
15	E	Other measures for improving access to and efficient use of ICT by SMEs	€ 79 859 050
17	E	Railways (TEN-T)	€ 1 657 356 773
20	A	Motorways	€ 124 000 000
21	A	Motorways (TEN-T)	€ 1 030 544 682
22	A	National roads	€ 1 473 657 228
23	A	Regional/local roads	€ 645 466 455
24	E	Cycle tracks	€ 122 003 701
26	F	Multimodal transport	€ 160 868 524
28	F	Intelligent transport systems	€ 16 366 790
32	E	Inland waterways (TEN-T)	€ 63 750 000
39	F	Renewable energy: wind	€ 25 000 000
40	F	Renewable energy: solar	€ 28 690 037
41	F	Renewable energy: biomass	€ 113 690 037
42	A	Renewable energy: hydroelectric, geothermal and other	€ 35 511 930

43	E	Energy efficiency, co-generation, energy management	€ 156 200 000
44	B	Management of household and industrial waste	€ 366 500 000
45	B	Management and distribution of water (drink water)	€ 601 500 000
46	B	Water treatment (waste water)	€ 1 358 566 355
48	B	Integrated prevention and pollution control	€ 31 900 000
50	D	Rehabilitation of industrial sites and contaminated land	€ 475 191 832
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 125 800 000
52	E	Promotion of clean urban transport	€ 1 703 305 238
53	C	Risk prevention	€ 968 348 297
54	C	Other measures to preserve the environment and prevent risks	€ 362 778 268
55	D	Promotion of natural assets	€ 163 166 605
56	D	Protection and development of natural heritage	€ 113 891 226
57	D	Other assistance to improve tourist services	€ 170 693 191
58	D	Protection and preservation of the cultural heritage	€ 162 924 054
59	A	Development of cultural infrastructure	€ 203 661 853
60	D	Other assistance to improve cultural services	€ 43 841 061
61	D	Integrated projects for urban and rural regeneration	€ 574 038 732
62	F	Development of life-long learning systems and strategies in firms; training and services for employees	€ 150 583 891
63	0	Design and dissemination of innovative and more productive ways of organising work	€ 132 198 967
64	F	Development of special services for employment, training and support in connection with restructuring of sectors	€ 210 226 140
65			€ 77 147 090
66			€ 215 164 603
67			€ 154 417 713
69	0	Measures to improve access to employment, training and support in connection with restructuring sectors ...	€ 11 282 532
71	0	Pathways to integration and re-entry into employment for disadvantaged people ...	€ 336 023 785
72	F	Design, introduction and implementing of reforms in education and training systems ...	€ 1 147 895 024
73	F	Measures to increase participation in education and training throughout life	€ 595 944 626
74	F	Developing human potential in the field of research and innovation, in particular through post-graduate studies...	€ 576 736 943
75	A		€ 598 049 947
76	A	Health infrastructure	€ 1 323 384

			965
77	A		€ 76 594 248
78	A	Housing infrastructure	€ 123 740 457
79	A	Other social infrastructure	€ 300 747 790
80	0	Promoting partnerships, pacts and initiatives through the networking of relevant stakeholders	€ 8 519 806
81	F	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	€ 151 485 620
85	0	Preparation, implementation, monitoring and inspection	€ 822 241 281
86	0	Evaluation and studies; information and communication	€ 141 123 784
TOTAL			€ 24 818 740 852

1.11 ITALY: ROLE OF SUSTAINABLE DEVELOPMENT AS A HORIZONTAL ISSUE IN PIEMONTE REGION

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1.0 Executive summary

- This case study focuses on a Member State Region – the Piemonte region in Italy
- The main environmental challenges in the Piemonte Region are related to the quality of the air, energy sustainability and energy efficiency, and the soil
- The majority of Cohesion Policy funds (71 per cent) are allocated to activities that pursue environmental sustainability and in particular to eco-efficiency (Path E) and decoupling (Path F) interventions
- The majority of funds (European, National and Regional) are allocated to Priority Axis 1 (Innovation and Production Transition). Measures under this Axis are expected to enhance energy efficiency and promote renewable energy consumption. Preliminary outcomes have confirmed positive implications for the environment
- Positive impacts on the environment and win-win situations are facilitated and supported by the so-called *maggiorazione ambientale (extra environmental funds)*. This tool allocates extra funds to those SMEs that can prove that their research and development investments bear positive impacts on the environment.
- The integrated governance approach to programming and evaluation and the robust approach to SEA, coupled with a substantial amount of funds allocated to monitoring, create complementarities and synergies across different programming aspects and it ensures the integration of environmental aspects in programming
- The *in-house ongoing SEA* carried out on the EAFRD OP constitutes best practice in the Piemonte Region and could be implemented in the ERDF OP evaluation as well, in order to improve feedback mechanisms and increase the attention to environmental issues

Processes of Integration	Criterion	Key question
Strategic	Inclusion	x
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	x
	Proofing tools	
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and Context

On 2 August 2007, the European Commission approved the Piemonte Regional Operational Programme for 2007-2013. This Programme involves Community support for the Piemonte region under the Regional Competitiveness and Employment Objective. **The total budget of the Programme is around €1.1 billion and includes Community funding through the European Regional Development Fund (ERDF) of some €426 million** (approximately 1.5% of the total EU investment earmarked for Italy under the Cohesion Policy 2007-13)¹⁶⁷.

The Operational Programme identifies general, specific and operational objectives for the allocation of funds. These are structured along four priorities:

Priority (Axis) 1: Innovation and Production Transition (approximately 46.2% of total funding)

Priority (Axis) 2: Sustainability and Energy Efficiency (approximately 25.1% of total funding)

Priority (Axis) 3: Territorial Development (approximately 25.1% of total funding)

Priority (Axis) 4: Technical Assistance (approximately 3.6% of total funding)

According to stakeholders in the region, the development of the Operational Programme and the identification of priorities, objectives and measures is the result of a long process with analysis of the environmental context as one of the key inputs. The environmental challenges and the natural assets of the Piemonte Region are presented below.

2.1 Current status of the environment

Within the programming and the Strategic Environmental Assessment (SEA) (*Valutazione Ambientale Strategica*), the Piemonte region has developed an **Environment Report ('Rapporto Ambientale')**, which analyses the situation of the environment and the environmental impacts of the Operational Programme. Using the DPSIR model¹⁶⁸, this report identifies the current environmental challenges and the current assets that have implications for sustainable development. Table 29 summarises the results of the contextual environmental analysis presented in the Environment Report, supplemented by interview information.

Table 34 Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Quality of the air	The region is characterised by widespread air pollution , even though cases of acute pollution are rare and not concentrated in specific areas or in specific times of the year. The interviews have confirmed that the quality of the air and pollution is an issue in a developed region like Piemonte. Environmental challenges are related primarily to PM10, NO2 and Ozone. The transport sector remains the principal source of

¹⁶⁷

http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=IT&gv_reg=ALL&gv_PG M=1161&gv_defL=9&LAN=7

¹⁶⁸ DPSIR is a causal framework for describing the interactions between society and the environment. This framework has been adopted by the European Environment Agency. The components of this model are: Driving forces, Pressures, States, Impacts and Responses

	<p>pollution, despite technological innovations and the introduction of more modern vehicles. Energy emissions related to heating, water heating and air conditioning in households and related to production processes in the industrial sector also constitute driving forces and pressures on climate change and clean energy.</p> <p>Current assets and investment that have implications for sustainable development under this theme include in particular an articulated system of indicators and sensors for the evaluation of the quality of the air. Moreover, the collaboration and cooperation across regions on instruments and measures to improve the quality of the air and reduce the impact on climate change has proved to be crucial. The challenges are in fact extended to the Po Region (which occupies the territory of different regional authorities) and thus require a coordinated response.</p>
Energy consumption	<p>Energy consumption has been constantly increasing in the past 10 years. The fact that renewable energy, despite increasing, is still confined to limited areas constitutes a problem of sustainability. In terms of energy produced in the Piemonte region, 63 per cent of this production involves renewable energy (in 2002); while energy imports have involved primarily oil products, gaseous fuels and electric energy. Consumption in the industrial sector is instead concentrated on gaseous fuels, while consumption in the transport sector is concentrated on oil products. Overall, households are responsible for 37 per cent of the overall regional consumption, while the industry sector consumes 35 per cent and the transport sector consumes 26 per cent of the total. It is possible to conclude that internal regional production is not sufficient to match demand; thus, the reliance of the region on energy sources that are not available on its territory represents a clear vulnerability, which reflects the situation in Italy in general.</p>
Water resources	<p>The SEA does not report particular issues or challenges. The interviewees however argued that the problem of contamination of waters, especially due to nitrates, which are mainly related to production activities. Similar conditions are registered with respect to the soil. It is important to stress that, in this respect the region has put in place a well-developed monitoring system, which have collected data on specific indicators that are much lower than the national average.</p>
Natural risks	<p>The region is traditionally characterised by high risks of landslide and flood. The different counties and territories of the region have implemented (or are introducing) a framework for the analysis of the risks, in particular related to landslide areas.</p>
Biodiversity	<p>In the Piemonte region there are 63 protected areas, including parks and reserves, in addition to the two main national parks (Gran Paradiso e Val Grande). They cover a total area of more than 200 000 hectares, representing 8.2% of the region. Moreover, the regional area under the Natura 2000 programme corresponds to 12.5 per cent of the total. The limited knowledge of the complexity of "Environmental system" and the difficulties in defining methods and tools for shared analysis at various levels, make it difficult to find develop concrete planning, to minimize the fragmentation of ecosystems, especially due to urban expansion and indiscriminate interference of transport infrastructure.</p>

Population and Human Health	<p>With approximately 4 million inhabitants, Piemonte is a very populous region, compared with the rest of Italy. The average age is relatively high and tends to increase further, along with the dependency ratio. The population continues to increase, but at a slower pace than in other Italian regions. Moreover, the increase is primarily fuelled by migration.</p> <p>Each of the environmental challenges presented above, in particular, air pollution, water pollution and soil pollution, has a relapse on human health.</p>
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Quality of the air, energy consumption and natural risks (floods and landslides) are the most urgent environmental challenges faced by the Piemonte region. While most regional stakeholders agree on the nature of these issues they also stressed that **assessment of the situation varies widely depending on indicators and methodologies.** In particular, experts at the IRES (Istituto Ricerche Economico Sociali) stressed how the DPSIR model, generally employed for environmental evaluations at international level, gives a picture that is very different from other methodologies, like the environmental accounts (which take GDP and real wealth into consideration). The latter methodology would put much more emphasis on sustainable development and on how the Piemonte region consumes more than it produces, in particular in terms of energy.

2.2 Current investment context

The table below shows the financial composition of the Piemonte regional operational programme. The OP has identified four priority axes¹⁶⁹, each of which is allocated a budgetary ceiling comprised of EU and national public contributions.

Table 35 Breakdown of finances by Priority Axis, in €¹⁷⁰

		EU Contribution	National Public Contribution	Total Public Contribution
Priority Axis 1	Innovation and Production Transition	197,037,574	300,947,922	497,985,496
Priority Axis 2	Sustainability and Energy Efficiency	107,083,786	163,555,824	270,639,610
Priority Axis 3	Territorial Development	107,083,786	163,555,824	270,639,610
Priority Axis 4	Technical Assistance	14,914,176	22,779,363	37,693,539
	Total	426,119,322	650,838,933	1,076,958,255

While the regional managing authority stressed that national (regional and national) funds still constitute the bulk of investments for each Priority Axis, the role of EU contributions is crucial to the success of the OP and it is likely to increase in the future. Without the stimulus

¹⁶⁹ The table at the end of this document reports the allocation of EU budget to the different categories of expenditures, as presented in the regional OP

¹⁷⁰ http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=IT&gv_reg=686&gv_PG M=1161&gv_defL=7&LAN=7

of EU Cohesion Policy, the regional and the national government would not allocate the same economic effort to the achievement of these objectives. Moreover, the monitoring system would not be as advanced and efficient without EU compliance requirements, which enhances the efficiency of fund use.

In terms of environmental implications, **investments to support interventions with an indirect impact on the environment outweigh direct investments in environmental interventions.** While Axis 2 has a clear environmental dimension, Axis 1 and 3 have only indirect impacts on the environment.¹⁷¹ The table below presents a list of indirect and direct investments in the environment as part of the Piemonte OP:

<p>Indirect investments in the environment</p> <ul style="list-style-type: none"> • Interventions to promote innovation in SME in particular • Research and innovation has the potential to contribute to the decoupling of economic growth from environmental pressures. • Interventions aimed at strengthening the supply of ICT • ICT could lead to more efficient production processes • Interventions aimed at promoting and strengthening synergies between the protection of the environment and of natural assets and economic development • Interventions that promote urban sustainable development and that support regional competitiveness • Interventions aimed at facilitating implementation, monitoring and evaluation of the OP
<p>Direct Investments in the environment</p> <ul style="list-style-type: none"> • Interventions to promote innovation processes aimed at the introduction of environment-friendly technologies in the production processes of SME • Eco-innovation • Adoption of environmental technologies • Interventions aimed at reducing the intensive use of traditional energy resources and at stimulating energy efficiency and the production of renewable energy • Production of renewable energy • Financing of energy efficiency systems

3.0 Governance mechanisms

The Piemonte region is generally considered to be a good performer in terms of effective allocation of Cohesion Funds. Interviews and desk research suggest that this is primarily due to innovative and well-structured governance mechanisms.

First, environmental considerations are taken into account in the programming phase and significant resources are allocated to **evaluation and monitoring of impacts**. Stakeholders have argued that European regulations about programming, evaluation and monitoring have triggered the development of governance mechanisms that make sure that the environmental dimension is integrated in programming. Interviews with multiple stakeholders have confirmed that the Piemonte Region boasts a very strong evaluation framework that exceeds European requirements (i.e. SEA, EIA and ex-ante evaluation are considered minimum requirements).

¹⁷¹ The Technical Report, drafted by the Environmental Authority (*henceforth* EA) of the Piemonte Region (June 2010) describes specific objectives and environmental objectives of each Axis (see also Section 5.1.)

Second, programming in Piemonte is based on a **financially and thematically integrated approach**.¹⁷² In practice this means that the operational programme no longer distinguishes between different themes, such as environment, transport, business support, etc. Instead, all measures funded by the Piemonte Region, with the support of the Cohesion Funds and other national (or regional) funds reflect integrated overarching objectives and common axes. Evaluation units (NUVAL) are in charge of the evaluation of the integrated programmes. According to stakeholders (especially in the evaluation unit NUVAL, the integrated approach in Piemonte has allowed for better coordination and integration of all aspects that need to be taken into account when developing and financing policies for economic growth and sustainability. According to the Environmental Authority, the approach creates complementarities and synergies across different programming aspects, it streamlines socio-economic effects and it ensures efficiency.

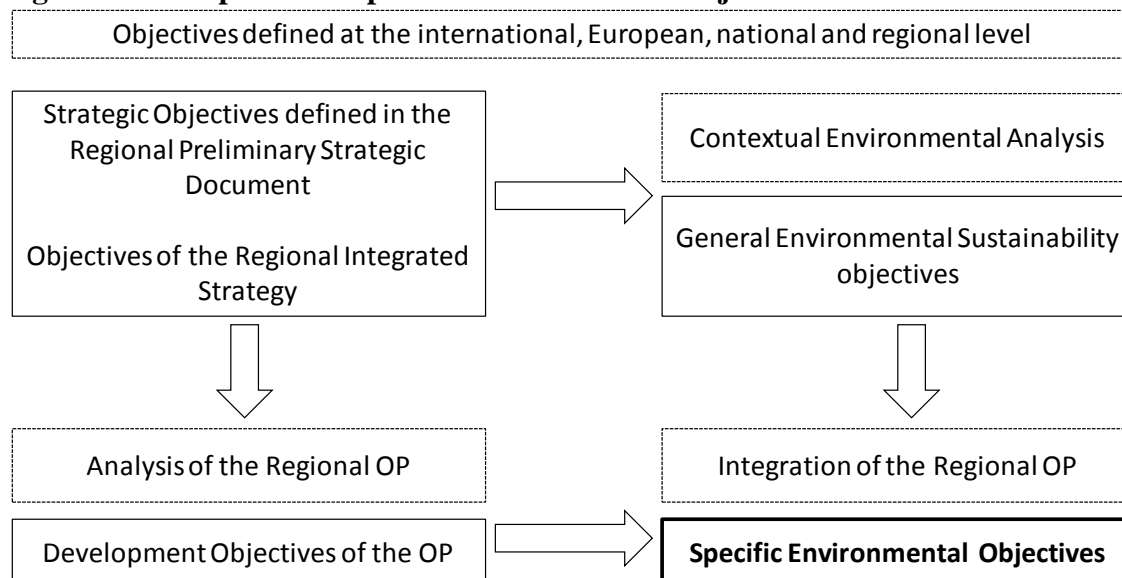
Third, within the integrated framework the region completes **two different but complementary analyses that lead to the definition of ‘specific environmental sustainability objectives’** (*Obiettivi specifici di sostenibilita’ ambientale*) Table 29. These objectives are integrated in the OP and used to analyse and evaluate the effects of the OP on the environment.

1. In Phase 1, NUVAL, with the support of the environmental authority and other independent agencies, carries out a **general environmental analysis of the Preliminary Regional Strategic Document (*Documento Strategico Preliminare Regionale*)**, which contributes to **the definition of the NSRF**. This leads to the identification of general environmental sustainability objectives.
2. In Phase 2, the same authorities carry out an **environmental analysis of the OP, which leads to the definition of sustainable development objectives**. Finally, the results of these two phases are integrated and the specific environmental sustainability objectives are identified.

The figure below visualises this process.

¹⁷² Law 144/99, passed by the Italian government in reaction to requirements of the European Union in relation to the programming of structural and cohesion funds, suggests a shift to a unitary approach to the programming. After this initial legislative push the regions were free to decide how to further develop this new integrated approach. The Piemonte region was one of the first Italian regions to adopt the integrated approach.

Figure 9 Development of Specific Environmental Objectives



The table below lists the specific environmental objectives developed through this process.

Table 36 Specific Environmental Objectives

Themes	Specific Objectives of Environmental Sustainability
Water Resources	Savings of water resources through the adoption of advanced materials and technologies in the production processes
	Re-use of treated waters
	Adoption of the best technologies for the protection and improvement of the quality of waters
Quality of the air and climate factors	Reduction of the impacts of transports on the quality of the air
	Adoption of the best technologies for the reduction of impacts on the quality of the air, due to industrial emissions
	Reduction of climate-changing emissions
Soil and natural risks	Prevention and management of natural risks related to urban and industrial areas and other infrastructures
	Prevention of erosion
	Rationalisation and minimisation of the exploitation of the soil
Biodiversity and landscape	Promotion and adoption of eco-sustainable tourism management systems
	Reduction of the loss of biodiversity and protection of vulnerable animal and plant species
	Protection of the functionality of ecologic systems
	Minimisation of impacts on the landscape of constructions
Waste	Adoption of the best technologies for the reduction of waste production and of their danger
	Re-cycling
	Energy from waste recovery
Energy	Reduction of total energy consumption
	Efficient and rational use of energy
	Production of renewable energy, as compatible with environmental sustainability

Industrial Risk and contaminated sites	Adoption of the best technologies for the prevention of industrial risk
	Recovery of dismissed areas through the drainage of contaminated sites
Horizontal themes	Support of research and innovation in the environmental context
	Strengthening and standardisation of environmental knowledge through ICT
	Promotion of culture and knowledge of the environment

While EA and managing authority cooperate to develop objectives under the process described above, this process does not extend to all aspects of the implementation of the OP (e.g. calls for proposals). Whereas the MA is legally required to involve the EA in the development of calls with a clear environmental dimension, it does not involve the EA in the development of calls which only have an indirect impact on the environment. Consequently, it is harder for the EA to develop appropriate indicators for the monitoring of projects with an indirect environmental dimension.

3.1 The ongoing in-house SEA

This section describes the region's recently introduced practice in the evaluation of the environmental impacts of the European Agricultural Fund for Rural Development (EAFRD)¹⁷³. According to stakeholders this could constitute 'best practice' and it could be implemented in the evaluation of the ERDF OP as well.

The European Agricultural Fund for Rural Development (EAFRD), which was established by Regulation (EC) 1290/2005, aims at strengthening the EU's rural development policy and simplifying its implementation. In particular, it improves the management and controls of the rural development policy for the period 2007-2013.¹⁷⁴ Each Member State has to draft a national strategy plan for the period 2007-2013 which defines the means to ensure coordination with other instruments, such as the ERDF, the ESF and the CF. Subsequently, each region drafts its own Rural Development Programme, which identifies specific objectives and measures to be financed in consideration of its socio-economic and environmental context. These **objectives are often complementary to those pursued by the ERDF**. For instance, both the OP and the Rural Development Programme of the Piemonte region fund interventions for the development of renewable energy. For this reason, the Rural Development Programme clearly defines the **demarcation between activities financed under the EARDF and those under ERDF**.

The Piemonte Region carries out an *in-house ongoing SEA* of the operational programme on rural development. The main purpose of this new governance mechanism (introduced for the first time in the current programming period) is ensuring broader participation and better coordination in the evaluation of the programme. Under this framework, the Strategic Environmental Assessment is not carried out exclusively before the programming phase, but it is also carried out during the programming period.

¹⁷³ The EARDF is, along with the EAGF (European Agricultural Guarantee Fund), one of the two financial instruments of the Common Agricultural Policy (CAP) established by Regulation (EC) No 1290/2005. From 1 January 2007, these two funds replace the EAGGF Guidance section and the EAGGF Guarantee section respectively. The EARDF supports rural development, the second pillar of the CAP, which has been introduced progressively since the 1970's and institutionalised in 1997 with Agenda 2000. (source:

http://europa.eu/legislation_summaries/agriculture/general_framework/l60032_en.htm)

¹⁷⁴ http://europa.eu/legislation_summaries/agriculture/general_framework/l60032_en.htm

In terms of governance, the region has introduced two new players: (1) the technical evaluation unit, within the Managing Authority, which is responsible for coordination and (2) the steering group, which includes a broader number of stakeholders and which meets every month (or every other month). Finally, the other main novelty is that the evaluation is not carried out by an external agency but it is carried out in-house by NUVAL. According to the NUVAL¹⁷⁵, this also facilitates coordination and increases flexibility. However, it might lead to a loss of independence of the evaluator.

According to stakeholders, there are several advantages to the *in-house ongoing SEA*.

- a) **Ongoing monitoring and evaluation ensures the existence of an effective feedback mechanism.** Frequent meetings between stakeholders and relevant authorities allow them to review or reconsider certain standards or certain projects in case these prove to miss targets or have negative impacts on the environment. The standard SEA, EIA and the ex post evaluation do not allow a redirection or reconsideration of policies and measures, in the case in which negative environmental impacts are discovered
- b) **This governance mechanism allows to have an evaluator who has a better understanding of the context** (and is involved from the beginning and throughout the programming phase) and at the same time can draw on external stakeholders with specific competencies where required.
- c) **The *in-house ongoing SEA* is not limited to monitoring and evaluation of single measures** (which is already part of the Environmental Impact Analysis, designed and required by European standards), but it evaluates the whole programme.
- d) **This SEA ensures a more extensive involvement of government officials**, who are in charge of the allocation of funds and of the monitoring of the impacts. In particular, increased coordination and exchange of opinions between government officials across different departments has led to the introduction of a fully-fledged environmental monitoring of the measures and it has led to increased attention towards the environmental dimension of the programme.

This practice has been put forward by the Regional Agriculture Authority, with the collaboration of the Politecnico di Torino and with the coordination of NUVAL. It is funded by European, national and regional funds, under a priority axis similar to Priority Axis 4 in the ERDF OP (Technical Assistance). When asked why the practices has not been implemented also for the monitoring and evaluation of the ERDF OP, stakeholders argued that it is still in a testing phase and the Managing Authority has not yet put it forward for the evaluation of the ERDF OP.

The Region is also likely to use financial engineering instruments (in particular JEREMIE) to monitor the activities under Priority Axis 1, 2 and 3. Under Priority axis 3, the Region is also likely to use the financial engineering instrument JESSICA.

¹⁷⁵ Francesca Filippa and Nicoletta Torchio, 'Il modello di governance in-house: il caso del Programma di Sviluppo Rurale 2007-2013 in Piemonte', NUVAL Piemonte, 2010

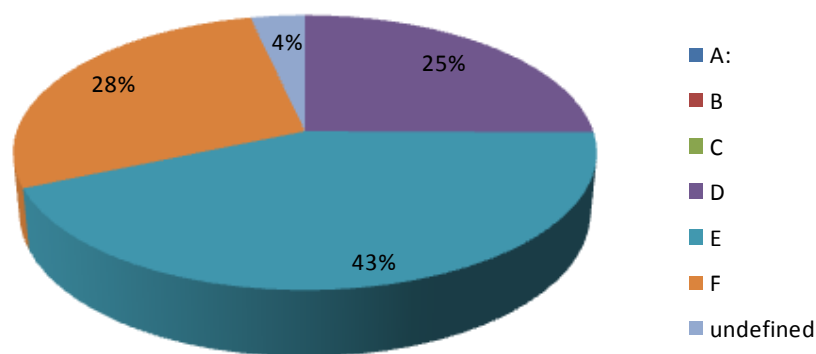
4.0 Analysis of measures and allocations

4.1 Development Path Approach analysis

The **Piemonte Region does not use the Development Path Approach to analyse the impacts of Cohesion Policy** and similar funds on the environment. Thus, it was impossible to collect decision makers' opinions regarding the DPA and its merits.

Nonetheless, the diagram below identifies the paths that the Piemonte Region emphasises by examining the allocation of Cohesion funds across different categories of expenditures¹⁷⁶:

Figure 10 Share of EU funding by development path



The figure shows that **25 per cent of funds are allocated to activities that pursue ‘Active Environmental Management’** and in particular to interventions to clean-up pollution and contamination from previous activities (Development Path D). **The majority of funds (71 per cent) are allocated to activities that pursue environmental sustainability and in particular to eco-efficiency (Path E) and decoupling (Path F) interventions.** Overall, it is possible to conclude that the measures financed by the Cohesion funds in the Piemonte Region aim at generating synergies between economic development and environmental sustainability and they intend to decouple economic activities from pressures on the environment/natural capital.

Stakeholders interviewed during the case study confirmed that generally activities that could lead to a trade-off (win-loss) between economic growth and natural capital are not pursued.¹⁷⁷ Nevertheless, the non-technical summary of the document attached to the SEA¹⁷⁸ by the EA also attempts to **identify the relationship between economic and environmental impacts of Cohesion fund investments** in Piemonte for a selection of investment types (see Table 4 below). The report confirms that the majority of actions financed through the Operational

¹⁷⁶ 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 in the Methodology Report) and by applying related criteria (Table 2 in the Methodology Report) to classify activities into one of the development paths. Please notice that the figure below represents only the allocation of EU budget to the different Paths; the OP in fact provides only an indicative allocation of EU funds across the categories of expenditure (Regione Piemonte, Programma Operativo Regionale cofinanziato dal FESR, p. 48), while it does not provide similar figures for national/regional funds

¹⁷⁷ An exception to this is presented in the section ‘Potential contribution of green investment to growth jobs and competitiveness’ below

¹⁷⁸ A non-technical summary that accompanies the SEA is required by the Directive 2001/42/EC, point j

Programme contribute (or could contribute) positively to the achievement of environmental sustainability. The box below outlines some of the possible win-wins identified by the EA.

Box 1 – Examples of possible win-wins

Research and Innovation: the Environmental Authority considers that these measures could lead to indirect win-wins with respect to water resources, air quality and climate, waste, energy and industrial risk. Research and innovation investments increase the efficiency of the production systems and increase the competitiveness of SME. At the same time, they could lead to the development of technologies that promote lower consumption of natural resources, such as water and energy, and could reduce the environmental impacts of production processes, thus improving air quality, reducing waste and industrial risk.

ICT: interventions that promote the adoption of ICT aim at improving efficiency, competitiveness and growth; moreover, these instruments could promote the adoption of ICT for the prevention of risks, both natural and industrial.

Protection and development of cultural and natural assets: according to the EA, interventions to protect and develop cultural and natural assets could have mixed effects on the environment. These interventions could in fact have positive direct and indirect effects on biodiversity and the landscape and on the prevention of natural risks, because they enhance cultural, historical and natural assets. Moreover, they promote the adoption of eco-friendly management systems in the tourism sector, which could have a positive impact on energy consumption. However, the promotion of tourism attractions might lead to an excessive exploitation of the soil.

Requalification of abandoned areas: under this objective, the Region promotes also interventions to improve sustainable mobility in abandoned areas. This will bear positive impacts on the quality of the air and on climate factors. Similarly, interventions under this objective aim at reducing heating systems emissions that could alter the climate. More direct win-wins are related to the fact that the requalification of abandoned areas promotes a more efficient and rational exploitation of the soil and on the landscape.

Table 37 Analysis of Intervention trade-offs

Non-Environmental programmes	Priority Axis	Environmental Assets				Other Environmental themes		
		Water Resources	Air quality and climate factors	Soil and natural risks	Biodiversity and Landscape	Waste	Energy	Industrial risk and contaminated sites
Research and Innovation	I.1	Possible Indirect Win-Win	Possible Indirect Win-Win			Possible Indirect Win-Win	Possible Indirect Win-Win	Possible Indirect Win-Win
Eco-Innovation and environmental technologies	I.2	Clear Direct Win-win	Clear Direct Win-win			Clear Direct Win-win	Clear Direct Win-win	Clear Direct Win-win
ICT	I.3			Possible Indirect Win-Win				Possible Indirect Win-Win
Energy Efficiency	II.1.3		Clear Direct Win-win			Clear Indirect Win-Win	Clear Direct Win-win	
Production of renewable energy	II.1.1/2		Clear Direct Win-win	Possible Indirect Win-Loss	Possible Direct Win-Loss	Possible Direct Win-Win	Clear Direct Win-Win	
Protection and development of cultural and natural assets	III.1			Unclear	Possible Indirect Win-Win		Clear Direct Win-Win	
Requalification of abandoned areas	III.2	Possible Indirect Win-Win	Possible Indirect Win-Win	Possible Indirect Win-Win	Clear Indirect Win-Win			Clear Direct Win-win

Win-win

In addition to the ‘extra environmental funds’ (*maggiorazione ambientale*) for SMEs discussed in Section 2 and which provide financial assistance to SMEs for investments that improve environmental outcomes, the managing authority and the environmental authority stressed that win-wins could be achieved in particular through the measures in Axis 1. The objective of the interventions under this Axis is **strengthening the competitiveness of the region by promoting research and innovation, particularly in SMEs**. Under Operational Objective 1.2 in particular, interventions **promote innovation towards more sustainable and ‘green’ production**. This could lead to economic growth coupled with energy efficiency. According to the Managing Authority, in particular during this economic crisis, enterprises have realised that shifting towards more ‘green’ production does not represent a cost but a saving mechanism and they are increasingly relying on these tools

Win-loss

The EA during the SEA did not come across any activity or measure financed through the OP that has a clear negative impact on environmental sustainability. It is interesting to notice that **the only interventions that, according to the EA, could have negative (direct and indirect) impacts on the environment, and more precisely on biodiversity, are financed under the Sustainability and Energy Efficiency axis (Priority Axis 2)**, which has a clear environmental dimension, according to the Managing Authority. In the non-technical summary, the EA stresses how interventions for the support of infrastructure for the production of energy, even if renewable¹⁷⁹, leads to the construction and/or enlargement of power plants that could have direct negative impacts on biodiversity and on the landscape. In addition, Specific Objective 2.1 under Priority Axis 2, which aims at promoting and strengthening synergies between protection and exploitation of environment, natural assets and economic development, focuses on areas whose cultural and natural assets can be exploited to **promote tourism**. The EA recognises that this measure could bear indirect negative impacts on the soil in particular. **Given the current natural challenges related to the soil in the Piemonte Region, with the high risk of landslides and floods (see Section 1), the impacts of these measures could be particularly significant.**

Finally, the Managing Authority outlined the **possibility of an unintended loss-loss** generated by interventions under Priority Axis 2. Under the ‘Sustainability and Energy efficiency’ objective, enterprises, private consumers and public agencies are invited to increase their consumption of renewable energy and improve the energy efficiency of their production processes. However, research (by IRES, the Environmental Authority, ARPA, etc) has shown that the Piemonte Region is not self-sufficient in terms of renewable energy and renewable energy production is still very limited. This would mean that those that shift their consumption towards renewable energy will be importing it from other regions or from abroad. This puts producers of energy in the Piemonte Region in a disadvantaged position and reduces their competitiveness as well as having a potentially negative impact on environmental sustainability. For instance, solar panels have to be transported across Piemonte from outside the region or even from abroad which can adversely affect e.g. air pollution from transport. The region is planning to intensify interventions to support the production of renewable energy to solve this problem; however, this is unlikely to be implemented before the next programming phase.

¹⁷⁹ This type of intervention is supported under Priority Axis II, Measure 1.1 (Production of Renewable Energy)

4.2 Other tools to enhance environmental integration

In addition to the direct and indirect investments in the environment, described in Section 2, the so-called ‘*maggiorazione ambientale*’ (*extra environmental funding*) can be considered an additional instrument to enhance environmental capital, or at least mitigate adverse environmental impacts. Under Priority Axis 1 (Measure I.1.3 (Innovation and SME) and Measure I.2.2 (Adoption of environmental technologies)), **extra funding¹⁸⁰ can be assigned to SMEs that demonstrate that the innovation project for which they require financing has a positive environmental impact.** More precisely, the region awards extra funding to the projects that entail¹⁸¹:

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

Both the EA and the Managing Authority have stressed that the **targets and the indicators used to assign extra environmental funds to these projects are more demanding than those applied to direct environmental investments** and listed in the OP. 40 per cent of the enterprises that applied for funding proved, through detailed indicators (which will be used in the monitoring phase), that their project would have a positive environmental impact and thus they have obtained extra funding¹⁸². The so called ‘*maggiorazione ambientale*’ can be considered an effective complementary flanking instrument.

5.0 Implementation and absorption

5.1 Absorption

The Annual Report on Execution of the Programme 2009 concludes that the Managing Authority has reached its target of expenditures for 2009, with total allocated contributions of €79.7 million. This corresponds to an absorption rate of the programme of 7.4% and it represents a large increase in expenditures compare to 2008. This contribution is completely made out of public funding: no private funding have been allocated for the implementation of the OP in Piemonte. Therefore, the private sector played no role in terms of match funding projects.

		Total Public Contribution	Allocated Contribution	Received from the	Absorption rate (B/A)
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¹⁸⁰ ‘*Maggiorazione Ambientale*’

¹⁸¹ Source: Regione Piemonte, ‘Bando: “Agevolazioni per le piccole e medie imprese a sostegno di progetti ed investimenti per l’innovazione, la sostenibilit  ambientale, l’efficienza energetica e la sicurezza nei luoghi di lavoro”’, provided by interviewees

¹⁸² In the Technical Report 2009, presented to the Monitoring Committee

		(A)	(B)	EU	
Priority Axis 1	Innovation and Production Transition	497,985,496	48,058,114	22,691,204	9.65%
Priority Axis 2	Sustainability and Energy Efficiency	270,639,610	25,801,801	8,031,283	9.53%
Priority Axis 3	Territorial Development	270,639,610	4,519,960	8,031,283	1.67%
Priority Axis 4	Technical Assistance	37,693,539	1,401,077	1,357,427	3.72%
	Total	1,076,958,255	79,780,953	40,111,199	7.41%

Source: *Rapporto Annuale di Esecuzione al 31.12.2009*

5.2 Preliminary outcomes

Below we present, for each axis, specific objectives, environmental objectives and measures taken to achieve the environmental objectives based on the Technical Report 2009, drafted by the Environment Authority (*Autorita' Ambientale*) of the Piemonte Region for the Monitoring Committee (*Comitato di Sorveglianza*)¹⁸³, which describes the environmental aspects of each priority axis and investigates the **environmental impact of measures financed and implemented so far** (up to 31 December 2009).

Priority Axis 1: Innovation and Production Transition

The Specific Objectives of this Priority Axis are to strengthen the competitiveness of the region through the intensification of R&D investments, the increased capacity to absorb and transfer technologies, the development of ICT and through innovation in the environment field. In particular, these objectives include activities that promote eco-innovation, i.e. activities that aim at the development of processes or products that minimise the impact of economic development on the environment.

Measures: The Technical Report refers in particular to '*funds for small and medium businesses to support projects and investments for innovation, environmental sustainability, energy efficiency and safety in the workplace*', financed under this Axis¹⁸⁴. The aim of this measure is facilitate the development of EMS (Environmental Management Systems) within SME (Small and Medium Enterprises) and/or improve the environmental performance of enterprises and/or stimulate the introduction of production processes which reduce the impact on water, air and waste production.

Within this measure, the Region also assigns extra funds to enterprises that demonstrate¹⁸⁵ the positive environmental impact of their activities. 40 per cent of enterprises that applied under this measure have required more funds, thus proposing to pursue positive environmental impacts. In terms of other preliminary outcomes, the EA has stressed how this measure has led to an improvement in the waste cycle of enterprises and a consequent reduction of waste production. On the other hand, the measure has not yet led to an improvement in energy efficiency or to a reduction in emissions.

¹⁸³ As part of the Strategic Environmental Assessment, as defined by Directive 2001/42/EC

¹⁸⁴ Total budget allocated for this measure was € 50,000,000

¹⁸⁵ According to the Environmental Authority, enterprises are required to specify indicators and targets that would prove the environmental impact of their activities in this framework

The EA was involved both in the development of the measure and in the identification of monitoring indicators, which could effectively certify the improvement in the quality of the production process with respect to the environment. During the interview, the EA stressed that it is crucial to identify key monitoring indicators that facilitate *ex-post* and *in-house ongoing* evaluation..

Priority Axis 2: Sustainability and Energy Efficiency

Priority Axis 2 has clear environmental objectives and it is considered the ‘environmental axis’ of the OP. In fact, this axis aims at promoting long term environmental sustainability of economic growth, through a more efficient utilisation of natural resources. Specific environmental objectives are:

- Expansion of renewable energy production
- Diversification of energy resources
- Promotion of systems and instruments for the production of renewable energy
- Energy saving and energy efficiency in final consumption
- Reduction of energy consumption also through the rationalisation of production processes

Measures¹⁸⁶: One of the measures under priority axis 2 incentivises the rationalisation of energy consumption and the use of renewable energy in the production process. Almost all (98%) applications for funds have so far related to the installation of photovoltaic systems, even though in the end only 64 per cent of funds were allocated to photovoltaic installations¹⁸⁷. Most applications funds under this activity were filed by small and medium enterprises and they are concentrated in cities and industrial areas.

While the previous measure incentivises the consumption of renewable energy, a second measure facilitates the production of renewable energy and the production of systems and instruments that promote energy efficiency. However, both the Managing Authority and the EA stressed that, at present, demand for renewable energy continues to exceed supply. This implies that the Piemonte Region is not self-sufficient in terms of renewable energy and thus it imports renewable energy appliances (e.g. solar panels) from abroad. This has a negative impact not only on the economic development and competitiveness of the region, but also in terms of energy efficiency and sustainability considerations.

Priority Axis 3: Territorial Development

The specific objective of this axis is the restoration and rehabilitation of abandoned sites to optimize their environmental compatibility and open them up for economic use. With respect to the environment, applications for funds have to comply with very strict requirements concerning urban development and the respect of the existing landscape. Moreover, the funds have to be employed to develop energy efficient buildings, boost energy savings, prevent and reduce air, water and soil pollution. Funds also have to be allocated to the development of an emissions monitoring system.

¹⁸⁶ All measures under priority axis 2 have a clear environmental impact. Here we present examples for which preliminary outcomes are available.

¹⁸⁷ The large difference between requests for funds (98 percent of total) and funds allocated (only 64 percent of total) is probably due to the fact that photovoltaic systems are relatively cheaper than other investments

6.0 Conclusions

The main environmental challenges in Piemonte are related to the quality of the air and energy consumption. The analysis of these environmental challenges and, more in general, of the environmental context of the Piemonte region has been one of the **key inputs in the development of the Operational Programme**. The use of the **DPSIR model** in the programming phase has contributed to the drafting of a rigorous SEA, which identifies both the current environmental challenges and the current assets that have implications for sustainable development.

The **rigorous and comprehensive approach to the SEA** has contributed to the identification of a clear sustainability and energy efficiency dimension in the Operational Programme of the Piemonte Region. Particular focus is placed on current environmental challenges in the region such as water resources, soil and natural risks (besides quality of the air and energy efficiency). Moreover, the region assigns a substantial amount of resources to the monitoring and evaluation of the programme, in order to implement its integrated approach. This allows better integration and better coordination of all the aspects that need to be taken into account when developing and financing policies for economic growth and sustainability. Moreover, according to the Environmental Authority, it creates complementarities and synergies across different programming aspects, it streamlines socio-economic effects and it ensures efficiency.

Another interesting practice concerns the evaluation of the Operational Programme on rural development, financed by EAFRD where an **in-house ongoing SEA** is used. This practice could be implemented also in the monitoring and evaluation of the ERDF OP and it is likely to improve the feedback mechanism, to ensure a better understanding of the context, to increase involvement of stakeholders and thus increase attention to environmental issues.

In terms of financing, the majority of funds (71 per cent) are allocated to activities that pursue environmental sustainability and in particular to eco-efficiency (Path E) and decoupling (Path F) interventions. In addition to direct and indirect investments in the environment, the so-called '**maggiorazione ambientale**' (*extra environmental funding*) assigns extra funding¹⁸⁸ to SMEs that demonstrate that the innovation project for which they require financing has a positive environmental impact. This can be considered an additional instrument to enhance environmental capital; it also proves the commitment of the Piemonte Region to environmental sustainability, which goes well beyond EU and national legal requirements.

In terms of preliminary outcomes, the EA has stressed how the impacts of measures financed under the OP are still limited (as measured by e.g. air quality). Nonetheless, it has stressed how measures financed under Priority Axis 1 (Innovation and Production Transition) can strengthen the competitiveness of the region by promoting research and innovation, particularly in SMEs. Interventions that promote innovation towards more sustainable and 'green' production are likely to **generate win-win situations**: they could lead to increased energy efficiency, which generates cost savings and consequently economic growth. According to the Managing Authority, in particular during this economic crisis, enterprises have realised that shifting towards more 'green' production does not represent a cost but a saving mechanism and they are increasingly relying on these tools.

¹⁸⁸ 'Maggiorazione Ambientale'

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8.0 Interviewees

- Benedetta Ciampi and Daniela Solaro, External Consultant, Environmental Authority, Regione Piemonte
- Fiorenzo Ferlino and Marco Bagliani, IRES Piemonte
- Francesca Michielin, Desk Officer, DG REGIO, Directorate G:Italy, Malta, Portugal and Spain - Unit G.3: Italy and Malta
- Giuliana Bonello, CSI
- Giuseppe Benedetto, Managing Authority, Regione Piemonte
- Luca Moreschini, NUVAL, Evaluation Unit, Regione Piemonte
- Stefano Rigatelli and Giuseppina Sestito, Environmental Authority, Regione Piemonte

Activity (Codes)	Description	Budget EU
1	R&TD activities in research centres	€ 11,585,809
2	R&TD infrastructure and centres of competence in a specific technology	€ 16,137,377
3	Technology transfer and improvement of cooperation networks	€ 23,033,692
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 45,998,424
5	Advanced support services for firms and groups of firms	€16,137,377
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 29,555,636
7	Investment in firms directly linked to research and innovation	€ 22,757,840
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 2,275,784
11	Information and communication technologies (...)	€ 6,576,129
12	Information and communication technologies (TEN-ICT)	€1,847,227
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€19,285,053
15	Other measures for improving access to and efficient use of	€ 1,847,227

	ICT by SMEs	
39	Renewable energy: wind	€ 10,172,960
40	Renewable energy: solar	€ 19,810,500
41	Renewable energy: biomass	€ 22,487,595
42	Renewable energy: hydroelectric, geothermal and other	€ 22,487,595
43	Energy efficiency, co-generation, energy management	€ 32,125,136
50	Rehabilitation of industrial sites and contaminated land	€ 32,125,135
55	Promotion of natural assets	€ 7,710,033
56	Protection and development of natural heritage	€ 3,855,016
58	Protection and preservation of the cultural heritage	€17,347,573
59	Development of cultural infrastructure	€ 9,637,541
61	Integrated projects for urban and rural regeneration	€ 36,408,488
85	Preparation, implementation, monitoring and inspection	€ 8,202,797
86	Evaluation and studies; information and communication	€ 6,711,378
TOTAL		€ 426,119,322

1.12 GREECE: LAKE KARLA

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1.0 Executive summary

- The case study focuses on a sub-region around Lake Karla in the region of Thessaly in mainland Greece. The case study is an ERDF funded project that is designed to improve biodiversity and lead to more efficient water management of the sub-region.
- The project is currently administered under the ERDF programme. It is envisaged that a new institution will be set up to take over the complex task of water and lake management in the sub-region, after the end of the EU co-funding period. This institute is not yet operational.
- The development of an irrigation system for the nearby city of Volos, which is funded by national funds, has been used as a successful instrument in combination with the EU co-funded interventions. Thus, the irrigation system of Volos also contributes to environmental improvements in the wider region, together with the interventions that have been undertaken in order to re-create the lake and the surrounding environment.
- The project has the potential to bring both environmental and economic benefits to the area, which can be gained from using surface water gathered in the re-created lake Karla, as opposed to the over-utilisation of underground water, as per the pre-existing situation in the area.

• Processes of Integration	• Criterion	• Case study coverage
Strategic	Inclusion	•
	Consistency	• X
	Weighting	•
	Financial resources	•
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	•
	Consultation	•

2.0 Background and Context

Lake Karla, also known as Voivis, is located in the south-eastern part of the Thessaly plain, the biggest plain of Greece and the most fertile agricultural area of Greece. The lake encompassed some 200,000 acres, reaching North up to the river of Pinios. During the early 20th century, Pinios often overflowed, flooding the Thessaly valley. A French company was in charge of studying the situation and proposed the building of dams in the river banks. When the dams were built during the early part of the 20th century, the river stopped overflowing. As a result, the waters of Lake Karla were no longer renewed and inevitably their quality declined, mosquitos and malaria thrived in the area. Another study in the 1930s proposed that the lake be dried up and that several small water reservoirs would be constructed in combination with drying out the lake. The purpose of the water tanks was to provide water to irrigate the fields in the wider Thessaly valley. Several decades later, the drainage of Lake Karla was implemented. The lake was drained in 1962; however, the water tanks were not created until later and, even then, they lacked a strategic plan for the water usage in the area.

Before the drainage, Lake Karla constituted a very important wetland, which supported a variety of economic activities, in particular fishery. The drainage of Lake Karla resulted in radical ecological and socio-economic changes in the lakeside settlements, as fishermen became farmers.

The strategy of the drainage of Lake Karla in the 1960s proved to have exceptionally unfavourable environmental consequences in the long term, with the water table of the sub-region nearing exhaustion from decades of abstraction of groundwater for irrigation. The loss of groundwater led to subsequent losses of lakeside flora and fauna and it also contributed to changes in local climate conditions. Pumping water is a practice still followed today, and it is energy-intensive, expensive and carries a high environmental cost.

During the 1990s local actors became increasingly concerned over the environmental costs, while at the same time the agricultural land became less fertile. This led to a re-examination of whether the drainage of the lake had been a sensible policy for the area. As a result, the central government, supported by local actors, brought forward proposals for the re-creation of the lake.

A project, supported by Cohesion Fund co-financing, for the reconstitution of part of what was previously Lake Karla was started in 1999. The investments made aim to re-create approximately 38,000 acres of lake (before the drainage the lake surface was 130,000 acres). The water reservoir that has been created and which now constitutes the re-created Lake Karla, was completed in 2006.

2.1 Current status of the environment

The groundwater in the basin of Karla continues to be overused as a result of intense agricultural activity and the opening of new water boreholes to help meet the water supply requirements for the nearby city of Volos. A recent study by the Department of Civil Engineering of the School of Engineering of the University of Thessaly¹⁸⁹ reveals that only with the artificial recharge of the underground water-bearing stratum and a restructuring of agricultural production in the area, can the recreation of lake Karla be sustained in the future. The study argues that proposals for a further 50 new boreholes in the western side of the lake, where the water level is exceptionally low and where the region is already downgraded, jeopardises the lake itself. The study goes on to argue that alternative sources of water supply could be found for the city of Volos from new sources in the mountains of Pelion and from surface waters, rather than from the Lake Karla area.

2.2 Current investment context

The re-creation of Lake Karla is supported in the context of the Greek Operational Programme 2007-2013 on 'Environment and Sustainable Development'. This OP has 11 Axes in total. The lake Karla interventions are supported under the Priority Axis 9, entitled 'Protection of the Environment and Biodiversity'.

The total budget of the programme is €2,250 million. EU investments through the ERDF amount to € 220 million, while €1,580 million is covered through Cohesion Fund.

¹⁸⁹ Article in the IMERISIA daily newspaper, 'Lake Karla is being overused', 21 August 2010
<http://www.imerisia.gr/article.asp?catid=13816&subid=2&pubid=52367147>

The Priority Axes of the OP are presented in the following table¹⁹⁰.

Priority Axis		Total budget
A. COHESION FUND		
Priority 1	Air & rural transports, climate change, renewable energy sources (RES)	EUR 340 237 500
Priority 2	Protection & management of water resources	EUR 989 775 000
Priority 3	Prevention of environmental risks	EUR 395 000 000
Priority 4	Solid waste & protection of soil	EUR 224 225 000
Priority 5	Technical assistance Cohesion Fund	EUR 25 762 500
B. EUROPEAN REGIONAL DEVELOPMENT FUND		
Priority 6	Air and climate change	EUR 23 000 000
Priority 7	Water resources management	EUR 20 000 000
Priority 8	Prevention of environmental risks	EUR 40 000 000
Priority 9	Nature protection and biodiversity	EUR 134 512 500
Priority 10	Institutions	EUR 52 487 500
Priority 11	Technical Assistance ERDF	EUR 5 000 000

3.0 Governance mechanisms

There are two entities managing the implementation of the project, one at national level and one at regional level. The unit managing the implementation of the initiative from Athens is Unit D7 of the Ministry of Public Works and it cooperates with the respective regional division of the Ministry based near Lake Karla.

The current monitoring system in place is based on a clear set of indicators of physical output and indicators of financial utilisation that are used to monitor progress. The output indicator for the re-creation of lake Karla is the ‘completion of the project with a target value of 1 for such completion, as compared to a baseline of 0. This appears to be a very broad indicator, not very helpful in monitoring the progress of the initiative. Another relevant output indicator is ‘the percentage of the areas belonging to the NATURA network that are subject to preservation status’. The indicator has a target value of 50% compared to a baseline value of 17%. Progress related to these indicators is reflected in the annual reports to the Commission, tracking progress.

Project stakeholders in the project suggest that so far the governance of the project of the recreation of Lake Karla has been efficient. The engagement of local actors since the beginning of the intervention is seen as a key success factor. Currently, some objections are being voiced by local farmers who own wells and who do not want to relinquish existing irrigation methods through the use of boreholes. However, the Managing Authority is confident that these objections will be overcome once the farmers see the bigger picture and understand that they will have access to cheaper and more abundant water for irrigation once the work on the reconstitution of Lake Karla are completed.

¹⁹⁰

http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=GR&gv_reg=597&gv_PGM=1076&gv_defL=9&LAN=7

However, there are concerns about the sustainability of the project once Cohesion Policy support is no longer available, because the institution that is intended to take over the management of the lake is still not fully operational. An ‘Institute for the Management of the Eco-development Area of Karla, Mavrovounio, Kefalobrisou, Velestinou (*PO.Ka.Ma.Ke.Be* are the initials of the Institution in Greek)’ was set up in 2003. The project foresees €4 million for the operation of this institute. However, the Institute is not yet fully functioning despite the budget available and the staff resources allocated to it.

The Institute for the Management of Lake Karla is intended to be a small, flexible organisation of about 20 staff members. It is envisaged the Institute will be managed by a Board of Directors, composed of representatives from all the national Ministries involved and representatives of the regional, sub-regional and local governments, the mayor of the municipality of Karla and representatives of local NGOs. This composition is representative of the key local actors and is desirable. However, in practice, it is not clear whether local politicians sitting in the board would be able to take decisions which ensure financial and environmental sustainability over the long term, instead of serving short term interests to secure votes. It is also not clear how the decision-making powers are divided between the board and the institute. One solution to these challenges could be to appoint several scientific members to the Board of the Institute that would have more permanent positions, to ensure continuity of the knowledge necessary to maintain the lake.

The competences of the Institute are¹⁹¹:

- 1) the development of a management plan for the area of lake Karla.
- 2) the planning of activities and of the financial means that these will involve, aiming at the preservation, protection and valorisation of the area.
- 3) the planning of the annual water supply available for irrigation and the protection and management of the water basin, according to EU directive 2000/60.
- 4) the management of Lake Karla and the Environmental preservation of lake Karla and of other water tanks in the area.
- 5) the realisation of controls according to the article of law 1650/1986.
- 6) consulting the responsible services in the issuing of authorisations for water usage and the operation of works for the exploitation of the water reserves of the region.

Practically speaking, the Institute will have a complex task to ensure the effective water and soil management required for the Lake. This will entail monitoring a variety of indicators (for biodiversity, water quality, water levels pesticides, etc) and conducting repairs in the waterways, dams, reservoirs and other constructions. A handbook for the management of the system is being drafted and it will serve as a ‘users’ manual’ for the Institute.

4.0 Overview of environmental objectives, measures and allocations

As indicated in section 2.2 above, the OP ‘Environment and Sustainable Development’ is focused on attaining environmental objectives in terms of interventions in relation to renewable energy sources (Priority 1), the protection & management of water resources (Priority 2), solid waste & protection of soil (Priority 4) water resources management (Priority 7), as well as work on the institutional infrastructures to support these environmental interventions (Priority 10).

¹⁹¹ <http://www.fdkarlas.gr/arxiki.htm>

The project for the recreation of Lake Karla is financed under Priority Axis 9, which is one of the less significant priorities of the OP in terms of budget. The general objective of Axis 9 is the reversal of the loss of and the protection of biodiversity via the achievement and maintenance of habitats and threatened populations of flora and fauna. The specific objectives of the Axis are the protection of threatened species, flora, fauna and habitats in the whole country; preservation and valorisation of habitats; maintenance of biodiversity; completion of the Natura 2000 network; developing suitable measures for a holistic system for the preservation of Natura 2000 sites; intensification of the participation of the social partners; environmental sensitization of the wider public regarding the importance of biodiversity and ecosystems for the quality of life as well as preventive action for their protection.

The main objectives of the Project to re-create Lake Karla have been to address the environmental challenges of the energy-intensive use of boreholes, the overuse of underground waters and the destruction of the biodiversity of the area. In the period, 2007-2013 the project aims to:

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

This is to be achieved by serving several environmental objectives:

- finding alternatives to provide surface water to farmers for irrigation;
- providing water to the nearby city of Volos from surface waters, rather than from underground water reserves;
- re-instating the habitats of plantation, birds, animals and fish in the lake. Birds, in particular, used to use lake Karla as a stop-over on their emigration route to the South
- valorise this habitat and to contribute to local economic development via mild touristic interventions, such as spots for bird-watching, bicycle routes and a local museum on the history of Lake Karla.

5.0 Analysis of measures and allocations

During the 2007-2013 programming period, the project for the recreation of Lake Karla has received Cohesion Policy co-funding amounting to €38 million¹⁹² and it has a total cost of €50 million. Overall, the interventions implemented since 1999 have cost approximately €250 million, 50 per cent of which has been covered by EU funds. This EU co-funded investment was conditional on the national government investing in an agricultural irrigation system to provide an alternative source of surface water for local farmers.

Regarding the sustainability of the investment, user charging is currently being designed and the appropriate parameters for user charging are being considered by the Managing Authority, in consultation with the European Commission. This is being done in order to ensure that the appropriate user charging is implemented once the water of Lake Karla

¹⁹² Funded under Axis 9 'Environmental Protection and Biodiversity' of the Operational Programme 'Environment and Sustainable Development'

becomes available for both agricultural and urban use, from 2015 onwards. Hence user charging is designed to ensure that, at the very least, the operational costs can be recovered on a yearly basis, keeping both the long term financial sustainability and the environmental sustainability of the project in mind.

5.1 Development Path Approach analysis

The stakeholders interviewed during the case study fieldwork agreed that, in general, the project activities followed are expected to lead to win-win situations and that no win-losses between economic development and natural capital are expected. The actions supported by this Operational Programme in the Lake Karla area, clearly contribute to biodiversity and environmental sustainability in the area and will bring environmental and social benefits. At the same time, agricultural activity is expected to be maintained and the water supply needs of Volos to be met.¹⁹³ Therefore the majority of investments in this particular project pursue eco-efficiency (Path E) and decoupling (Path F).

It should be noted that no economic development activities are directly funded apart from limited measures to support sustainable tourism in the area. These are expected to attract visitors such as bird-watchers, school-trips and amateur fishermen and are expected to create a small number of jobs in the area, in order to staff the management institute, the information centre and the museum.

In the longer term, the strategic plan is for the area around Lake Karla which is currently occupied by conventional agriculture to gradually move to organic, sustainable farming, in line with EU policy directions in this area. A separate nationally funded project providing an agricultural irrigation system, alongside the re-creation of Lake Karla, also supports the plan since it will enable farmers to use surface water instead of the underground water reserves of the area. Private sector initiatives in the sector of sustainable tourism in the area, such as camping sites, horse raising farms, rowing centre etc. are also expected. Some interest has also been shown by the private sector in developing renewable energy sources in the area, using the water from the lake.

Overall, it is possible to conclude that the measures financed by the Cohesion fund and ERDF in the Lake Karla project aim at promoting environmental sustainability as well as pursuing eco-efficiency. Furthermore specific interventions have been introduced designed to gain economic benefit from the natural environment. Hence, the Lake Karla project is intended to provide a number of ecosystem services: the project offers potential to have economic value for fisheries, tourism, water supply for agriculture and water supply for urban use, flood prevention, etc. Therefore, although it is a project which aims at restoring ecological status, the Lake Karla project is expected to bear many economic benefits for the area.

6.0 Implementation and absorption

6.1 Absorption

The absorption rate of the cohesion funds is satisfactory according to Greek standards. The only problems that had been faced in relation to absorption arose during the early stages of

¹⁹³ As such the project would appear to fall clearly within the Development Path D: Clean-up, Restoration, Preservation, Investment in Natural Capital

the re-creation of lake Karla. On the one hand, archaeological finds in the area and on the other hand, obstacles related expropriations of land from private owners in the intervention area were two factors that caused delays at the start of the intervention. This meant that absorption had been slower initially but these problems were quickly overcome and absorption rates subsequently picked up.

Examples of projects that are being funded include:

- 1) The completion of the water supply works for the city of Volos
- 2) Creating a small area of approximately 1,000 acres to the west of Lake Karla where canes (wicker bamboo) have been planted, in order to filter and clean the rain water and agricultural effluents draining into Lake Karla from the plain. These waters are often polluted from all types of farming, and contain the runoff from pesticides and fertilizers which are heavily used in the area. As a result, biodiversity will improve with more birds able to nest in the area.
- 3) Planting trees on the banks and creating recreational areas around the lake, to encourage visits by tourists and bird watchers. Other interventions in developing sustainable tourism in this NATURA area, will include:
 - the creation of bicycle paths and walking routes around the lake and onto the adjoining mountains,
 - reforestation and mild interventions in the adjoining mountain areas,
 - an environmental information centre in Stefanovikio, a village very near Lake Karla,
 - a natural history museum to the east of Lake Karla, next to the offices of the Institute
- 4) Anti-flooding works, cleaning of the waterways etc.

6.2 Preliminary outcomes

In terms of promoting biodiversity, the interventions in Lake Karla have been successful. For example, the re-creation of the lake has already led to the appearance of a limited number of birds (flamingos) for the first time. At the same time, pairs of black storks have also been observed. The scientists and the ecological organisations suggest that roughly 160 species of birds will live in the lake when all 40 000 acres are restored. In addition certain endangered bird species may chose Lake Karla as a habitat. The same is true for certain species of ducks, whose population has shrunk. Since fish and birds have started to reappear in the lake, there is a need to preserve all flora and fauna in the area from hunters and poachers. There are plans to ban hunting and to only allow amateur fishing in the lake.

In terms of countering the depletion of underground water levels, the interventions have also been successful. The interviewees reported that already, the underground water levels around the lake are estimated to have risen by 2 to 3 metres.

The separately funded interventions designed to provide irrigation from surface waters to agricultural lands near Lake Karla, are being created during the 2007-2013 period, however this has not yet been completed and it is therefore difficult to calculate the savings the

investment will give rise to. Research has been conducted including a Cost Benefit Analysis, however we were unable to gain access to this research.

The governments' intention is for the Lake Karla interventions to be completed by 2013¹⁹⁴, when the programming period draws to a close, but more importantly, when the Mediterranean Games will be held in Volos. The official website of the Mediterranean Games mentions that the rowing will take place in the Karla rowing centre¹⁹⁵ which remains to be built on one side of Lake Karla.

7.0 Conclusions

In the case of the re-creation of Lake Karla, Cohesion Policy has had a tangible impact on the achievement of environmental sustainability, with the whole eco-system around the lake slowly being revitalised, with birds returning to the lake, as well as fish and other animals. More sustainable solutions are being developed for agricultural irrigation and for the water supply of the nearby city of Volos, a city which has always faced problems with its water supply. EU investment was made conditional on the national government investing in an agricultural irrigation system to provide an alternative source of surface water for farmers.

The EU structural funds offered an opportunity to create this important project for the environment of the wider region, which would otherwise not been realised due to lack of funds, although it was made conditional that the national government invest in related agricultural irrigation systems, which avoiding the potential conflicts with farmers. The EU environmental policy priorities also offered new perspectives for water management in the wider region, both in securing groundwater for irrigation and for the water supply of the nearby city of Volos.

The planned investments in the 2007-2013 programming period in Lake Karla are indeed coherent with the EU medium and long-term environmental targets for biodiversity but also for mitigating the effects of climate change (thanks to the promotion of energy-saving in irrigation methods). A plan for user charging is currently being designed, in order to ensure that, at the very least, the operational costs can be recovered on a yearly basis, keeping both the long term financial sustainability and the environmental sustainability of the project in mind.

Absorption rates were slow at the beginning of the intervention due to archaeological finds in the intervention area and due to the need to publicise private land. These obstacles were quickly overcome and absorption rates became satisfactory.

Lake Karla provides various ecosystem services and that the project will potentially have economic value for fisheries, tourism, water supply for agriculture, flood prevention, etc. and therefore although it is a project which aims at restoring ecological status, it has economic benefits for the area, which is in fact the primary reason that the project came about in the first place (i.e. that land was degrading and water tables were falling, etc.). In a longer term perspective, the strategy for the development of the local area is for agriculture to turn to more sustainable forms, such as organic farming, and for the promotion of sustainable tourism. This demonstrates the ability to secure economic development from investment in natural capital. The engagement of local actors has been key to the success of the project, and

¹⁹⁴ <http://www.e-karla.com/en/imerosi/articles/2010oloklirosilimnis.html> article from 21 May 2010

¹⁹⁵ <http://www.volos2013.gr/sport-en/rowing-en.html>

solutions have been found which are good for the environment, but also for all stakeholders over the long term. In this context, it was important for the initiative to find a balance where all interests were considered.

8.0 References

Website of the Greek Operational Programme 2007-2013 on ‘Environment and Sustainable Development’ <http://www.epper.gr/>

Website of the Lake Karla local actors: www.e-karla.com

Institute for the Management of the Eco-development Area of Karla, Mavrovounio, Kefalobrisou, Velestinou <http://www.fdkarlas.gr>

9.0 Interviewees

- 1) Mr. Psarianos, Unit D7, Ministry of Public Works, Central Managing Authority
- 2) Ms. Samaraki, Unit D7, Ministry of Public Works, Central Managing Authority
- 3) Mr. Tasos Varveris, ECOS, Consultants to the Managing Authority

Activity (Cd)	DPA	Description	Budget EU
44	B	Management of household and industrial waste	€ 179 380 000
45	B	Management and distribution of water (drink water)	€ 807 820 000
49	C	Mitigation and adaption to climate change	€ 290,590,000
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 107 610 000
53	C	Risk prevention	€ 348 000 000
85	0	Preparation, implementation, monitoring and inspection	€ 41 990 000
86	0	Evaluation and studies; information and communication	€ 24 610 000
TOTAL			€ 1 800 000 000

1.13 LITHUANIA: ENERGY EFFICIENCY SCHEMES

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1.0 Executive Summary

- Lithuania has great need to invest in energy efficiency as it is the 6th worst performer in the EU in terms of energy intensity of the economy.
- Out of total 6.8 Billion Euro of EU Cohesion Funds in 2007-2013 for Lithuania 0.61 Billion Euro is directed towards energy sector projects. More than half of this money is earmarked to energy efficiency.
- Most of the Cohesion Policy interventions involve grants for investments in public buildings (such as schools, hospitals, etc).
- For energy efficiency funding both project competition and targeted offers are used.
- Absorption level of energy efficiency measures has so far been quite good. However, a qualitative assessment of the impact of funding has not been carried out yet.
- It is the poorly maintained multi-apartment houses that constitute the greatest problem in energy efficiency. Generous grant schemes by the government have been stopped during financial crisis and investments are now carried out mainly by flat owners. A shift towards private loans has taken place and, since the beginning of 2010, soft loans for energy efficiency investments in multi-apartment houses are available from government and JESSICA funding.
- It is yet too early to evaluate the success of JESSICA in Lithuania, nevertheless, it is expected that uptake of the loans should speed up within the next year. The shift from grants to loans in relation to refurbishment of apartment buildings requires time for beneficiaries to adapt to the new setup.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	X
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and Context

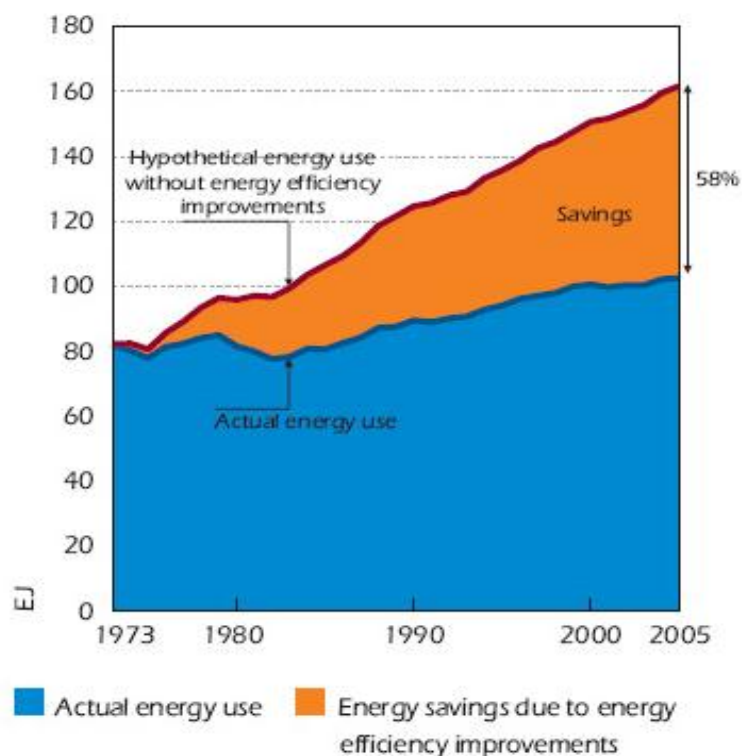
According to the Operational Programmes (OP) prepared by Lithuania for the programming period 2007-2013, EU grants to the energy sector reach a total of € 609 million. Of this, € 465 million are channelled through the OP Promotion of Cohesion while € 144 million are channelled through OP Economic Growth (see Table 4).

The high rates of investments in the energy sector aim at reducing overall energy use in Lithuania and increasing energy efficiency. The push to reduce Lithuania's energy use through investments in energy efficiency has several driving forces. On the one hand, Lithuania wants to increase its efficiency in order to improve its competitive position and facilitate its economic development. On the other hand, the recent closure of Ignalina nuclear power plant has led to an increase in cost of energy production and thus it pushed for a reduction in energy consumption, possibly through an increase in energy efficiency. The latter aspect in particular has led to deep changes in the composition of energy consumption in Lithuania.

High levels of energy consumption in Lithuania are related particularly to household heating: due to poor maintenance and lack of investments, multi-apartment houses and in district heating systems are very inefficient. In 2008, the total gross production of electricity amounted to 13,912 GWh (50,082 TJ), out of which 71 per cent came from Ignalina nuclear power plant. Relatively cheap nuclear power has been a cornerstone of Lithuanian energy sector since 1983, when the first reactor of the plant was opened. However, in line with the Lithuanian commitment towards the EU, the last reactor of the Ignalina power plant was closed down on 31 December 2009. As a consequence of the closure of the Ignalina plant, Lithuania turned from an exporter to an importer of electricity. Moreover, since 1 January 2010, the electricity market of Lithuania is partially liberalised and approximately 35% of energy users have either selected their foreign suppliers or are buying energy on the exchange BaltPool. The market is expected to become completely liberalised by 2015.

The closure of the Ignalina plant, the need to import electricity and the process of liberalisation has led to an increase in electricity price in Lithuania. It has been predicted that the increased price of energy will reduce Lithuania's GDP by one percentage point and it will increase inflation by one percentage point. This predictions put pressure on the Government to reduce the energy consumption. As numerous examples across the Europe have shown, investing into energy efficiency is the cheapest, but not the only solution, to reduce energy consumption (see Figure 1).

Figure 1. Long-term energy savings in IEA-11 member states from improvements in energy efficiency



Source: International Energy Agency

2.1 Current status of the environment

EU Cohesion Policy resources are allocated in accordance with the Lithuanian Strategy for the use of European Union Structural Assistance for 2007-2013. According to the Strategy the quality of environment in Lithuania is considerably high, in a number of cases. Nonetheless there is still room for improvement in some environmental themes.

Environmental Theme	Current status of the environment (Challenges and assets)
Quality of the air	The Lithuanian Strategy for the use of EU Structural Assistance underlines that, in recent years, air pollution represents an emerging and increasing threat to the environment. Air pollution problems in the largest cities seem to be related to the insufficient development of public transport and the constant increase in the number of vehicles. The density of nitrogen oxide pollution is particularly high in the largest cities. The activities responsible for the biggest emission of greenhouse gas and pollutants include energy production, transport and industry. One of the most relevant causes of air pollution is the absence of air emission treatment facilities in large energy plants that use traditional energy sources (e.g. oil products, natural gas). As a consequence of this, the pollutant emission rate per energy production unit in Lithuania is twice as big as the EU 15 average.
Energy consumption	Energy intensity (<i>energy consumption per GDP</i>) in Lithuania has decreased five times between 1991 and 2008. Structural changes in the Lithuanian economy have improved the productivity and reduced energy

intensity. In general, energy intensity has been decreasing in all the sectors of the economy, but energy efficiency measures shall still remain a priority.

Table 1. Energy consumption intensity in Lithuania

	<i>Tons of oil equivalent (TOE) / million LTL of GDP</i>					
	<i>1995</i>	<i>2000</i>	<i>2001</i>	<i>2002</i>	<i>2003</i>	<i>2004</i>
<i>Overall</i>	122,4	79,5	77,5	75,2	69,8	68,1
<i>Agriculture</i>	59,7	27,7	29,4	29,6	25,8	26,5
<i>Industry</i>	104	58,8	52,5	54,3	49,2	47,1
<i>Construction</i>	16,9	15	12,9	12,6	11,3	11
<i>Transport</i>	28	23	23,6	22,9	21,2	21,8
<i>Services</i>	31,5	16,4	15,7	15,2	15,2	15
<i>Households</i>	44,2	29,3	28,1	26,4	24	22,2

Source: Department of Statistics under the Government of the Republic of Lithuania.

Despite this improvement, Lithuania is still the 6th worst performer in terms of energy intensity in the European Union, with a level that remains 250 per cent of the EU 27 average.

There are many environmental challenges related to Lithuania's poor performance in terms of energy use. The main environmental impact relates to climate change. Even though Lithuania has never faced problems meeting the CO₂ emission targets set by the Kyoto Treaty, it is possible that the closure of Ignalina nuclear plant will lead to an increase in the use of natural gas, which will result in a slight increase of greenhouse gas emissions.

Water resources

As much as 70 per cent of the surface water bodies in Lithuania are substantially affected by anthropogenic activities; centralised supply of drinking water and centralised waste water collection and management serve only 60 per cent of the population. Moreover, only 77 per cent of waste waters are treated through waste water management systems.

Waste

A considerable share of industrial and municipal waste in the country is subject to the disposal at waste dumps, the majority of which fails to comply with environmental requirements and leads to pollution. Moreover, recent studies show that on the Lithuanian territory there are approximately 5200 potentially polluted areas, including waste dumps, which pose a threat to the environment and human health.

2.2 Policy framework

The key framework for investment decisions related to energy efficiency is set by the National Energy Strategy (January 2007).¹⁹⁶ The Strategy defines the main targets for the energy sector until 2025.

¹⁹⁶ approved on 18 January 2007 by Resolution No X-1046 of the Seimas, see http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=292522 (in English)

The National Energy Strategy sets four strategic objectives for the energy sector:

- energy security;
- sustainable development of the energy sector;
- competitiveness; and
- efficient use of energy.

It also lists 15 developing objectives, two of which are directly related to energy efficiency:

- starting from 1 January 2008, to save 9 per cent of final energy over the period of 9 years in comparison with the level of final energy consumption in 2005;
- to further improve the efficiency of consumption of all types of energy so that in 2025 relative energy consumption in buildings, various equipment and devices, technological processes and transport systems would approach the levels of other EU Member States.

While the National Energy Strategy sets general objectives, other programming documents, such as the National Energy Efficiency Programme for 2006-2010 and the National Energy Efficiency Action Plan, lay down more precise action plans¹⁹⁷. Equally important in setting the framework for achieving energy efficiency is the Lithuanian Housing Strategy, adopted in 2004. The Housing Strategy has set few important aims to be reached by 2020. The most important objective in relation to energy efficiency aims at reducing the costs of heat energy and the fuel ratio per unit of useful residential floor space by at least 30%. The adoption of the Lithuanian Housing Strategy was followed by the drafting of a more concrete Programme for the Modernisation of Multi-Apartment Buildings.

2.3 Current investment context

The majority of investments into energy efficiency are carried out by businesses and residents themselves. With Lithuania's GDP still considerably lower than the EU average, the limited domestic wealth can't meet the demand for massive investment into run-down infrastructure. There are however some public agencies at national level which channel grants or soft loans, using money from state budget and EU funds.

The most important intermediaries for funding of energy efficiency projects are Housing and Urban Development Agency (HUDA), Lithuanian Environmental Investment Fund (LEIF) and Lithuanian Business Support Agency (LBSA).

Housing and Urban Development Agency (HUDA) is an institution of the Ministry of Environment, which is in charge of the implementation of programmes and measures for the promotion of effective use of energy in private and public buildings. A Government-funded program for refurbishment of multi-family buildings was started at HUDA in 2005. Depending on energy efficiency measures, state grants could cover up to 50% of investment costs for modernisation of multi-apartment houses. Due to the large interest among beneficiaries and the limited resources, the Programme was closed. As the financial crisis hit, the Government started reducing its investments in this field and thus resources became scarce to finance the grant scheme. In total, € 37.2 million were distributed to 378 multi-apartment houses (see Table 2).

¹⁹⁷ See amended version http://www.ukmin.lt/en/energy/renew/doc/2007-270_en.pdf (in English)

Table 2. Government subsidies for refurbishment of multi-family buildings

	2005	2006	2007	2008	2009	2010
Number of implemented projects	1	75	152	79	37	34
State support (mEUR)	0.01	0.83	5.68	11.00	14.38	5.25

Source: Housing and Urban Development Agency

The generous grant fund was replaced by two new funding mechanisms by HUDA.

- In 2009, a project called "Mechanism to support Energy Efficiency Upgrading of Multi-apartment Residential Buildings" was started, with a budget of € 18 million.
- In 2010 a JESSICA holding fund was created to continue to support energy efficiency investments in multi-apartment houses. The holding fund currently disposes of € 227 million, provided by European Regional Development Fund (€ 127 million) and the Lithuanian Government (€ 100 million). Capital will be added by 3 selected commercial banks as revolving fund. The JESSICA holding fund is used for long-term loans (max 20 years) with fixed interest rate of 3% aimed at the improvement of energy efficiency in multi-family houses. It is expected that with the assistance of the JESSICA financial instrument approximately 1000 houses will be refurbished. 21 projects have been approved for JESSICA funding as of September 2010.

The switch from grants to financial engineering is not an easy process, as beneficiaries are used easier conditions of receiving the funding for refurbishment of apartment buildings. High hopes have been put in the mechanism, whereas in reality the uptake is not as fast as expected. It is too early to evaluate the success of JESSICA at this point as the mechanism requires time to become fully operational. In longer term, high energy bills should convince housing associations that the investments are necessary and worth the effort of taking a loan. Although at the moment the uptake of JESSICA may seem slow, implementation of the mechanism in Lithuania is still more advanced than in most other EU countries (not just new, but also many old member states).

Lithuanian Environmental Investment Fund (LEIF) is in charge of financing and supervising environmental investment projects in Lithuania. LEIF was established by the Ministry of Environment in 1996. The European Commission has supported the establishment of the Fund by allocating € 3 million and by providing technical assistance. The Fund supports projects through soft loans and subsidies. Since 2004, 11 energy efficiency projects, aimed at the modernisation of boiler-houses for district heating, have received support from the LEIF, in the form of subsidies (€ 1.1 million) and soft loans (€ 0.5 million). October 2010 was the deadline of funding applications by beneficiaries to get support for investment projects from LEIF. Total € 2 million will be distributed from remaining resources generated from soft loans given by EU Phare for Lithuanian environmental projects until 2005. It is envisaged that the next call for investment project proposals will be launched in spring 2011.

Lithuanian Business Support Agency (LBSA) is a public institution established by the Ministry of Economy as an implementing agency to manage and administer financial assistance provided by the European Union Structural Funds and national support programmes. No financial engineering instruments are being used.

For 2007-2013 the LBSA is responsible for the management of energy-related measures in two different Operational Programmes (OPs) (see Table 3). Energy efficiency related investments feature in both OPs but have different aims. The OP for the Economic growth

concentrates on transmission infrastructure such as heat supply pipelines while the OP for Promotion of Cohesion co-finances works in the buildings of public sector such as insulating.

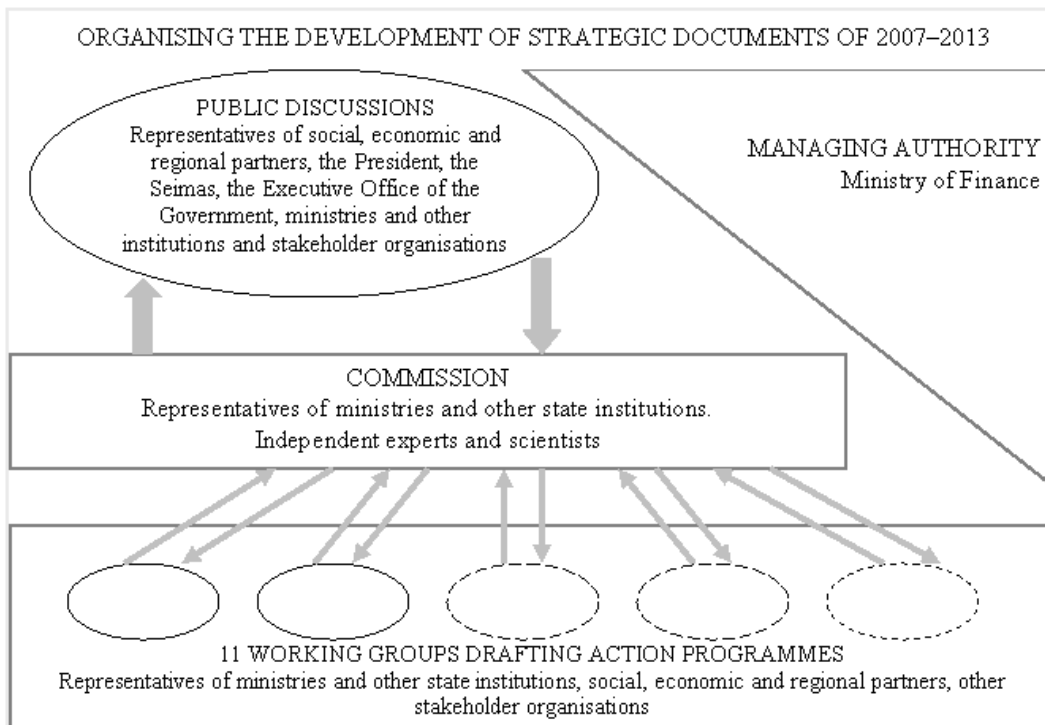
Table 3. Energy sector measures of 2007-2013 Operational Programmes

Title of the measure	Financial proportion (Euro)
Operational Program for Promotion of Cohesion	
Renewable energy sources: biomasses	36 763 789
Energy efficiency, common production, energy management	256 615 050
Air quality	171 481 463
Operational Program for Economic Growth	
Electricity	44 007 778
Natural gas	26 698 052
Energy efficiency, co-generation, energy management	73 346 296
TOTAL	608 912 428

3.0 Governance mechanisms

The process of preparation for use of 2007-2013 Cohesion Policy instruments formally started in December 14, 2005. Both the Lithuanian Strategy for the use of European Union Structural Assistance for 2007-2013 (NSRF) and the Operation Programmes (OP) were drafted through a participative process. The NSRF was approved the European Commission on April 26, 2007. The process was led by Ministry of Finance (see Table 4).

Table 4. Organisational structure of developing strategic documents for the utilisation of EU structural assistance in 2007-2013



Source: Ministry of Finance

The four Operational Programmes are managed by a responsible ministry (Managing Authorities), while several Implementing Authorities are in charge of the practical implementation of the measures. The Lithuanian Business Support Agency (LBSA) manages the implementation of the two specific measures directly aiming at improving energy efficiency in the country, even though these two measures are in different Operational Programmes. Depending on the specific measure, the Agency is using two different methods to select beneficiaries for Cohesion Policy funding: project competition and state/regional planning.

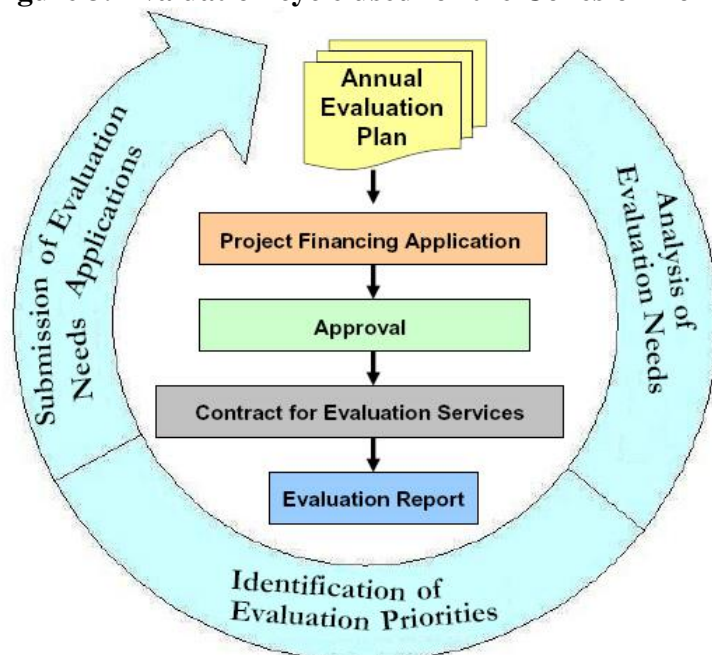
According to interviewees at the Ministry of Economy, it is up to every responsible ministry to decide if they are to carry out mid-term evaluation of the priorities and measures they manage from the EU 2007-2013 structural assistance, even though this probably ought to be mandatory. The Ministry of Economy that is in charge of energy efficiency measures has chosen not to commission a mid-term review.

As an interesting and pro-active policy measure an evaluation of implementation of environmental requirements has been initiated by the Ministry of Finance. Its aim is to improve the use of EU structural assistance by carrying out an intermediate evaluation of impact on environment and evaluation of the eligibility, sufficiency and efficiency of the environmental requirements. The procurement for identifying the evaluator is ongoing¹⁹⁸. The evaluation report with conclusions and recommendations is due in July 2011. The evaluation

¹⁹⁸ Stakeholders at the Ministry of the Economy have confirmed that an evaluator has not been identified yet and that the call for tenders is still ongoing

cycle, implemented in the framework of Cohesion Policy investments in Lithuania, is depicted in the figure below.

Figure 3. Evaluation cycle used for the Cohesion Policy investments in Lithuania



Source: Ministry of Finance

The ex-ante evaluation of the Lithuanian Structural Fund Programmes for the 2007-2013 period was carried out between May 2006 and February 2007 by the Centre for Strategy and Evaluation Services (CSES) and UAB „Ekonominės Konsultacijos ir Tyrimai“ (EKT). The methodological approach adopted to carry out these tasks involved a combination of desk and field research. Roughly half of the recommendations made by ex-ante evaluation team were incorporated into final versions of Operation Programmes. The strategic environmental assessment (SEA) for the Operational Programmes was drafted by the same consortium of evaluators that carried out the ex-ante evaluation.

There were total 11 national working groups set up for managing the processes of drafting the National Strategic Reference Framework and the Operational Programmes. In order to ensure environmental integration, the working groups of energy and energy efficiency were coordinated by the Ministry of Environment, which would oversee the policy formulation process, even though the Ministry of Economy was in charge of practical implementation of measures under both policy areas.

There are few horizontal priorities that must be implemented by Member States utilizing EU structural assistance. In case of Lithuania the horizontal priorities were set to improve present state policy and to solve complex problems threatening society and environment, such as social separation, environment pollution, inequality in regional development etc. Work group for the supervision of the implementation of horizontal priorities in Lithuania is led by coordinating institution (EU Cohesion Policy and Structural Assistance Coordination Department of the Ministry of Finance). It is formed of representatives of institutions involved in the implementation of Operational Programmes and representatives of social and economic partners.

Four horizontal priorities have been identified and need to be taken into account during the implementation of EU structural fund for 2007-2013. Among these priorities, one targets sustainable development and required the combination of economic, social and environmental development goals during the implementation of the programmes. In order to ensure better integration of the horizontal priority of sustainable development, the operational programmes will be monitored by a Monitoring Committee on the basis of specific sustainable development indicators.

Measures for renovation of public sector buildings at the Operational Programme for Promotion of Cohesion are a good example of giving priority to environmental performance. The selection criteria for the projects are purely environmental – the higher the record of wasted energy per m² in a public building, the higher it will rank among projects to be funded. Although there are other important criteria that beneficiary must meet, the success of the application depends very much on current energy use.

4.0 Overview of environmental objectives, measures and allocations

Lithuanian 4 Operational Programmes (OPs) include 15 priorities in total. One of the priorities is directly aimed at environment (priority 3 in OP for Promotion of Cohesion "Environment and Sustainable Development"). There is another priority in the same OP which has sub-objective linked to nature conservation in context of tourism: "Local and Urban Development, Preservation of Cultural Heritage and Protection of Nature and its Adaptation to Development of Tourism".

The Operational Programmes (OPs) define many measurable environmental objectives (see Table 5), i.e. those for which precise targets have been identified. Some of the quantitative objectives aren't directly environmental but have surely positive impact. Among those are measures aimed at improving energy efficiency. Similarly, improvement of technical parameters of transport infrastructure both accident rates and negative environmental impact is expected to be reduced. The table below shows two figures for each indicator: the left column relates to the initial situation before implementation of the relevant Operational Programme, while the right column contains the desired value in 2015 (when physical implementation of the projects under the 2007-2013 should be finalized).

Table 5. Environmental objectives from Operational Programmes

Indicator (assessment unit)	Initial situation (year)	Tasks expressed in numbers in year 2015
Water bodies meeting water protection aims (in per cent)	40 (2006)	100
Percentage of wastewater meeting requirements and discharged to the environment in total flow of wastewater	70 (2005)	97
Increase in percentage of residents who use centralized wastewater collection and management services (in per cent)	62 (2006) [c1]	8
Number of residential areas where a water supply and/ or wastewater system was renovated/ constructed	107 [c2]	220
Quantity of biologically decomposing waste removed to landfills (thousand tons)	574 (2000)	287

Increase in percentage of waste landfills meeting the EU environmental protection requirements (in per cent)	0 (2006) [c3]	100
Number of closed and managed waste landfills/ dumps	587 (2007) [c4]	249
Emission of greenhouse gas to the atmosphere (thousand t n. e. CO ₂ equivalent/ million Lt GDP)	0,3 (2005)	<0,3
Decrease of concentration of main pollutants in exhaust gas in modernized big objects which burn fuel: 1) SO ₂ (mg/Nm ³) 2) NO _x (mg/Nm ³) 3) KD (mg/Nm ³)	1) 1700 2) 450 3) 100 (2006)	1) 1300 2) 50 3) 50
Area of protected territories (in per cent)	15 (2005)	17
Increase in percentage of protected territories where conditions to visit without damaging nature are provided	30 (2006)*	70
Number of protected territories (national parks and reserves) where tourist centres and visual information systems are established	11 (2006)	25
Number of heat customers for whom reliability and quality of heat supply has improved	600 000 (2006) [c5]	300 000
District heating networks rehabilitated (km, conventional single pipes 100 mm in diameter)	7140 (2006) [c6]	1800
Number of modernized big objects of energetics	3 [c7]	3
Electricity energy transportation losses (%)	9,6 (2006)	7.6
Heat energy transportation losses (%)	19,6 (2005)	16.6
Energy intensity (kg n.e./1000 Lt)	132 (2005) [c8]	118.8
Use of renewable energy sources (t n. e.)	750 000 (2005)	900 000
Number of renewed blocks of flats	264 (2006) [c9]	150
Number of public purpose buildings renewed with regard to saving energy	82 [c10]	200
Quantity of energy saved in renewed public purpose buildings (GWh)	40 [c10]	100
Installed safe traffic and environmental measures in sections of increased risk of accidents, units	35 [c10]	35

[c1] Residents who use centralized wastewater collection and management services (in per cent)

[c2] water supply and/ or wastewater systems was renovated/ constructed in 2000-2006 using the funds of ISPA and Cohesion Fund

[c3] removal of waste in waste landfills meeting the EU environmental protection requirements (in per cent)

[c4] number of waste landfills/ dumps closed and managed in 2000-2006 using the funds of ISPA and Cohesion Fund

[c5] Total number of central heating customers in the country

[c6] Total length (km.) of conventional heat pipes

[c7] Transition period granted to three Lithuanian objects of energetics because of the EU Directive on ceilings on pollutants emitted by big facilities which burn fuel

[c8] comparative prices in 2000

[c9] 99 projects concerning renewal of housing are already completed, 150 – are being implemented

[c10] the period of programming EU structural assistance in 2004-2006

Source: *Operational Programmes*

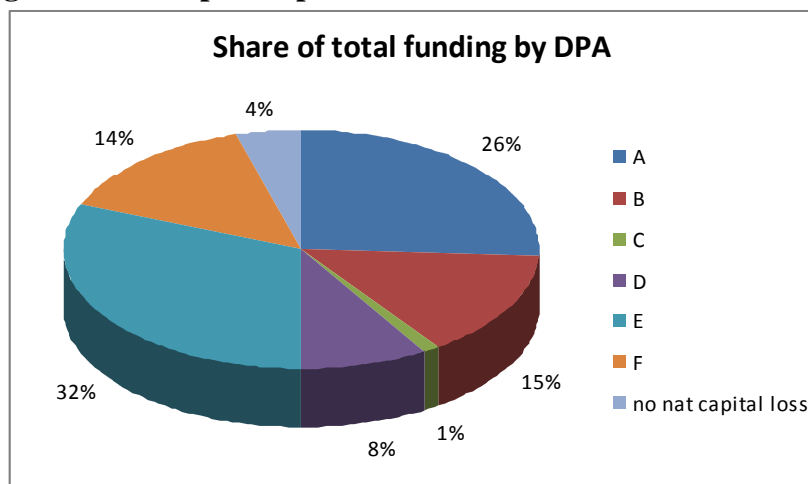
5.0 Analysis of measures and allocations

Lithuania doesn't use Development Path Analysis (DPA) to assess impacts of EU structural assistance. It was therefore not possible to collect opinions on DPA during the interviews carried out with representatives of authorities.

The Development Path Analysis for EU structural assistance to Lithuania for 2007-2013 (see Figure 4) shows that Development Path 'E' is receiving the biggest amount of funding (over € 2 billion, which represents 32 per cent of the entire Cohesion Policy support). Development Path 'F' gets also a fair share of the funding (€ 0,97 billion, i.e. 14 per cent).

This case study concentrated on measures that are targeted at energy efficiency. Those measures fall within Development Path 'E' as they are aimed at decreasing the resource use.

Figure 4. Share of EU funding (through ERDF, ESF and CF) in Lithuania for 2007-2013 according to the development path



The specific energy efficiency measures of the Operational Programmes (OPs) do not seem related to any win-loss situations, while there seem to be many potential win-win outcomes:

- **Natural resources and climate change.** Investments into energy efficiency will lead to decreasing use of natural resources. Significant part of EU structural assistance for energy efficiency is earmarked for investments into district heating boiler-houses. Project evaluation criteria values the use of local biomass and renewable sources must constitute at least 70% of fuels used. As the result, use of carbon-intensive gas and heavy oil will be decreased, helping to save non-renewable resources and to limit greenhouse gas emissions.
- **Economic benefits.** Increasing efficiency will help to decrease energy intensity of the Lithuanian economy, increasing the competitiveness. Investments that help to replace use of imported natural gas by local biomass in boiler-houses have positive macroeconomic impact as it helps to balance Lithuanian current account. Moreover, extra funding for energy efficiency generates jobs, especially in

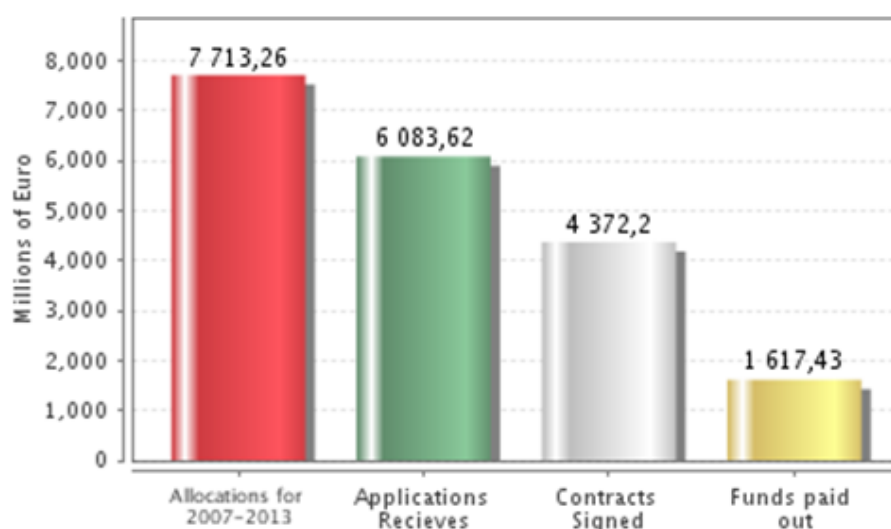
construction sector (insulation of houses) and in agriculture (production of biomass) sector. Better insulated houses will decrease heating bills for inhabitants, bringing direct fiscal benefits to population.

Thus, in Lithuania, the investments into energy efficiency will lead to decreasing use of natural resources and limit the greenhouse gas emissions. At the same time, the decrease in energy intensity will improve Lithuanian's competitiveness in global context and create more job opportunities in local construction and agriculture sectors.

6.0 Implementation and absorption

The absorption rate of EU cohesion policy funding varies depending both on Member State and on the type of action to be funded. The overall absorption rate of 2007-2013 EU Structural Funds is quite high in Lithuania (see Figure 6). So far 55.2% of the programmed funds have been allocated to beneficiaries.

Figure 6. Absorption rate of 2007-2013 EU Structural Funds (incl. national co-funding) in Lithuania as of September 2010



Source: Ministry of Finance

The absorption rate of funds allocated to energy efficiency instruments has been even higher (see Table 6). In case of measure for increasing the efficiency of energy production, 94 per cent of available funds have already been allocated. Similarly, 75 per cent of the funds directed towards the renovation of public buildings have already been allocated. In the case of the renovation of public buildings, the rate absorption is high because funds have been allocated to existing state projects or from existing modernization programme of education institutions. Although funds available for the modernisation of district heating systems have been allocated only to a lower extent (32 per cent), the interest among beneficiaries remains high.

Table 6. Absorption rates of 2007-2013 measures directly targeted for energy efficiency (from envisaged EU contribution), September 2010

	EU funds allocated (m €)	Applications received (%) from allocated)	Contracts signed (%) from allocated)
Operational Program for Promotion of Cohesion			
Measures for renovation of public buildings (codes VP3-3.4-ŪM-03-V, VP3-3.4-ŪM-04-R and VP3-3.4-ŪM-05-V)	269.6	122.4%	75.6%
Measure for increase of energy production efficiency (code: VP3-3.4-ŪM-01-K)	16.5	132.9%	94.1%
Operational Program for Economic Growth			
Measure for modernization and development of district heating system (code: VP2-4.2-ŪM-02-K)	73.4	87.7%	31.9%

Source: Ministry of Finance

7.0 Specific issue for the case study

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

Before the start of the operation in Lithuania, an evaluation study was carried out in order to assess rationale, feasibility and options for applying JESSICA. The study was completed in January 2009. Two different options for institutional setup were discussed:

1. To implement JESSICA through existing or newly established institutions (“institutional” option). It can be done through selecting the manager of the Holding Fund (HF) or by directly selecting the Urban Development Fund (UDF);
2. To implement JESSICA within existing financial institutions (“block of finance” option). It can be done through HF (where the financial institutions are selected by the HF through a public procurement procedure) or without HFs (where financial institutions are selected by a Member State or by the Managing Authority through a public procurement procedure) (see Europos socialinia, 2009).

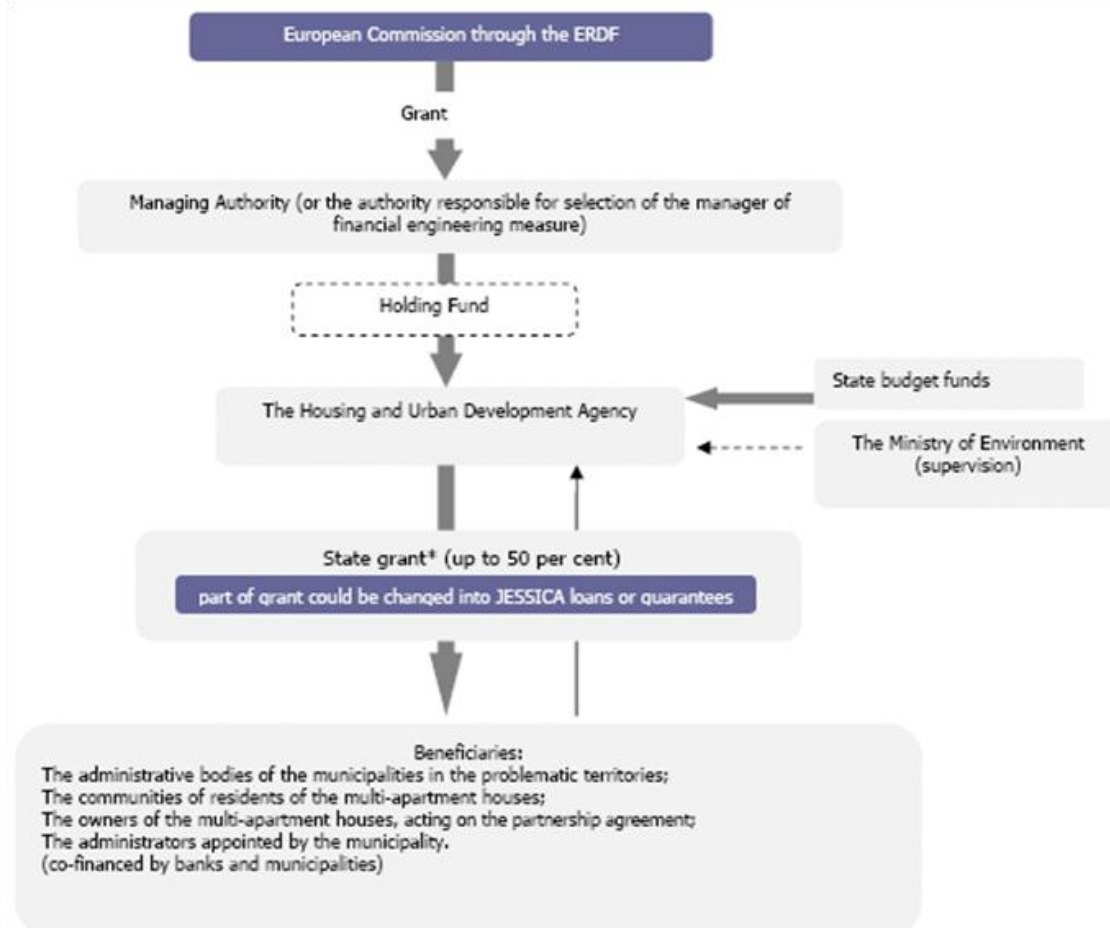
Following the evaluation study, it was decided that an institutional framework similar to the one developed earlier for the implementation of JEREMIE (The Joint European Resources for Micro to Medium Enterprises)¹⁹⁹ should be used. Within JEREMIE, the support from OPs is provided to investment projects of SMEs through commercial banks. As result, in 2010 a JESSICA Holding Fund (HF) was created in Lithuania to support the energy efficiency

¹⁹⁹ Joint European Resources for Micro to Medium Enterprises, an initiative of the European Commission, European Investment Bank and European Investment Fund increasing access to finance for enterprises.

investments of multi-apartment houses. Lithuania was one of the first Member States to use JESSICA for improvement of energy efficiency in multi-family buildings.

Establishing an HF in the JESSICA institutional scheme was found optimal as it would provide technical assistance to the managers of UDFs, reduce complexity of the management of funds transferred via several different UDFs, and ensure an additional level of control and supervision of the activity of the financial instrument managers.

Figure 7. Division of tasks for utilization of JESSICA Holding Fund in Lithuania



Source: *Europos socialiniai...*, 2009

The Housing and Urban Development Agency (HUDA) was chosen to carry out the functions of the sector-specific Urban Development Fund (UDF) for JESSICA in Lithuania. When set up, € 227 million were made available in the JESSICA Holding Fund, consisting of € 127 million from European Regional Development Fund (ERDF) and € 100 million from the Lithuanian government. It is also expected that some funds will be allocated by commercial banks as revolving fund. As for involvement of commercial banks, the evaluation study predicted limited interest. Therefore, possible leverage effect could be quite limited, at least at the initial stage of launching JESSICA. In a medium- to long-term perspective, when markets will revert to normal, investments by an UDF, made in a form of subordinated long-term interest free loans or equity, could be potentially treated as equity share in the project, which then could be leveraged by 60% on average.

JESSICA Holding Fund is used for long term loans (maximum 20 years) with fixed interest rate of 3% for the improvement of energy efficiency in multi-family buildings. It is expected that with assistance of JESSICA instrument approximately 1000 houses will be refurbished. 21 projects have been approved for JESSICA funding as of September 2010.

8.0 Conclusions

Lithuanian energy sector is in quite peculiar situation. When the Ignalina nuclear power plant was closed at the end of 2009, the country went from being an energy exporter to being an energy importer. The resulting rise in energy prices calls for investments in energy efficiency.

EU Cohesion Policy offers part of funding to modernise Lithuanian energy sector and to boost efficiency. Out of total € 6.8 billion of EU Cohesion Policy instruments in 2007-2013 € 0.61 billion were made available for energy sector projects. More than half of the money set for investments into energy sector is earmarked to energy efficiency projects. The main emphasis is on grants for investments in public buildings (such as schools, hospitals, etc). The district heating systems are also funded. Project selection can be based on project competition or targeted offers. Interest from applicants and the absorption rates have been high. There is clear coherence with existing national priorities as the use of Cohesion Fund helps achieving the goals set by the National Energy Efficiency Programme for 2006-2010 and the Lithuanian Housing Strategy.

However it's the poorly maintained multi-apartment houses that constitute the greatest problem in energy efficiency. Generous grant schemes by the Government which used to cover up to 50% of the investment costs have been stopped during financial crisis. With much less Government grants available, investments are largely done by flat owners and with slower pace. There is now a tendency to introduce loans and starting from 2010 soft loans for energy efficiency investments in multi-apartment houses are available from government and JESSICA funding. The shift to financial engineering has only started and its success cannot be yet evaluated; however, in comparison to other member states, Lithuania is relatively advanced in implementing JESSICA. Beneficiaries need time to adapt to the new situation, where loans are available instead of grants familiar from the national scheme before the crisis.

There are several environmental and economic win-win situations related to the use of Cohesion Policy instruments to increase energy efficiency in Lithuania. The closure of the Ignalina nuclear plant, the need to import electricity and the process of liberalisation has led to an increase in the electricity price in Lithuania. It has been predicted that the increased price of energy will reduce Lithuania's GDP by one percentage point and it will increase inflation by one percentage point. Thus the investments into energy efficiency constitute an economic win-win situation. Increasing efficiency will also help decrease energy intensity of the Lithuanian economy, which will consequently improve its competitiveness. Investments into energy efficiency will also generate positive impacts on the environment as they reduce the use of natural resources. Significant part of EU structural assistance for energy efficiency is earmarked for investments into district heating boiler-houses. According to the project objectives, the use of local biomass and renewable sources must constitute at least 70% of fuels used. As a result of this, use of carbon-intensive gas and heavy oil will be decreased, helping to save non-renewable resources and to limit greenhouse gas emissions.

There has been no qualitative assessment of the impact of EU funding for 2007-2013. The Ministry of Finance has commissioned an evaluation of the implementation of environmental requirements of the Operational Programmes. The evaluation report is due in July 2011. Development Path Analysis reveals that from EU funding 16% has gone for path 'F' and 35% for path 'E'.

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10.0 Interviewees

- Olga Celova, Head of Structural Funds Policy Division, EU Structural Funds Assistance Department, Ministry of Economy
- Danutė Burakienė, Head of Evaluation Division, EU Cohesion Policy and Structural Assistance Coordination Department, Ministry of Finance
- Marijus Franckevičius, Director of the Energy Agency
- Simona Iržikevičiūtė, Senior specialist, Housing division, Housing and Urban Development Agency
- Kristina Kemėrienė, Head of Projects Support and Supervision Division, Lithuanian Environmental Investment Fund
- Vytautas Stasiūnas, President of Lithuanian District Heating Association
- Johan Magnusson, European Commission, DG Regional Policy

	DPA	Description	Budget EU
1	E	R&TD activities in research centres	€ 74 327 186
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 241 562 993
3	E	Technology transfer and improvement of cooperation networks	€ 124 567 553
4	E	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 70 487 695
5	E	Advanced support services for firms and groups of firms	€ 39 284 215
7	F	Investment in firms directly linked to research and innovation	€ 128 156 812
8	B	Other investment in firms	€ 184 866 894
9	E	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 234 868 118
10	E	Telephone infrastructures (including broadband networks)	€ 43 215 638
11	E	Information and communication technologies	€ 55 219 981
13	E	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	€ 100 836 487
14	E	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€ 40 814 769
16	E	Railways	€ 22 942 119
17	E	Railways (TEN-T)	€ 535 359 806
18	E	Mobile rail assets	€ 8 097 218
21	A	Motorways (TEN-T)	€ 232 609 105
22	A	National roads	€ 394 741 924
23	A	Regional/local roads	€ 49 592 529
25	E	Urban transport	€ 74 388 793
27	F	Multimodal transport (TEN-T)	€ 63 616 796
29	A	Airports	€ 48 066 024
30	A	Ports	€ 94 950 024
31	E	Inland waterways (regional and local)	€ 5 808 874
33	A	Electricity	€ 44 007 778
35	A	Natural gas	€ 26 698 052
41	F	Renewable energy: biomass	€ 36 763 789
43	E	Energy efficiency, co-generation, energy management	€ 329 961 346
44	B	Management of household and industrial waste	€ 278 995 046
45	B	Management and distribution of water (drink water)	€ 137 444 500
46	B	Water treatment (waste water)	€ 206 166 750
47	B	Air quality	€ 171 481 463
50	D	Rehabilitation of industrial sites and contaminated land	€ 14 501 892
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 87 011 351
52	E	Promotion of clean urban transport	€ 40 652 957
54	C	Other measures to preserve the environment and prevent risks	€ 78 551 914

55	D	Promotion of natural assets	€ 79 228 669
57	D	Other assistance to improve tourist services	€ 66 023 891
58	D	Protection and preservation of the cultural heritage	€ 66 023 891
59	A	Development of cultural infrastructure	€ 52 819 113
61	D	Integrated projects for urban and rural regeneration	€ 252 091 219
62	F	Development of life-long learning systems and strategies in firms; training and services for employees	€ 149 619 820
63	0	Design and dissemination of innovative and more productive ways of organising work	€ 14 123 515
64	F	Development of special services for employment, training and support in connection with restructuring of sectors	€ 50 867 012
65			€ 3 279 339
66			€ 58 431 850
67			€ 9 912 546
68	E	Support for self-employment and business start-up	€ 45 172 511
69	0	Measures to improve access to employment, training and support in connection with restructuring sectors	€ 17 365 588
70	0	Specific action to increase migrants' participation in employment	€ 4 695 417
71	0	Pathways to integration and re-entry into employment for disadvantaged people	€ 59 288 950
72	F	Design, introduction and implementing of reforms in education and training systems	€ 84 033 050
73	F	Measures to increase participation in education and training throughout life	€ 170 612 555
74	F	Developing human potential in the field of research and innovation, in particular through post-graduate studies...	€ 118 006 500
75	A		€ 389 549 096
76	A	Health infrastructure	€ 240 086 875
78	A	Housing infrastructure	€ 58 875 310
79	A	Other social infrastructure	€ 90 625 000
80	0	Promoting partnerships, pacts and initiatives through the networking of relevant stakeholders	€ 1 490 608
81	F	Mechanisms for improving good policy and programme design, monitoring and evaluation	€ 169 387 321
85	0	Preparation, implementation, monitoring and inspection	€ 171 940 701
86	0	Evaluation and studies; information and communication	€ 31 324 085
TOTAL			€ 6 775 492 823

1.14 MALTA: ERDF ACTION GRANT SCHEME

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1.0 Executive Summary

- Malta is characterised by a challenging geography, a high degree of urbanisation, a sensitive nature and very limited natural resources.
- Under the OP Investing in Competitiveness for a Better Quality of Life, Malta has committed one priority axis to *Mitigation and Adaptation to Climate Change* and another to *Safeguarding the Environment*. Approximately 1/3 of the total spending has been allocated to these two priority axes. Furthermore, throughout the OP, environmental and climate change issues have been given considerable emphasis.
- Since accession to the EU compliance with EU environmental policy has been a primary challenge for Malta. As a result, in Malta, the notion of sustainable development has primarily been interpreted as compliance. This notion has also characterised the programming of the European Regional Development Fund (ERDF) and Cohesion Fund Operational Programme (OP) *Investing in Competitiveness for a Better Quality of Life*.
- National officials expect the OP to have an overall positive environmental and carbon impact. However, assessments conclude that the OP will deliver a rather limited contribution to the achievement of sustainable development in Malta.
- The *Innovation Actions Grant Scheme (Environment)*, which is established to provide financial assistance for the uptake of environmental sensitive technologies in SMEs, including EMAS and Ecolabel, has not been successful in terms of number of applicants and approved projects. An explication for this seem to be, on the one side, funding regulation making the programme unattractive for SMEs, and on the other side, a lack of information and technical support for prospective applicants.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	X
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	X
	Consultation	X

2.0 Background and Context

This case study addresses measures applied at the national level to foster or enhance the contribution of EU Cohesion Policy to environmental and sustainability considerations in Malta. The analysis encompasses aspects such as governance structures and mechanisms, institutional setup as well as specific funds allocations and programmes. Additionally, in order to provide empirical evidence for the discussion on the uptake of SCP-relevant policy instruments EMAS and Ecolabels under the Structural Funds programmes, the case study will also address the **Innovation Actions Grant Scheme (Environment)** under the ERDF and Cohesion Fund Operational Programme (OP) *Investing in Competitiveness for a Better Quality of Life*.

Malta Enterprise, a government agency, has been authorised as an Intermediary Body to administer the Environment scheme (as well as six other ERDF Grant Schemes). The overall objective of the environment scheme is to assist SMEs in improving their environmental performance. To date, **€3 million in funding** is available under the scheme. Currently, the scheme is assisting 13 SMEs (out of 26 applicants) in the manufacturing, construction and environmental services to invest in environmental sensitive technologies, which also encompass the SCP-related instruments, EMAS and Ecolabel.

2.1 Current status of the environment

During the planning phase of the Cohesion Policy programmes in Malta, the environment was perceived as a major challenge and consequently a strategic priority for the island. Since joining the EU in 2004, the status of the environment in Malta has significantly improved. This is continuing to improve and is stimulated by meeting the requirements of EU legislation. Thus, as Malta aims to **go beyond minimum compliance**, environmental and sustainability concerns are important political and policy challenges in Malta.

The OP I and Sustainable Development strategy for the Maltese islands²⁰⁰ identify a number of environmental challenges. These are presented in the table below.

Table 1: Current status of the environment in Malta

Environmental Theme	Current Status of the Environment
Water	<p>Water is a major environmental challenge. This is due to the fact that Malta does not have enough ground water and almost no surface water. With a high population density, there is an increasing demand on the resources and consequently fierce competition over the supplies. Half of the drinking water comes from aquifers while the remainder is taken seawater desalination plants, which use significant amounts of electricity (8% of the total electricity production).</p> <p>Although recent water savings have been achieved through measures such as leakage prevention, there is intense pressure from many competing users. A challenge now is to prevent wasteful practices and determine a fair allocation of resources. Currently, the two major users of water are the domestic (39%) and agricultural sectors (37%).</p> <p>An increased use of alternative water supply sources such as the harvesting of surface runoff and the use of treated sewage effluent (TSE) has been discussed as a possible contribution to a more efficient and sustainable use of Malta's water resources (OP I 2009: 39).</p>
Storm water	Flash floods pose a challenge to Maltese sustainable development, as well as impacting on the environment, economy and human health. Currently, there is a lack of an

²⁰⁰ National Commission for Sustainable Development (2006), *A Sustainable Development Strategy for the Maltese Islands*.

	<p>integrated approach to managing rainwater and valleys</p> <p>Storms and floods are becoming an ever greater problem with the effects of climate change and increasing urbanisation in valley areas.</p>
Coastal waters	<p>Coastal waters constitute the majority of water resources in Malta. Currently, there are problems meeting the monitoring requirements of EU directives as the capacities to undertake this fully is lacking. The overall quality of coastal waters is improving across Malta, however in some areas, particularly harbour and sewage outfall zones, the quality of the water is poor.</p>
Sewage and purification	<p>Prior to the current funding period, Malta was in breach of the requirements of EU Urban Waste Water Treatment Directive EC/271/1991, providing that all sewage shall be subject to treatment prior to disposal to the sea. Although all households are were connected to sewage networks, the amount treated was still only 6.5% of the sewage or approx. 13% of the amount required by the directive (in 2004).</p> <p>The results of the monitoring programmes show that since 2002 the overall water quality has improved, and in 2004, 83 per cent of coastal water sites were classified as First Class under the Barcelona Convention, which indicates a marked improvement from 55% of the sites since 1996. Still, prior to the current funding period, in areas exposed from sewage outfalls, the worst water quality was recorded at Cumnija and Xghajra (Wied Ghammieq), with Xghajra bathing waters classified as Class 3 under the Barcelona Convention (OP I 2009: 40).</p> <p>After building two sewerage treatment plants in 2007 (co-funded by EU structural funds), 20% of sewerage is now being treated before being discharged into the sea. A further EU co-funded treatment plant and pipeline out to sea is due to become operational at the beginning of 2011.</p>
Air quality, climate change and pollution	<p>The air quality in Malta has been assessed and monitored since 1998. A number of pollution contributors were identified, with electricity generation and transportation being the most significant polluters.</p> <p>Another factor is GHG emissions, which from 1990 to 2007 have steadily increased in Malta with about 44% compared to the base year, although per capita emissions remain below the EU average. 63% of GHG emissions come from burning fossil fuels by the energy sector, which in 2008 was still 100% based on fossil fuels, with the two other major contributors being the transport sector and waste sectors. Some improvements in the energy sector have been realised such as out-phasing of coal and measures like the introduction of 1.0% sulphur fuel oil.</p> <p>The Treaty of Accession of Malta to the EU sat a target of 5% of the total electricity generated with renewable energy</p>

	<p>sources in 2010. This, however, has not been achieved.</p> <p>It is worth noting that due to electricity system stability and until Maltese electrical grid is connected to European grid, wind capacity in Malta is estimated to be limited to 40 MW²⁰¹. Taking this constraint into account, there is a reason to exploit the potential of small, decentralised solutions under the implementation of the Structural funds in Malta. The potential of solar energy is assessed to be unconstrained and very high in terms of energy production. However, a considerable barrier for the market uptake of solar energy is the high investment costs (Ibid.).</p>
Waste management	<p>Construction and demolition projects are major contributors to waste in Malta. As these activities continue to increase, there is a heavy dependence on landfills. There has been significant progress in meeting the requirements of EU waste legislation with the assistance of national and EU structural funds. The challenge now is improve waste management and raise awareness on waste reduction in order to stimulate a behavioural change.</p>
Natural assets and biodiversity	<p>Recently, Malta has made significant progress in protecting biodiversity and natural habitats. In 2002, 60% of species of international importance were protected, now 97% are protected by national legislation.</p>

Another important aspect which has implications for the achievement of a sustainable development in Malta is the islands dependence on oil imports for the energy and transport sector. This puts Malta in a very vulnerable position in regard to oil prices and energy security. Higher oil prices on the international market have already had a negative impact on real GDP growth and higher inflation (OP 2009: 64). This causes an incentive for the government to invest in and promoting alternative energy sources such as renewables and energy efficiency. However, in 2008 still no electricity was produced from renewable energy sources²⁰².

A further environmental impact is the tendency towards a tourism approach that is not diverse. Tourism is Malta's most important economic asset, and as a result the country is oriented exclusively towards mass tourism with exhaustive consumption of natural and social resources. Therefore, there is a necessity to shift from a purely economic approach to a sustainable and socio-cultural approach in the development of the tourism sector. In response, Malta is promoting alternative forms of tourism as part of the diversification strategy, most notably through culture tourism (OP 2009: 64).

2.2 Current investment context

In August 2009, the European Commission adopted Malta's Operational Programme (OP) 1 version 2 for Cohesion Policy 2007-2013²⁰³. The programme, entitled "Investing in Competitiveness for a Better Quality of Life", is one of two OP's to be financed by the EU

²⁰¹ Plan Bleu (2007): [Energy Efficiency and Renewable Energy. Malta - National study](#), p. 8

²⁰² European Commission 2009: Environment Policy Review, p. 224

²⁰³ The OP was approved on the 26th June 2006 and the amended OP on the 5th August 2009.

Structural Funds. OP II is focused on the development of human resources and employment and is not being included in this analysis.

The OP 1 is co-financed by the European Regional Development Fund (ERDF) and the Cohesion Fund and sets out two main strategic objectives:

- **sustaining a growing and knowledge-based competitive economy** and
- **improving Malta’s attractiveness and quality of life.**

These two objectives represent the underpinnings of the Maltese National Strategic Reference Framework (NSRF) for the 2007-2013 period. The objectives are implemented through 7 Priority Axes, focusing on:

- Enhancing Knowledge and Innovation
 - Promoting Sustainable Tourism
- } Objective 1
- Developing the TEN-T
 - Mitigation and Adaptation to Climate Change
 - Safeguarding the Environment
 - Urban Regeneration and Improving the Quality of Life
 - Technical Assistance
- } Objective 2

The table below shows the distribution of Structural Funds for Malta’s OP 1 divided over the seven priority axes including national contributions.

Table 2: Allocation of funds under Malta’s OP 1 for the period 2007-2013

		EU contribution (Euros)	National contribution (Euros)	Total available funding (Euros)
Priority axis 1	Enhancing knowledge and innovation	102,000,000	18,000,000	120,000,000
Priority axis 2	Promoting sustainable tourism	102,000,000	18,000,000	120,000,000
Priority axis 3	Developing the TEN-T	143,682,520	25,355,738.8	169,038,258.82
Priority axis 4	Mitigation and adaptation to climate change	102,850,000	18,150,000	121,000,000
Priority axis 5	Safeguarding the environment	140,462,500	24,787,500	165,250,000
Priority axis 6	Urban regeneration and improving quality of life	126,650,000	22,350,000	149,000,000

Priority axis 7	Technical assistance	10,478,031	1,848,064.29	12,327,095.29
Total		728,123,051	128,491,303.09	856,615,354.11

2.2.1 Innovation Actions Grant Scheme (Environment)

The **Innovation Actions Grant Scheme (Environment)** is a scheme managed by Malta Enterprise and aims to invest in environmental sensitive technologies, including EMAS and Ecolabel. The scheme has been allocated € 3 million for the funding period 2007-2013. 13 projects have been approved so far.

Originally the scheme was initiated and managed by the Malta Environmental and Planning Authority (MEPA) under the title Environmental Improvements Grant Scheme: *Stimulating Environmental Excellence in Maltese Enterprises*. The objective of the scheme was, according to MEPA, to provide the stimulus necessary to encourage Maltese SMEs to embrace high environmental quality as key driving force rather than regard it as a barrier to competitiveness. The scheme encompassed three thematic focuses with a range of relevant strategic criteria which applicant would have to meet. The thematic schemes were:

- Environmental management audits
- Environmental enhancement & eco-innovation
- Environmental certification

However, no calls were launched under this scheme and in December 2008 it was merged with the Innov-Act Scheme, managed and implemented by Malta Enterprise. Although all actions planned under the MEPA scheme could be included under the new **Innovation Actions Grant Scheme (Environment)** (see box 1), three aspects are worth particularly noting.

- First, the new scheme doesn't focus on the sector "community, social and personal service", which was included in the former MEPA scheme.
- Second, the project application strategic evaluations criteria (65% of total evaluation) have been revised and the basis of the evaluation has been the thematic and horizontal priorities from the Innov-Act Scheme by Malta Enterprise. This means that environment-related criteria are given less prominence during the project application evaluation process. Under the new scheme, environment-related criteria amount to between 35 and 45%²⁰⁴ of the total evaluation score. Another aspect is that all applications also will be evaluated regarding their contribution to innovation and employment. This may not alter much from the perspective of promoting eco-innovations, but for project applicants, who may want to apply for grant to co-finance the uptake of EMAS for instance, this may be a disadvantage.
- Third, the management and implementation of the scheme has been taken over by Malta Enterprise with MEPA delivering technical expertise to support in project application and evaluation process. From the perspective of institutional capacity it is worth noting that the scheme is managed by solely one administrative officer. The officers do not have a technical background, legal training or similar and are basically fulfilling administrative functions. For the application evaluation process evaluators

²⁰⁴ Depending on the horizontal priority considered by the project

are sampled of two people from the Malta Environmental Regulatory Authority with technical expertise and an employee from Malta Enterprise.

Box 1: Planned actions under the Environmental Improvements Grant Scheme, MEPA

- Consultancy & Other Services;
- Investments in Tangible Assets;
- Investments in In-tangible Assets.
- Environmental management audits, recognised environmental certification, including EMAS, ISO, Eco-Label and other standards recognised by the MSA;
- Investments in environmental technologies, operating systems and processes;
- This cost item may be utilised to purchase a licence for a particular technology to improve environmental performance.

3.0 Governance mechanisms

3.1 The programming process

The consultation process and preparation of the programme involved a lengthy thorough process with **extensive public dialogues and consultations**. The **partnership** principle as set out in article 11 of the General EU funds Regulation has been given importance in the programming of the OP, which included four **working groups** chaired by experts, including one specifically for the environment, bringing together relevant stakeholders for various meetings and workshops. Throughout the consultation process environment was addressed as a vertical issue, whereas, environmental considerations and sustainability weren't discussed as a horizontal priority.

Furthermore, as part of the **SWOT** analysis undertaken during the programming process five consultation sessions, including public agencies, NGOs, social partners and stakeholders, were held in September 2005. In addition, in the first quarter of 2006, a number of public dialogues were held on the same thematic areas.

The outcome of the consultations was an agreement on investing in the upgrading of roads; human resources and education (with specific reference to investment in further and higher education to promote R&I); environmental infrastructure (where issues such as sewage, floods and waste were specifically mentioned); health (particularly in Gozo); the tourism product (particularly cultural heritage), as well as support competitiveness of Maltese enterprises.

An **ex-ante evaluation** has been undertaken in parallel with the completion of the OP. The evaluation concluded that there is a high degree of consistency between the different priorities in the OP and its objectives. The planning process also included a **Strategic Environmental Assessment** (SEA). In an interview, the Managing Authority stated that the SEA clearly pointed out the needs for environmental interventions, and that this was an important impulse to redirect thinking of the involved stakeholders in the planning process towards environmental considerations and it made sure that, environment investments maintained a good share of the OPs resources.

3.2 The implementation process

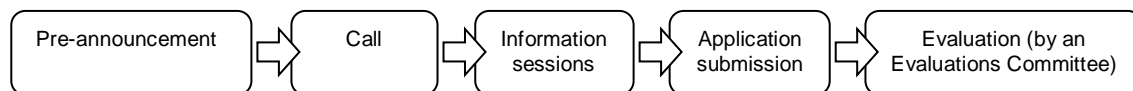
3.2.1 Institutional setup

In Malta, the implementation of the EU Cohesion Policy is managed by the Planning and Priorities Coordination Division (PPCD) within the Office of the Prime Minister. The PPCD is the overall Coordinator for the programming of the current Cohesion Policy and the Managing Authority for both Maltese OPs. In addition, it has designated a total of five Intermediate Bodies to take over the management and implementation of a range of aid schemes.

Malta Enterprise, which is a government agency responsible for the promotion of foreign investment and industrial development in Malta, has been authorised as the Intermediary Body to manage and implement six ERDF Grant Schemes under the current funding period, including also the aid scheme **Innovation Actions Grant Scheme (Environment)**.

3.2.2 Application process

The managing and implementation of the Cohesion Policy programme is split out on a number of bodies. Still the process follows basically the same procedure.



In the project application, **all applicants will have to demonstrate that they have considered environmental and (where applicable) carbon impact issues in the design and implementation of their projects (see box 2)**. Through the inclusion of adequate measures taking sustainability or carbon impact concerns into account, applicants can then benefit up to ten marks for sustainability concerns and up to ten marks for carbon impact concerns (out of a total of 100 marks)²⁰⁵. As only complete applications are accepted, taking these considerations into account is *de facto* compulsory. However, to be accepted for further evaluation the quality of these considerations is irrelevant.

²⁰⁵ This is the scoring system by the Managing Authority. Scheme under other Intermediate Bodies may use other scoring systems.

Box 2: Considerations on environmental sustainability in project applications

The following quotes the guidelines to the application form under the OP I²⁰⁶:

The project proponent must think of environmental sustainability on different platforms:

- i. Can compliance with relevant European and National environmental legislation and regulation be demonstrated?
- ii. Describe the project's environmental impacts (useful questions):
 - Does the project increase resource efficiency and so limit/reduce adverse environmental impacts (reuse of buildings or previously developed sites and selection of material that takes account environmental costs such as transport, extraction, processing and disposal)?
 - Does it increase environmental awareness among citizens, businesses and tourists?
 - Does it minimise environmental impacts in design, construction and operation of business, tourism or community infrastructure/buildings (in terms of landscape, visual impact, biodiversity, historic environment/archaeology, transport and access)?
 - Does it demonstrate environmental good practice in project operation as well as delivery (green procurement)?
 - Does it protect and enhance the area's environmental assets?

There are **no standards or evaluation tools for the evaluation of the inclusion of sustainability or carbon impact concerns into the project applications**. Evaluations are conducted on the basis of the expert knowledge in the Evaluation Committees. During an interview the Managing Authority stated that applicants, in general, are considering extensively sustainability and carbon impact concerns because the possible 20 marks can be decisive for being approved. This makes integration *de facto* obligatory. And to this point, the greater majority of applicants have been given full marks on these issues. According to the Managing Authority, this indicates that sustainability and carbon impact are to a very broad extent being taken into consideration at project level of the Cohesion Policy. But the fact that the greater majority of applicants have been given full marks could also very well indicate that requirements to gain full marks are too low. This is, however, difficult to assess, as there are no defined criteria for how applicants have to take sustainability and carbon impact considerations into account (in accordance with the questions in box 2).

To facilitate the inclusion of such considerations, the Managing Authority or the relevant intermediate body arranges **information sessions**. These are intended to provide prospective applicants with information on and to encourage prospective applicants to include measures such as photovoltaic's, solar water heaters or water reservoirs) in the project design. To do

²⁰⁶ PPCD (2008): European Regional Development Fund Guidance notes to the Application Form, p. 6

this invites relevant organisations with expertise on environmental sustainability are invited to attend the **information sessions**. This mechanism can potentially work, at least if applicants are public institutions, as some possibilities exist to grant additional funding to measures to reduce overall CO₂ emissions from projects. But the mechanism is contestable as there are no clear criteria for when additional funding can be granted.

According to the Annual Implementation Report 2009, twelve out of a total of 178 projects approved in 2009 incorporated such measures into the project²⁰⁷ (it does not say if these projects were provided additional funding). Notwithstanding the potential positive environmental impact of this mechanism, there is a critical issue to be raised. First, the case study interviews revealed that the information sessions generally information concerning environmental, climate or sustainability issues were not provided. Second, the mechanism doesn't seem to affect the nature of the projects, but it rather seems to focus on ad-hoc measures like adding the installation of photovoltaics or solar water heaters, and it is therefore unclear whether this mechanism integrates sustainability concerns into the projects or rather it is a subvention mechanism for photovoltaics, etc.. The basic problem with the mechanism is the limitation of such sessions to provide the prospective applicants with substantial knowledge on how to integrate sustainability considerations into their projects. However, during the interviews, it has also been argued that the information sessions, despite the limitations, rises awareness of environmental and sustainability concerns and may encourage prospective applicants to engage in a more integrated approach. Still, the number of projects, which have incorporated elements like photovoltaic's, solar water heaters, etc. are low and it is not clear to what extent the measures taken were caused by the information sessions.

The information sessions are intended to encourage prospective applicants, however, they don't provide the individual applicants with more in-depth support and knowledge about how to integrate environmental and sustainability measures in their project design. For instance, with respect to the promotion of EMAS and Ecolabel under the ERDF Grant Scheme Environment, prospective applicants need assistance to develop their ideas further.

A more in-depth support to prospective applicants is ensured by the Managing Authority through a coordinating person, who on request provides applicants with contacts to relevant technical expertise in different ministries. However, this measure can be hampered by insufficient time available in the ministries to support applicants as no funds are allocated to the ministries to finance this.

A related barrier for an enhanced integration of environmental and sustainability concerns at project level, which was expressed by a government official during the interviews, is the absence of finance at the very early stage of the project design development process. Both public and private actors tend to invest too little in the pre-submission-phase because of the risk of the application not being accepted. It was suggested, that the possibility of granting funds to the project design process would enable prospective applicants to better integrate environmental and sustainability concerns in the project design. From the perspective of experiences from other Member States another approach may be that the implementation bodies (Managing Authority and Intermediate Bodies) are taking a more active role in the project development process.

²⁰⁷ Planning and Priorities Coordination Department (MA) (2010): Annual Implementation Report 2009

3.2.3 Other governance mechanisms for integrating environmental and sustainability concerns

The Environment Committee

The Environmental Committee is anchored under the Managing Authority and is established to monitor the achievement of commitments set out in the OP and to establish a link between the environmental indicators and the implementation of the OP. The role of the Committee is to assess the trends in the indicators and establish whether the projects funded under the OP could have had an impact on the trends. The committee encompasses key stakeholders and technical experts and can call in external experts as well. At the time of this case study the committee is about to initiate its monitoring function, so it will be too early to evaluate its effect or impact on the implementation process.

Green Procurement

In an effort to improve the overall environmental impact of public procurement, the MRRA has continued with a mechanism of Green Procurement (set up in 2007) that aims at guarantee environmental awareness at the very early stage of the procurement process, through the review of tender dossiers (for goods and services) before they are issued for publication. This approach applies to all public tenders under the Cohesion Policy programmes beyond €14,000 (net of VAT), which encompasses most of the tenders. These tenders will have to go through the Central Contracting Authority, which will review the tender and highlights opportunities to reduce or often offset the carbon impact or the overall environmental performance of purchased goods or services. Proposals are either made to change specifications or to incorporate measures into the tender dossiers or to offset the assessed negative effects by another tender by a later point of time (possible sanctions to secure that these additional tenders are in fact realised are expected to be adopted). The review of tenders is done within an overall context of “pragmatism and realistic options”, also from a financial point of view²⁰⁸. Sometime the beneficiaries are granted additional funding when the review proposes investments in additional measures (like solar water heating or photovoltaic’s). However, the review procedure is not based on any political targets or fixed standards or environmental criteria but on an ad hoc basis. Hence, first of all, it is not possible ex-ante to assess the effects of this mechanism. Second, we question the practicality of this mechanism as it is not backed by a political commitment in terms of targets or standards.

4.0 Overview of environmental objectives, measures and allocations

The Maltese OP 1 *Investing in Competitiveness for a Better Quality of Life* is aligned to the national strategy on sustainable development. On the strategic level the programme integrates environmentally-friendly and climate-friendly considerations throughout the priority axes. Moreover, at programme level, project selection criteria are related to both the environment and climate change mitigation and adaptation. However, the integration of sustainability concerns into the programme at strategic level is rather weak. This is due to the fact that the sustainable development strategy was adopted in 2006 as Malta was still primarily occupied with complying with EU environmental legislation. The notion of sustainable development, therefore, was mainly equal to compliance. Today, new initiatives to enhance the promotion of a sustainable development are being prepared; but the OP is still primarily oriented to compliance and not to the integration of sustainable development.

²⁰⁸ PPCD (2010): Annual Implementation Report 2009, p. 25

The programme sets out the aim of improving the “**environmental attractiveness**” of Malta to five times the standard of 2007 (this is also defined as one of the overall impact indicators of the programme). “Environmental attractiveness” is being measured on the basis of weighted indicators including improvements in the areas of waste management; risk prevention (storm water management); waste water treatment and energy production from renewable sources (OP I: 145). Thus, the programme focuses mainly on environmental infrastructural investments.

Furthermore, the OP sets out objectives for its impact on Malta’s CO₂ emissions. The programme aims at an overall **low carbon** impact “*with the ultimate objective of achieving carbon neutrality*” (OP I: 145). There are four main areas of carbon impact for the OP: transport, buildings, energy and resources. This includes a number of measures which should contribute to modal shift, upgrading the TEN-T infrastructure, integration of energy efficient and renewable energy measures (where applicable), particularly in the construction of new and in upgrading existing buildings, upgrading of the electricity distribution network, improving the environmental performance of ageing power plants and encouraging a shift toward renewable energy. The approach taken to arrive at the carbon emission aims is contestable. A central problem is a somewhat vague political commitment, as no clear defined targets are formulated. Also, mechanisms to ensure inclusion of environmental and carbon emission considerations into projects do not define clear requirements or targets. Moreover, we question the rationality of the practice of off-setting measures, which is often used to improve the overall carbon emission impact of the programme. This is further discussed below.

Furthermore, the programme is committed to support SMEs in undertaking enhancements to improve their environmental performance (OP 1 2009: 102). This encompasses interventions promoting the uptake of EMAS and product registration under the Ecolabel scheme. This measure, which we assess to have failed, will also be further discussed below.

Planned funding allocations under the priority axes

All of the six priority axes (exclusive “Technical Assistance”) are more or less relevant from an environmental and sustainability perspective. Because the OP only defines planned funding allocations for each of the priority axis and not for the different subordinated objectives it is difficult at this stage to assess clearly the planned funding allocations for projects integrating environmental and sustainability concerns.

Priority axis 1: Enhancing Knowledge and Innovation (€ 120,000,000, of which € 102,000,000 represents the Community Funding)

Under the heading *smart knowledge investments*, funding should be granted to activities in RTDi to build R&I infrastructure and framework focusing – among a few other sectors of strategic importance – specifically on the area of environment and energy with the main thrust being on solar, wind and bio-energy. Moreover, aid schemes to the manufacturing and services industries include funding for adaptation of environmentally-sensitive technologies like the adaptation of EMAS (OP 1 2009: 110).

Among the objectives under priority axis 1 are:

- to support the re-structuring process of local industry (including crafts) and its move towards a competitive knowledge economy;

- to undertake a number of smart investments in the knowledge infrastructure and research capacity in higher education, and;
- to explore the potential for renewable energy sources and to promote electricity produced from renewable energy sources (OP 1 2009: 107).

Priority axis 2: Promoting Sustainable Tourism (€ 120,000,000, of which € 102,000,000 represent the Community Funding)

Funding should also contribute to national policy of developing sustainable tourism activity by focusing on economic, social as well as environmental impacts (OP 1 2009: 112). Possible interventions are nature protection interventions (including implementation of NATURA 2000 plans) that impact on the tourism industry (116). A central aspect is the assumption that Malta's environment is an integral part of the tourism product. This enables potential interventions in the tourism sector contributing to economic/social and environmental win-wins. However, environmental and sustainability concerns are not directly included under the listed objectives of the priority axis.

Priority axis 3: Developing the TEN-T (€ 169,038,258.82, of which € 143,682,520 represent the Community Funding)

The OP considerably emphasises private road transport (it should be noted that Malta has no rail road at all) as well as maritime transport. However, reflecting the national policy interventions pursue a positive environmental/CO₂ emission impact or at least be neutral. Funding is primarily granted to upgrades of existing roads as well as eliminating bottle necks, which are believed to have positive environmental impacts through reduced journey times and, thus, less fuel consumption. However, according to the Brever law, reduced journey times are most likely to lead to an increase in transport volume²⁰⁹. Evidence in the Maltese case does not exist. Furthermore, the OP gives emphasis to promoting a modal shift²¹⁰. Investment under this Priority Axis will also support the provision of public transport priority measures along the network and improve facilities for pedestrians and cyclists through the provision of footways, crossings, subways, bridges and bicycle lanes (OP 1 2009: 119). However, the programme doesn't list up any specific environmental objectives for this priority axis.

Priority axis 4: Mitigation and Adaptation to Climate Change (€ 121,000,000, of which € 102,850,000 represent the Community Funding)

This Priority Axis encompasses an adaptation as well as a mitigation part and aims to implement measures of risk prevention through climate change adaptation as well as measures intended to reduce aerial emissions resulting from electricity generation (OP 1 2009: 122).

Among other objectives are to:

- reduce airborne emissions resulting from electricity generation;
- study the viability of interconnection with mainland Europe and other means to secure supply (through, for example, large offshore RES farms), including, the expansion of the current distribution system to cater, *inter alia*, for increased electricity generation;

²⁰⁹ Evidence shows that total time per person spend on transport has been constant despite increased travel speed.

²¹⁰ As Malta does not have any rail transportation the term modal shift mainly references to a shift from private road to public road transport.

- promote measures resulting in energy efficiency and reduction in the use of non-renewable energy sources, and;
- promote the use of RES and energy efficiency measures at the domestic and enterprise levels (OP 1 2009: 124).

Priority axis 5: Safeguarding the environment (€ 165,250,000, of which € 140,462,500 represent the Community Funding)

In accordance with the main environmental challenges in Malta, the priority axis is focused on improvement of the environmental infrastructure, especially in the water and solid waste sector. Objectives are:

- to minimise landfilling of waste and to rehabilitate disused landfills, as well as, increase the
- capacity for waste treatment, energy recovery and recycling purposes;
- to provide higher quality drinking water, and;
- to increase sewage treatment capacity in the South of Malta (OP 1 2009: 129).

Priority axis 6: Urban Regeneration and Improving the Quality of Life (€ 149,000,000, of which € 126,650,000 represent the Community Funding)

The priority axis covers, among others, areas such as urban regeneration; internal accessibility and modal shift in transport; as well as, environmental monitoring. Urban regeneration is defined to cover economic, social and environmental concerns.

Objectives relevant to environmental and sustainability concerns are:

- to upgrade the physical environment and visual appeal of urban cores through urban regeneration and integrated local development;
- to promote further the use of information society and increase e-services, and;
- to enhance environmental monitoring capability and awareness of environmental issues (OP 1 2009: 133).

Priority axis 7: Technical Assistance (€12,327,095.29, of which € 10,478,031 represent the Community Funding)

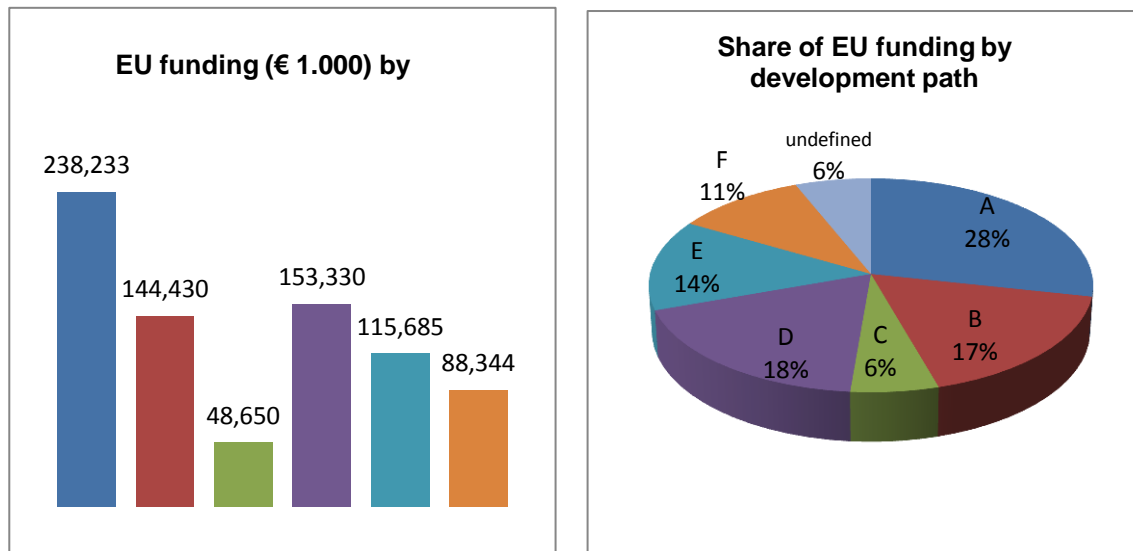
The SEA concludes that a number of potential positive environmental impacts have been identified for all the priority axes and that none of the priority axes are expected to have potentially major negative impacts. It is contestable if this in fact in case is or will be the case at the end of the current funding period. A critical area is investments in transport infrastructure.

Although not mentioned directly in the OP promoting the adaptation of SCP-related instruments like Ecolabel and EMAS in SMEs is well aligned with the objectives under priority axis 1 as an integrated part of the re-structuring process of local industry.

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

The Development Path Analysis assesses the interventions under the OP in terms of environmental, economic and social impacts. It provides the potential scope for determining whether the programme activities will create win-wins and trade off win-losses and assessing the pursued development path under the OP. The projects under the Maltese OP1 are spread across all the six development paths. The allocation by development path of planned funding under the programme is depicted below.



The development path analysis shows that no less than 28% of cohesion funds are spent on projects following development path A – declining sustainability. 17% of the funding is allocated to development path B on compliance with environmental legislation and 6% to development path D on restoration and conservation. Development paths E and F pursue environmental sustainability and together account for one quarter of the cohesion spending. Path E on eco efficiency activities accounts for 14% and path F on decoupling economic activity from the pressures on the environment is around 11%.

The allocation of funding for development path A, on interventions that result in declining sustainability such as loss of habitats and pollution, is remarkable high. This can be explained by the fact that there are substantial infrastructure projects funded under the Maltese Cohesion Policy, principally the development of motorways through the TEN-T and the port and electricity infrastructures. These infrastructure projects may result in a win-loss for the environment. However, at the same time, the transport and electricity sectors are the two greatest contributors to air pollution in Malta. Thus, upgrading these may result in environmental improvement. The TEN-T project, for example, will also enable a better public transportation system, reduce bottle necks in the road system and potentially result in reduced journey times and less fuel consumption, although the latter may not necessarily be the case according to the Brewer law (see page 15). Hence, although environmental considerations were in fact taken into account at the planning stage of the TEN-T projects, the environmental impact of the projects is very likely to be negative. This also has to do with the nature of the kind of transport projects co-financed with EU funding as well as with the mechanism to secure the incorporation of environmental consideration into the Cohesion Policy programme. The latter lacks clear targets or standards. It is worth noting that other

recent transport projects in Malta financed without EU funding are assessed to contribute significantly to sustainable mobility (see box 3).

It is worth noting that as Malta is a relatively new EU Member State and until now Maltese policy on the environment and sustainable development has been dominated by the challenge to comply with EU environmental legislation and meet the needs of the Maltese people. In the second stage of achieving sustainable development, the strategy is to move beyond compliance. This is also reflected in the pursued development path in the OP. Although the OP puts emphasis on sustainable development, what is often meant, when going into the actual content of the OP, are interventions like those associated with the development paths B and C. These are:

- Path B: Actions that clean up the mess from past activities or actions that promote physical regeneration (e.g. urban city centres, parks, brownfield site restoration) and;
- Path C: Actions that put in place environmental infrastructure to reduce the negative environmental impact of development activities (e.g. waste water and waste infrastructures).

However, the OP does also foresee interventions to promote eco-efficiency (development path E) like significant efficiency measures in the water sector and some measures in the transport sector. But other possible interventions under this development path are not given as much emphasis as they could be. Moreover, the implementation of the programme seems to hamper the achievement of development path E (as well as F). The take up is too low and prospective project applications often do not pose the capacity to really integrate sustainability considerations into their project design.

Although a significant share of the spending under the lower development path categories (A, B, C) is allocated to measures with environmental relevance this does not contribute to a more sustainable development, as measures are primarily orientated towards compliance with EU environmental regulation. Moreover, Malta could do more to promote measures that contribute to eco-efficiency and decoupling (development path E and F), especially in the private sector. Overall, therefore, the OP is assessed to pursue **development path C**, combined with the acknowledgement that the programme also does pursue development path E in some areas.

5.2 Other tools to enhance environmental integration

In Malta, economic instruments in the form of environmental taxes or charges are implemented in the policy areas of waste, water, natural resource management, biodiversity, land use, transport and energy. In 2008, the revenue from environmental taxes was equivalent to 10.2% of total taxation, while the EU-25 averages were 6.1%²¹¹. The most developed system of economic measures is that used in the waste sector, where an eco-contribution was introduced in 2004, and extended to a number of items including plastic shopping bags in 2005. It is not known what impact these instruments have had on the implementation of the Cohesion Policy programmes.

A Green Procurement mechanism has been established and apply to the greater majority of the projects funded under the OP 1. This has been discussed above.

²¹¹ European Commission 2009: Environment Policy Review, p. 229

Moreover, road pricing was considered as a possible tool, which could be applied when implementing new transportation infrastructure under the Cohesion Policy programme²¹². However, this wasn't realised as it was expected that the measure would have undesired effects, like just displace car transportation to other roads.

6.0 Implementation and absorption

6.1 Absorption

To date, almost 50% of the cohesion funds have been committed to projects across the priority axes. Aside from technical assistance, the highest commitments are for priority axes one and two, which concern knowledge, innovation and sustainable tourism. Priority axis 5, on safeguarding the environment, has also received a high level of commitment of funds with almost 50% rate of commitment. Based on this, the absorption rate appears to be right on track for being half way through the spending period.

However, there have been some problems implementing the programmes under OP 1 and the actual payments made so far are relatively low. The Annual Implementation Report from 2009 provides a number of reasons for this, such as the lengthy project selection process, delays in the public procurement process and securing planning permits (including undertaking EIA's). As a result, there is a relatively low payment level of 3.7%.

Table 3: Cumulative expenditure by priority axis as of the end of 2009²¹³

	Total available funding (Euros)	Commitments	Payments	Commitments %	Payments %
Priority axis 1 <i>Enhancing knowledge and innovation</i>	120,000,000	93,800,687.58	572,684.18	78.2%	0.5%
Priority axis 2 <i>Promoting sustainable tourism</i>	120,000,000	83,495,650.66	862,351.68	69.6%	0.7%
Priority axis 3 <i>Developing the TEN-T</i>	169,038,258.82	71,086,391.00	27,199.00	42.1%	0.02%
Priority axis 4 <i>Mitigation and adaptation to climate change</i>	121,000,000	24,462,606.20	384,593.19	20.2%	0.3%
Priority axis 5	165,250,000	78,085,474	22,952,489	47.3%	13.9%

²¹² GHK 2006: Strategic Evaluation of Environment and Risk Prevention – Main Report, p. 16

²¹³ Office of the Prime Minister (2009), Operational Programme I, Cohesion Policy 2007-2013, *Investing in Competitiveness for a Better Quality of Life*: Annual Implementation Report 2009, Annex 1, p.95.

<i>Safeguarding the environment</i>	0	.00	.13		
Priority axis 6 <i>Urban regeneration and improving quality of the life</i>	149,000,000	66,133,958	5,980,162.96	44.4%	4.0%
Priority axis 7 <i>Technical assistance</i>	12,327,095.29	12,327,095.00	662,813.99	100.0%	5.4%
Total	856,615,354.11	486,631,862.44	31,442,294.04	49.3%	3.67%

There are a number of interesting major projects with an environmental dimension implemented under Priority Axis 5:

- Urban Waste Water Treatment Plant for the South of Malta: This is expected to be completed at the end of this year and fully operational by January 2011.
- Malta North Waste Treatment Facility: At the end of 2009 this project was still in the preparatory stage, meeting requirements such as planning permission.
- Rehabilitation and restoration of closed landfills: by the end of 2009 the project was in the final stages of preparation

Under priority 4 on mitigation and adaptation to climate change:

- National Flood Relief Programme: At the end of 2009 this project was still in the preparatory stage, mobilising experts to provide input into the programme.
- Modification of Boilers at Delimara Power Station to Reduce Emissions: At the end of 2009 this project was still in the preparatory stage, applying for the appropriate planning permits.

6.2 Preliminary outcomes

6.2.1 The operational Programme

In the transport sector Malta has made significant effort to promote a modal shift contributing to more sustainable transportation in Malta. However, currently, only one of these projects – exclusive the TEN-T projects – has been co-financed under the Cohesion Policy programme, and the most significant projects from an environmental perspective have been financed by national funding (see box 3 for an overview of projects). Hence, EU funding has not proven the best suitable funding for investments in measures to promote a more sustainable mobility in Malta.

In the water sector, Cohesion Policy interventions under the priority axis *Safeguarding the Environment* have already contributed significantly to improve the environmental quality in Malta. Already two waste water treatment plants are operational and a third major treatment plant is expected to be operational in the beginning of 2011. This will increase the percentage

of sewage being treated from only 6.5% in 2006 to presumably approximately 100% when the third plant is operational. Interviewees conclude that reaching the same achievement without Structural Funds spending would only have been possible over a considerable longer time period. Also the energy consumption and thereby the CO2 emissions from seawater desalination have been significantly reduced through efficiency measures.

From the perspective of sustainable development the contribution and impact of Cohesion Policy in Malta, however, is more limited. This is due to the fact that, in general, interventions have improved environmental performance but they haven't had an impact on certain unsustainable structural problems. This is especially the case in the water sector where water consumption significantly exceeds natural available ground water resources.

Box 3: Transportation projects contributing to a sustainable development in Malta

In July 2005, the Maltese Government published the Valetta Strategy, which aimed at improving accessibility in and around Valetta. In July 2006, the government decided to implement the following projects²¹⁴:

- Removing car parking space from the capital (although this was political)
- Creating pedestrian zones
- Created a large park and ride (proved to be very popular)
- Charging cars for entering the capital zone (EU co-funding)
- Free access to low emission cars and cyclists
- Only electric mini cabs can operate in the pedestrian areas

The impacts of these measures have been a 30-40% reduction in volume of traffic in peak hours and a 10% modal shift from cars to buses and park and ride.

6.2.2 Innovation Actions Grant Scheme (Environment)

The preliminary outcome of the **Innovation Actions Grant Scheme (Environment)** under the management of Malta Enterprise has been rather unsatisfying. The take up of the environmental scheme had been relatively low, but it is growing. All the other Action Grant Schemes managed by Malta Enterprise have already had their budget taken up, whereas the environment scheme is currently on the 3rd call for tender, and a 4th or 5th call are expected. In terms of numbers 23 applications were received for the 3rd call for the environment scheme, which is considered quite low by the Malta Enterprise. Submissions for the others schemes were mostly in the 60's and 70's, although R&D scheme was also in the 20's.

From the perspective of the promotion of EMAS and Ecolabel through this scheme the preliminary outcome has been unsatisfying, as no project applications for the registration for EMAS or Ecolabel have been approved by Malta Enterprise. According to Malta Enterprise this is due to the fact that the submitted applications did not meet the required criteria and that the scheme is too difficult for SME's to comply with. This is, however, a contestable assessment that was not confirmed during the interview with one of the rejected applicants. An important barrier for SMEs to apply for EMAS is the capital expenditure and the widespread perception among SMEs that EMAS is equal to an additional financial burden, which they will pass on even if there are grants available. Offering grants which can later be reimbursed might not actually be so attractive.

²¹⁴ European Local Transport Information Service (2007): A Strategy for improving accessibility, Valetta, Malta.

Another aspect concerns the support provided to prospective applicants for registration under EMAS or an ecolabel scheme. Malta Enterprise arranges Information Sessions and tends to guide applicants through this process, but during the interview Malta Enterprise draw attention to the fact that is difficult to guide all applicants because of the amount of projects. Other interviews conducted during this case study indicate a need for more support during the early project design phase. This could be a measure that would increase the number and quality of applications for EMAS and Ecolabel.

7.0 Conclusions

The OP Investing in Competitiveness for a Better Quality of Life does put a strong emphasis on environmental and carbon impact concerns. This includes significant funding allocations to environmental and energy-related interventions, an overall target of low carbon impact, integration of environmental and sustainability issues into the project selection process as well as the adaptation of a public procurement procedure to reduce the overall carbon impact. However, the programming of the OP as well as the implementation shows some shortcomings regarding the promotion of sustainable development measures.

Throughout the programming stage of the Cohesion Policy programme stakeholder consultation addressed environmental as a vertical issue, whereas, environmental considerations and sustainability weren't discussed as a horizontal priority. This seems to reflect the primary focus on environmental issues in terms of compliance with EU regulation. The vertical focus throughout the consultation process seems to come short regarding identifying and exploiting the potential of economic and environmental win-wins.

Extensive Cohesion Policy co-funding of investments in environmental infrastructure like waste water treatment have contributed tremendously to improve the maritime water quality. Another important issue is the promoting of a more sustainable tourism industry through a specific scheme under the analysed OP. Tourism is the biggest industry in Malta and the Cohesion Policy interventions are expected to contribute significant to reduce pressure on natural resources and improve biodiversity. Furthermore, Malta has implemented a rather extensive "Green Procurement" mechanism for public tenders beyond € 14,000. This does for example contribute to reduce the overall carbon emission, although, it is not clear by how much.

The Green Procurement mechanism, from a sustainable development perspective, seems to have some important shortcomings. The scheme differentiates from the basic definition of Green Public Procurement, which is defined as the setting of environmental criteria and standards as well as the use of life cycle costing in public tenders. Instead, the Green Procurement mechanism is based on a "subjective" review of each tender dossier by the Central Contracting Authority (which often lead to proposed offset measures instead of changes to the tender dossiers). Thus, the scheme may improve the overall impact of public procurement from an environmental or sustainability perspective. However, not incorporating environmental standards into the call for tenders, the Maltase government does not use public procurement as a demand-side instrument to promote better products or services. Furthermore, the take up of EMAS and Ecolabel in Malta, in general and through the specific scheme under the Cohesion Policy programme, has been very low – if not absent. The government seems to miss an opportunity to generate synergies between enhancing the environmental performance of public procurement and the promotion of the improvement of

the energy and environmental performance of products, services and production, including the uptake of EMAS and Ecolabel by Maltese companies.

Another critical aspect regarding the implementation of the Cohesion Policy in Malta is the rather weak effort by the authority to promote better project designs at the application stage from an environmental sustainability perspective. The measures taken do not seem to have supported prospective beneficiaries significantly in the process of developing more complex projects that could generate real economic-environmental win-wins.

All together from an environmental sustainability perspective the contribution and impact of Cohesion Policy in Malta is assessed to be rather limited. In general, interventions have improved environmental performance but due to the issues pointed out above they haven't had a significant effect or long term impact on existing unsustainable structural problems and patterns of consumption. Malta is considered to be rather unsuccessful regarding interventions to pursue actual sustainable development in terms of development paths E and F.

Regarding the Innovation Actions Grant Scheme (Environment) the experience has not been very positive until now. The uptake has not been satisfying and a significant share of the applicants (about half for the second call) has not been approved by the authority. Furthermore, from the perspective of promoting the uptake of EMAS and Ecolabel in Malta, the scheme has had no success, as until now no applications for assistance for this purpose has been approved. A reason for the low interest for the scheme could very well be the combination of the reimbursement of Cohesion Policy grants and the short term costs connected to registration under EMAS and Ecolabel. SMEs tend to perceive this as too big a financial burden. Moreover, there is a lack of a specific scheme solely providing assistance to EMAS and Ecolabel projects as well as a lack of in-depth technical support to prospective applicants. Investing more information and consultation about costs and benefits for companies to register under EMAS or an Ecolabel scheme would probably increase the number of applications as well as the quality of project applications or even make further financial assistance unnecessary.

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9.0 Interviewees

- Mr. Anthony Rizzo, Chief Executive Officer, Malta Resources Authority
- Ms. Carmen Galea, *Head OP I, Planning and Priorities Co-ordination Department, Office of the Prime Minister*
- Mr. David Sutton, Chief Officer, Integrated Transport Strategy Directorate
- Mr. Marc Muscat, Chief Executive Officer, Water Services Corporation
- Mr. Mark Scicluna Bartoli, Malta Enterprise
- **Ms Marlene Bonnici, Director General, Planning and Priorities Co-ordination Department, Office of the Prime Minister**
- Mr. Peter Portelli, Permanent Secretary in the Ministry for Tourism and Culture, **Office of the Prime Minister**
- Mr. Dr. Anton Theuma, ECOSOL Limited
- Malta Energy Efficiency and Renewable Energies Association

Table Funding by standard typology of spending categories

Activity (Cd)	D P A	Description	Budget EU
01	E	R&TD activities in research centres	6.000.000
02	E	R&TD infrastructure and centres of competence in a specific technology	22.500.000
03	E	Technology transfer and improvement of cooperation networks ...	2.500.000
04	E	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	6.500.000
05	E	Advanced support services for firms and groups of firms	11.500.000
06	E	Assistance to SMEs for the promotion of environmentally-friendly products and production processes (...)	6.000.000
07	F	Investment in firms directly linked to research and innovation (...)	2.500.000
08	B	Other investment in firms	8.000.000
09	E	Other measures to stimulate research and innovation and entrepreneurship in SMEs	4.500.000
13	E	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	25.000.000
15	E	Other measures for improving access to and efficient use of ICT by SMEs	2.000.000
21	A	Motorways (TEN-T)	97.000.000
22	A	National roads	9.800.000
23	A	Regional/local roads	25.503.051
26	E	Multimodal transport	2.500.000
28	E	Intelligent transport systems	3.500.000
30	A	Ports	46.000.000
33	A	Electricity	850.000
39	F	Renewable energy: wind	8.350.000
40	F	Renewable energy: solar	8.350.000
41	F	Renewable energy: biomass	1.700.000
43	E	Energy efficiency, co-generation, energy management	15.590.000
44	B	Management of household and industrial waste	55.250.000
45	B	Management and distribution of water (drink water)	2.000.000
46	B	Water treatment (waste water)	59.500.000
47	B	Air quality	19.250.000
48	B	Integrated prevention and pollution control	430.000
50	D	Rehabilitation of industrial sites and contaminated land	48.280.000
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	1.700.000
52	E	Promotion of clean urban transport	4.000.000
53	C	Risk prevention (...)	46.750.000

54	C	Other measures to preserve the environment and prevent risks	1.900.000
55	D	Promotion of natural assets	19.130.000
56	D	Protection and development of natural heritage	4.250.000
57	D	Other assistance to improve tourist services	850.000
58	D	Protection and preservation of the cultural heritage	27.630.000
59	D	Development of cultural infrastructure	38.250.000
60	D	Other assistance to improve cultural services	3.400.000
61	D	Integrated projects for urban and rural regeneration	9.840.000
62	F	Development of life-long learning systems and strategies in firms; training and services for employees ...	14.000.000
63	N N CL	Design and dissemination of innovative and more productive ways of organising work	1.400.000
64	E	Development of special services for employment, training and support in connection with restructuring of sectors ...	3.595.200
65	N N CL	Modernisation and strengthening labour market institutions	3.001.600
66	N N CL	Implementing active and preventive measures on the labour market	996.800
67	N N CL	Measures encouraging active ageing and prolonging working lives	1.500.800
68	N N CL	Support for self-employment and business start-up	2.004.800
69	N N CL	Measures to improve access to employment and increase sustainable participation and progress of women ...	7.996.800
70	N N CL	Specific action to increase migrants' participation in employment ...	504.000
71	N N CL	Pathways to integration and re-entry into employment for disadvantaged people ...	18.995.200
72	F	Design, introduction and implementing of reforms in education and training systems ...	18.502.400
73	F	Measures to increase participation in education and training throughout the life-cycle ...	13.003.200
74	F	Developing human potential in the field of research and innovation, in particular through post-graduate studies ...	7.000.000
75	A	Education infrastructure	25.500.000
76	A	Health infrastructure	28.900.000
77	A	Childcare infrastructure	1.280.000
78	A	Housing infrastructure	850.000

79	A	Other social infrastructure	2.550.000
80	N N CL	Promoting the partnerships, pacts and initiatives through the networking of relevant stakeholders	2.240.000
81	F	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	14.938.400
85	N N CL	Preparation, implementation, monitoring and inspection	5.890.800
86	N N CL	Evaluation and studies; information and communication	6.920.000
TOTAL			€ 840,123,051

1.15 NORTHERN IRELAND: USE OF DPA

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1.0 Executive Summary

- The status of the environment in Northern Ireland compares favourably to the rest of the UK and its rich natural heritage is considered to be an important asset. Nevertheless, natural habitats are at risk, and climate, air pollution, and soil degradation are important concerns.
- ERDF funds are primarily directed to actions focusing on competitiveness, innovation, and supporting enterprises, with the environment receiving only a small share of the allocations.
- Sustainable development is a cross cutting theme in the Operational Programme and is taken forward by the Environmental Working Group
- A Development Path Analysis approach is used in the Operational Programme to inform project selection and monitoring. Relevant authorities are provided with a guidance document which facilitates the scoring of projects using the approach.
- The DPA approach is however not used systematically in project selection and the interviewed stakeholders offer mixed views with regard to the benefits of the approach.

Processes of Integration	Criterion	Case Study coverage
Strategic	Inclusion	x
	Consistency	x
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	x
	Proofing tools	
Institutional / organisational	Governance structures	
	Partnerships	
	Consultation	

2.0 Background and Context

Northern Ireland has a single European Regional Development Fund (ERDF) Operational Programme (OP) in the 2007-2013 programming period. The Sustainable Competitiveness Programme was approved in October 2007 and the total programme budget is €614 million, with €307 million (50%) coming from the ERDF.

The aim of the programme is to support the regional strategy “by promoting investment in research and technological development and encouraging enterprise and entrepreneurship in an overall context of sustainable development”²¹⁵ It will “focus on providing the essential environment for businesses to flourish and establish the links between research bodies and companies”²¹⁶

²¹⁵ See OP summary

²¹⁶ See OP summary

The programme priorities are the following:

- Priority 1: Sustainable Competitiveness and Innovation;
- Priority 2: Sustainable Enterprise and Entrepreneurship;
- Priority 4: Improving Accessibility and Protecting and Enhancing the Environment; and
- Priority 4: Technical Assistance.

The programme is expected to, among others:

- establish 6 new centres of excellence in Research and Development (R&D);
- contribute to the setting up of 250 new companies by 2013;
- increase private sector investment in Research and Technology Development (R&TD) by £36 million per year;
- contribute to 3,500 start-ups, of which 50% will be female owned;
- ensure that all businesses in Northern Ireland will have access to next generation broadband network speeds;
- ensure that by 2013 at least 25% of the businesses supported would enter new markets; and
- contribute to growth of e-business by over 15% during the programming period²¹⁷.

It is clear that the primary focus of the programme is competitiveness, innovation, and supporting businesses, rather than direct investment in environment and sustainable development. Nevertheless, the concept of sustainability is present throughout the programme and direct environmental investments are also planned. These will be discussed in more detail in the next sections.

2.1 Current status of the environment

The OP document notes that on the whole the status of the environment in Northern Ireland compares favourably with the rest of the UK. The region has low levels of atmospheric pollution and low concentration of sulphur dioxide and nitrogen dioxide emissions. The main source of sulphur dioxide emissions is manufacturing, while the main source of nitrogen dioxide emissions is road traffic, meaning that atmospheric pollution is the highest in areas with heavy industry, heavy congestion, or major road networks²¹⁸.

The Strategic Environmental Assessment (SEA) outlines the environmental baseline in more detail. The summary is presented below:

²¹⁷ See OP summary

²¹⁸ See OP

Table 38: SEA Environmental baseline

Area	Baseline situation
Biodiversity, fauna and flora	<p>The SEA has noted that the percentage of existing semi-natural habitats has decreased between 1990 and 1998; Just over a third of priority Biodiversity Action Plan (BAP) habitats are classified as declining or, whereas 14% are classified as stable and 11% as increasing. Around third of priority species is classified as unknown, 9% as stable and 1% as increasing.</p>
Climate and air	<p>With regard to climate, one of the key findings from the SEA is the fact that mean annual maximum and minimum temperatures in Northern Ireland have been rising since the end of the 19th Century, with mean minimum temperatures reaching their highest recorded levels in the 1990s.</p> <p>Air quality monitoring shows that standards for key pollutants, sulphur dioxide (SO₂), lead, and particulate matter (PM₁₀) were met by the end of 2004. Two sites failed to meet nitrogen dioxide (NO₂) annual mean standards, while one of them also failed to meet the particulate matter 24-hour standard. Both sites failed to meet objectives set for polycyclic aromatic hydrocarbons (PAH)</p>
Landscape	<p>In Northern Ireland there are currently nine Areas of Outstanding Natural Beauty (AONBs) designated under either the 1965 Amenity Lands Act or the 1985 Nature Conservation and Amenity Lands Order. Northern Ireland has one World Heritage site based on the Giant's Causeway and Mourne Mountains have been recommended as an area suited for a National Park designation.</p>
Soil & Geology	<p>With regard to soil degradation, the main reason cited in the SEA is poor husbandry. This is partly addressed by organic farming, prevalence of which has doubled in proportion between 2000 and 2004. In addition, ninety per cent of lowland raised bogs have been lost or altered due to peat extraction, forestry and drainage, which affects upland bogs as well. Nutrient enrichment is also observed and affects the quality of habitats.</p> <p>In addition to soil degradation there are a number of threats to notable geological sites (such as the caves at Marble Arch, cliffs at Antrim, Giant's Causeway, Slieve Gullion and the mountains of Mourne). These include landfill, coastal defence work and changes to natural systems (including human-induced changes).</p>
Water	<p>The SEA notes that the chemical quality of rivers has improved since 1995 with an increase from 45% to 64% in the length of monitored rivers classified as of Very Good or Good quality under the General Quality Assessment scheme. There has also been an improvement in compliance with the EC Freshwater Fish Directive, with an increase of almost 30% in compliance among designated rivers since 1995.</p>

	<p>With regard to biological quality results are more mixed. In 2000 62% of monitored rivers were classified as being of Very Good or Good biological quality. In 2005, this fell to 53%, with an increase in rivers classified as Fairly Good..</p> <p>In 2005, there was also 99.78% compliance with drinking water standards in the Northern Ireland Water Regulations and 43% compliance with the Urban Waste Water Treatment Directive in 2004.</p>
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Source: SEA, pp. 38-46

2.2 Current investment context

The ERDF Operational Programme has been developed within the context of a number of regional strategies. Of most relevance to sustainable development is the Sustainable Development Strategy, published in 2006. The strategy has three thematic priority areas:

- climate change and energy;
- sustainable consumption and production; and
- sustainable communities²¹⁹.

The strategy has since been updated, and the new document published in May 2010 outlines the following priority areas for action:

- building a dynamic innovative economy that delivers the prosperity required to tackle disadvantage and lift communities out of poverty;
- strengthening society so that it is more tolerant, inclusive and stable and permits positive progress in quality of life for everyone;
- driving sustainable, long-term investment in key infrastructure to support economic and social development;
- striking an appropriate balance between the responsible use and protection of natural resources in support of a better quality of life and better environment;
- ensuring reliable, affordable and sustainable energy provision and reducing carbon footprint; and
- ensuring the existence of a policy environment which supports the overall advancement of sustainable development in and beyond government²²⁰.

Both strategies are supported by substantial investment. Some of the relevant funding sources are the following:

- Community Investment Fund (£5 million in 2006-2008);

²¹⁹ See Northern Ireland Sustainable Development Strategy, May 2006, pp. 21

²²⁰ See Northern Ireland Sustainable Development Strategy, May 2010, pp. 13

- Department of Agriculture and Rural Development Research Challenge Fund (£1.12 million);
- Department for Employment and Learning Innovation Fund (£9.765 million in 2007-2010);
- Department of Environment Rethink Waste Capital Fund (£4.13 million in 2010-2011);
- Environment and Renewable Energy Funding Package (£59.2 million in 2006-2008);
- Modernisation Capital Fund (£15 million since 2008); and
- Neighbourhood Renewal Investment Fund (£56 million in 2005-2008);

Of relevance are also two broader strategic plans, namely the:

- Renewable Energy Action Plan; and
- Waste and Resources Action Plan.

Besides the relevant Government Departments, other bodies play an important role, such as Invest Northern Ireland, the regional economic development agency, or non-profit companies, such as the Carbon Trust.

ERDF Financial allocations

The following table presents the ERDF financial allocation by priority:

Table 39 Breakdown of finances by Priority Axis, in €

Priority	Priority Name	EU Contribution	National Public Contribution	Total Public Contribution
Priority 1	Sustainable Competitiveness and Innovation	160,000,000	160,000,000	320,000,000
Priority 2	Sustainable Enterprise and Entrepreneurship	105,000,000	105,000,000	210,000,000
Priority 3	Improving Accessibility and Protecting and Enhancing the Environment	38,000,000	38,000,000	76,000,000
Priority 4	Technical Assistance	3,833,439	3,833,439	7,666,878
	Total	306,833,439	306,833,439	613,666,878

Source: OP summary

The table below shows the allocation of funds to the environmental activities of Priority 3, categorised according to the Lisbon earmarking.

Table 40: Priority 3 activities categorised according to Lisbon earmarking

Code	Priority Theme	Community Amount
39	Renewable energy: wind	€700,000
40	Renewable energy: solar	€700,000
41	Renewable energy: biomass	€11,000,000
42	Renewable energy: hydroelectric, geothermal and other	€3,000,000
43	Energy efficiency, co-generation, energy management	€2,425,000
Total		€17,825,000

Source: OP, pp. 125

The allocation to biomass comprises the bulk of the environmental funding allocation. This most likely refers to the co-financing of the Biomass Challenge Fund, which is focusing on cost effective and sustainable ways of using biomass to generate renewable energy²²¹. The renewable energy activities funded by the ERDF include communication and training activities, as well as research funding²²². The activities funded under ERDF appear to be complementing existing regional efforts in the area, rather than addressing specific issues not covered by these regional actions.

3.0 Governance mechanisms

Sustainable development is identified in the OP document as a “cross-cutting theme” that “will be integrated at all levels of implementation of the programme”²²³. The Operational Programme is seen as supporting government policies, such as the Economic Vision of Northern Ireland and the Regional Development Strategy ‘Shaping our Future. These policies should in turn integrate the main principles of the Northern Ireland Sustainable Development Strategy, which in the 2006 strategy included:

- **Living within environment limits:** Respecting the limits of the planet’s environment, resources and biodiversity – to improve our environment and ensure that the natural resources needed for life are unimpaired and remain so for future generations;
- **Ensuring a strong, healthy and just society:** Meeting the diverse needs of all people in existing and future communities, promoting personal well-being, social cohesion and inclusion, and creating equal opportunity for all;
- **Achieving a sustainable economy:** Building a strong, stable and sustainable economy that provides prosperity and opportunities for all, in which environmental and social costs fall on those who impose them (polluter pays) and efficient resource use is incentivised;

²²¹ See AIR 2009, pp. 50

²²² See AIR 2008 and 2009

²²³ See OP, pp. 49

- **Promoting good governance:** Actively promoting effective, participative systems of governance in all levels of society – engaging people’s creativity, energy and diversity;
- **Using sound science responsibly:** Ensuring policy is developed and implemented on the basis of strong scientific evidence, whilst taking into account scientific uncertainty as well as public attitudes and values; and
- **Promoting opportunity and innovation:** Innovation is the successful exploitation of new ideas; incorporating new technologies, design and best practice. Opportunities lie in the development of new markets in environmental technologies and other sustainable development related areas/fields²²⁴.

The Operational Programme is meant to “augment and support” these principles²²⁵. More specifically, to be eligible for funding projects must comply with “the requirements of both EU directives and national legislation, so as to safeguard or enhance sustainable development in NI”²²⁶.

Relevant bodies

The bodies of relevance to the integration of the sustainable development theme in the Operational Programme include the Competitiveness and Employment Monitoring Committee and the Environmental Working Group, established under the Monitoring Committee. The Competitiveness and Employment Monitoring Committee consists of representatives from a number of sectors (including Environment) and determines the precise selection criteria for both the ERDF and European Social Fund (ESF) programmes. The mandate for determining the selection criteria also means that the Monitoring Committee has the mandate for integrating environmental aspects into ERDF spending. In practice, these environmental considerations are addressed by the Environmental Working Group established under the Committee. The Environmental Working Group has been “envisaged [...] as a method for taking forward the cross-cutting theme of sustainability”. It consists of the members of the Competitiveness and Employment Monitoring Committee and has the following roles and responsibilities:

- “report to the Competitiveness and Employment Monitoring Committee on and give technical advice about environmental issues taking cognisance of relevant environmental and sustainable development;
- make recommendations with regard to environmental performance and impacts of the Programmes;
- assess the environmental and environmentally related policies underpinning investment under the Programmes, and the environmental impact of that investment, within the overall perspective of Sustainable Development;
- assess and report on the degree of environmental integration achieved in the implementation of the Programmes;

²²⁴ See OP, pp. 47

²²⁵ See OP, pp. 49

²²⁶ See OP pp. 49

- act as a forum for the promotion of environmentally sustainable policies and practices among Departments, implementing agencies, social partners and others involved in the Programmes, with particular emphasis on the development of monitoring methodologies and mechanisms to facilitate the achievement of environmental objectives;
- consider utilising publicity to raise awareness, to project promoters and project applicants, of the environment and of highlighting the work and role of the Programmes;
- encourage the utilisation of innovative environmental considerations into the Programmes;
- ensure the Programme SEA reports are complied with and carry out analyses on Environmental Reports;
- encourage and facilitate networking arrangements both on a North/South and East/West basis involving the management and use of Structural Funds; and
- liaise and share good practice through the offices of the EC²²⁷.

Examination of the minutes of the Working Group meetings shows that the Working Group generally does carry out the actions it has been tasked with. In particular, it works on improving the use of indicators and tools such as the DPA, as well as SEA indicator monitoring. The link between these activities and project selection is however less clear and it is difficult to establish to what extent the activities of the Working Group ultimately lead to improved integration of sustainable development principles in the programme.

With regard to cooperation with other bodies, the OP notes that Northern Ireland is represented on the UK Environment and Structural Funds Groups and may cooperate with the Irish Environment Co-ordinating Committee (ECC) “on issues affecting the entire island of Ireland”²²⁸.

Appraisals of the operational programme

Four different ex-ante appraisals of the programme were performed, including an Ex-Ante Evaluation, a Strategic Environmental Assessment, as well as an Equal Opportunities Impact Assessment and a Rural Proofing Assessment, with the former two providing insights relating to the sustainable development theme.

The Ex-Ante Evaluation included an integrated SWOT analysis, which looked at economic, social, and environmental issue. The analysis did not single out any environmental factors as weaknesses or strengths, but it did see the “rich and varied natural heritage” of Northern Ireland as an opportunity, while potential risks to environmental sustainability were singled out as one of the threats²²⁹. Although the OP included “protecting and enhancing the environment” in its third priority, it is not clear to what extent this was a direct result of the SWOT exercise, nor was the SWOT

²²⁷ See Environmental Working Group Terms of Reference, pp. 3

²²⁸ See OP, pp. 49

²²⁹ See OP Ex-Ante Evaluation ,pp. 29

exercise explicitly mentioned by any of the interviewees as a tool that aided the integration of sustainable development principles in the Sustainable Competitiveness Programme.

The evaluation recognises that the third priority, most relevant to environment, has been allocated the smallest share of the funds, but concludes that the allocation is "reasonable", given that sustainable development is a cross-cutting theme in the programme²³⁰.

With regard to the Strategic Environmental Assessment (SEA), an initial screening exercise was conducted to determine whether a full SEA is necessary. The result of the screening was that a full SEA is not needed, since the programme focuses mainly on research and development, entrepreneurship, and enhancing the environment. This outcome was agreed together with the Department of the Environment for Northern Ireland, which acted as the relevant environmental authority. Nevertheless, due to the possibility of the programme in the future funding projects with potential environmental impact, a full SEA was eventually conducted and published in August 2007²³¹.

The SEA identified a set of objectives. These are as follows:

- **Biodiversity:** To conserve and enhance biodiversity, particularly those habitats and species referenced in the Northern Ireland Biodiversity Action Plan;
- **Soil & Geology:** To reduce degradation of soil and geological resources;
- **Water:** To protect and enhance the quality of all waters;
- **Landscape:** To conserve and enhance landscape character and quality;
- **Climate:** To reduce NI's contribution to global climate change;
- **Air:** To protect and improve air quality for the protection of human health and natural ecosystems;
- **Material Assets:** To protect and conserve the natural and built environment;
- **Cultural Heritage:** To protect, conserve and promote appreciation of the man-made heritage of Northern Ireland;
- **Human Health:** To improve the health and social well-being of the people of Northern Ireland;
- **Population:** To create sustainable communities that foster an environment where people are committed to the social and economic development of their area.

Following from the environmental baseline, outlined in Section 2, the SEA projected the evolution of the Baseline without the programme in place. It argues that most trends would continue without the competitiveness programme. Some exceptions include potential growth of tourism due to the programme, which can have a positive effect on preserving cultural heritage. In addition, the programme may contribute to the progress

²³⁰ See OP Ex-Ante Evaluation ,pp. 44

²³¹ See OP, pp. 48

in restoring derelict and vacant land and improving the quality of the environment in areas which require regeneration.

Looking in more detail at the three priorities of the Operational Programme, the SEA document argues that actions under the Priority 2 (Sustainable Enterprise and Entrepreneurship) would have a potential negative effect on climate, but a neutral or positive effect on material assets, cultural heritage, human health, and population. Out of Priority 3 actions (Improving Accessibility and Protecting and Enhancing the Environment), investment in renewable energy is likely to have a negative impact on landscape, but a positive impact on climate and air, as well as on population. Impact of actions in most other areas, especially the impact of Priority 1 actions, is classified as either neutral or uncertain.

The potentially significant environmental effects, as identified in the SEA, are thus as follows:

Table 41: Environmental effects identified in the SEA

Aspect of Competitiveness Programme	Potentially significant effects
Priority 2: <ul style="list-style-type: none"> • To increase business start-up and survival rates • To encourage growth of NI firms • To promote direct foreign investment • To facilitate a globally competitive and sustainable tourism industry 	Potentially significant negative effect on climate
Priority 2: <ul style="list-style-type: none"> • To increase business start-up and survival rates • To encourage growth of NI firms • To promote direct foreign investment • To facilitate a globally competitive and sustainable tourism industry 	Potentially significant positive effect on population (“create sustainable communities that foster an environment where people are committed to the social and economic development of their area”)
Priority 3 <ul style="list-style-type: none"> • Investment in renewable energy 	Potentially significant positive effect on climate

Source: SEA, pp. 94

There is little evidence, however, that the above findings of the SEA had any effect on the developing or revising the Operational Programme.

4.0 Overview of environmental objectives, measures and allocations

As outlined in Section 2, the programme has three thematic priorities (not counting technical assistance), Sustainable Competitiveness and Innovation, Sustainable

Enterprise and Entrepreneurship, and Improving Accessibility and Protecting and Enhancing the Environment.

The first priority focuses on the quality and level of research and development activities, commercialisation of such activities, and the promotion of innovation. The second priority aims to help expand the private sector in Northern Ireland and improve the business climate. It is the final priority that is of most relevance to the environmental challenges presented in Section 2²³².

The third priority, Improving Accessibility and Protecting and Enhancing the Environment, focuses on two key areas:

- protecting and enhancing the natural environment; and
- promoting sustainable development and creating sustainable communities²³³.

Its objectives are:

- to improve key elements of NI's infrastructure to support and complement sustainable economic and social development; and
- to work with the private sector to upgrade NI's existing first generation broadband infrastructure to one of the world's first and most widely accessible next generation, high speed, telecommunications systems, with equitable access to broadband services of at least 20 Mbps at equitable prices by 2011²³⁴.

The following table outlines the indicative activities, outputs, results, and expected impact of the priority.

Table 42: Priority 3 activities, outputs, results, and impacts

Improving Accessibility and Protecting and Enhancing the Environment			
Indicative Activities	Output	Result	Impact
Activities that work with the private sector to upgrade NI's existing broadband infrastructure to broadband services of at least 20 Mbps at equitable prices by 2011.	<ul style="list-style-type: none"> • By 2013 to increase the availability of net generation services to 500 targeted locations across NI 	<ul style="list-style-type: none"> • Increase the availability of next generation Network broadband speeds from 70% of businesses in NI in 2006 to 100% by end of 2013 	<ul style="list-style-type: none"> • Availability of next generation broadband speeds at every business in NI by end of 2013

²³² See OP Summary

²³³ See OP, pp. 89

²³⁴ See OP, pp. 89

<p>Activities that establish ICT/telecommunication demonstration centres by 2008 and support mechanisms for SMEs, especially micro-SMEs, during the period of the programme.</p>	<ul style="list-style-type: none"> • Between 2007 and 2013 to support at least 10 broadband application and/ or technology projects per annum • To establish 2 ICT demo centres in the West of NI by end September 2008 • To establish 2 teams of 3 broadband advisers, one in each of the ICT demo centres by end September 2008 	<ul style="list-style-type: none"> • By 2013 to have levered at least £6million of additional investment from the private sector from the funds supported under the fund • Each team of broadband advisers to complete a broadband action plan for at least 500 SMEs per annum from September 2008 onwards 	<ul style="list-style-type: none"> • By 2013 to have at least 25% of projects supported under the fund entering new markets • Increase e-business activity by 15% over the funding period
<p>Activities that support initiatives which apply the principles of sustainable development to waste management which promote or deliver waste prevention; recycling and recovery; and related data collection/research.</p>	<ul style="list-style-type: none"> • Promoting the concept of Sustainable Development and Creating Sustainable Communities 	<ul style="list-style-type: none"> • Increased levels of waste management, recycling and recovery 	<ul style="list-style-type: none"> • Improved sustainability
<p>Activities that research and develop support mechanisms to encourage/pilot renewable energy programmes and raise awareness and knowledge of both renewable energy</p>	<ul style="list-style-type: none"> • Investment in renewable energy 	<ul style="list-style-type: none"> • Additional capacity of renewable energy production 	<ul style="list-style-type: none"> • Increased security and supply of Energy

and energy efficiency.			
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Source: OP, pp. 89

Rationale for the actions

The Operational Programme outlined the main drivers for the environmental actions presented above. These include:

- the need to conserve energy and ensure secure energy supply for the future;
- high energy costs in Northern Ireland (compared to other parts of the UK) which are a barrier to growth;
- the need to implement the EU Nitrates Directive¹, the Water Framework Directive, and the Integrated Pollution Prevention and Control Directive without creating “steep challenges” for the farming industry; and
- the need to create an efficient waste management system as outlined in the NI Waste Management Strategy launched in March 2006²³⁵.

Despite the findings of the SWOT analysis conducted as part of the Ex-Ante Evaluation, which has not identified environmental issues as the key weakness, there are a number of rationales for focusing on the environment. Nevertheless, as the SEA has noted and as is evident in the financial allocation tables presented in Section 2, relatively little funding has been allocated to such actions. The SEA argued that this is offset by the fact that sustainable development is a cross-cutting theme in the OP. The next sections will look in more detail at the role the sustainable development theme plays the implementation of the operational programme and will help determine whether the lower financial allocation can be justified.

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

The issue of particular interest with regard to the integration of sustainable development principles within Cohesion policy in Northern Ireland is the use of the Development Path Analysis (DPA) approach. The approach was adopted already during the 2000-2006 programmes, and it was found it to be an effective way to “encourage people to undertake activities that will do more to protect and enhance the environment at the same time as they contribute to economic development and enhancing competitiveness and employment”²³⁶. As a result, the approach has been introduced in the 2007-2013 ERDF and ESF programmes.

The DPA scores are used to inform the selection panel when awarding funding, The Operational Programme stipulates that “the score will be available to selection panels to

²³⁵ See OP, pp. 85-86

²³⁶ See OP, pp. 50

enable informed decisions to be made and that baseline information will be available for monitoring purposes”²³⁷. A DPA guidance document has been produced in order to:

- help implementing bodies select projects in a way that allows to promote and monitor environmental sustainability; and
- help the European Commission, the Managing Authorities and the Environmental Working Group to monitor environmental outcomes and impacts of funding.

The guidance document defines the development paths differently than has been done throughout this study. The DPA classification, as used in the guidance document, is presented below:

Table 43: Northern Ireland DPA approach

Development Path	Explanation
Path A	Actions that promote activities that simply meet environmental regulations.
Path B	Actions that clean up the mess from past activities or actions that promotes physical regeneration.
Path C	Actions that put in place environmental infrastructure to reduce the negative environmental impact of development activities.
Path D	Actions that help organisations to meet increasing environmental standards.
Path E	Actions that improve the resource efficiency (“eco-efficiency”) of existing activities.
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.

Source: DPA Guidance, pp. 5

The guidance note provides examples of projects and corresponding development paths based on an assessment of a sample of ERDF projects performed by McBurney Consultancy. The results are presented below.

Table 44: DPA allocation for a sample of OP projects

Development Path	Example projects
Path A	<ul style="list-style-type: none"> • Improving the competitiveness of the business without any different impact on the environment than before the introduction of the project
Path B	No projects in sample
Path C	<ul style="list-style-type: none"> • Broadband to small and medium sized enterprises

²³⁷ See OP, pp. 113

Path D	No projects in sample
Path E	<ul style="list-style-type: none"> • Manufacturing of wind turbines • Developing the skills of staff at recycling plants • New processes that result in saving of eco resources • Manufacture of more fuel efficient products, i.e. engines • Manufacture of rainwater water collection systems, solar energy panels • Environmental audits • Programmes which have as their objective to help businesses become more resource efficient and have less negative impact on the environment
Path F	<ul style="list-style-type: none"> • Assessment of other forms of renewable energy, e.g. marine sources of energy • Development of renewable energy targets

Source: DPA Guidance, pp. 18

It is worth noting that no projects in the sample were classified under Path B (“Actions that clean up the mess from past activities or actions that promotes physical regeneration”) or Path D (“Actions that help organisations to meet increasing environmental standards”), while Path E (“Actions that improve the resource efficiency (‘eco-efficiency’) of existing activities”) seemed to be one that most sample projects could be classified under. Later in this section this finding will be compared with the development path analysis based on the methodology developed for the purpose of this study.

DPA implementation process

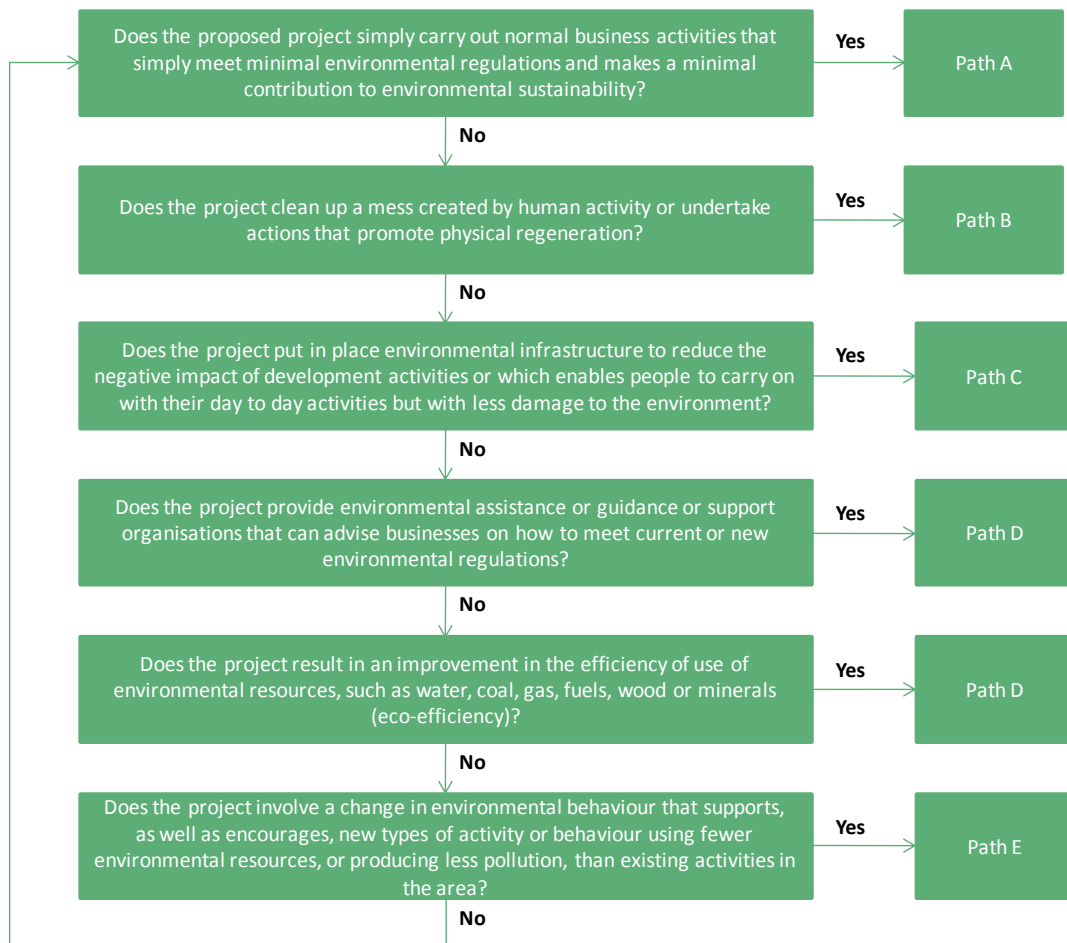
According to the DPA guidance, the approach should be implemented in three steps:

1. Upon receipt of applications, projects should be assigned to one path each and the development paths should be considered during project selection;
2. The paths for all selected projects should be entered into a central monitoring database and project categorisation forms should be filed; and
3. DPA results should be monitored by adding up project budgets according to development paths to determine the funding provided to projects falling under individual paths. If the results are not satisfactory (i.e. if funding to Path A projects constitutes a large proportion of the total funds committed), the design of the priority should be reconsidered to ensure that more project applications corresponding to desired paths are received²³⁸.

The DPA guidance document also looks at how projects are assigned to paths, outlining the individual steps involved in the decision-making process. This is summarised in the flowchart below.

²³⁸ See DPA Guidance, pp. 14

Figure 11: DPA flowchart



Source: DPA Guidance, pp.9

The guidance document recognises that this process is not necessarily clear-cut, with projects potentially having components that could be classified under different development paths and potential outcomes of projects being difficult to determine. The guidance note provides the following recommendations to address this issue:

- “decide what “business as usual” is and how much change is reasonable to expect at this stage for your particular sector, area or group;
- weigh up the different kinds of activities and impacts associated with a project, and use reasonable judgement to arrive at an overall DPA. Consider both direct and indirect impacts;
- consult any sustainable development strategies for your organisation or sector, as well as environmental objectives for your measure as identified in the programme documentation. Your organisation may also have developed in-house experts in environmental sustainability that you can consult;

- ensure consistency at least across your own measure, and record the reason for your decision; and
- focus on the type of the activity rather than the scale²³⁹.

Practical implementation of the DPA approach

When examining the use of the DPA approach in the ERDF programme it is important to note that the guidance with regard to use of DPA has developed over time. The DPA implementation process described above is based on the latest 2010 revision of the guidance, which is in turn based on a report on the use of the DPA approach in Northern Ireland's Structural Fund Programmes (ERDF, ESF, Peace and Interreg). The report looked at the way development paths have been allocated to a random sample of projects and found that 6 out of the sample of 87 projects have been incorrectly assigned to paths A and C, when paths E and F would have been a more appropriate allocation²⁴⁰.

Since the instances of incorrect allocation of development paths was also present in the case of the other programmes (ESF, Peace and Interreg), the report recommended that a flow diagram be used in the guidance note to assist in allocation of paths²⁴¹. This diagram is presented in the section above.

The findings of the report suggest that the use of the DPA approach has not necessarily been straightforward, but that steps are also taken to improve the way the approach is implemented, as demonstrated by the revised guidance.

In terms of stakeholder views regarding the way in which the approach is implemented, all stakeholders were familiar with the approach and have used it. Most interviewees recognised that the process of assigning of development paths to projects is partly subjective, and two of the interviewees suggested that a simpler DPA approach (consisting of fewer paths) could be desirable. One interviewee found that assigning development paths to projects was relatively easy, although that interviewee also noted that this referred to projects focusing on renewable energy, which tended to all fall into a single development path. With regard to the revised guidance document, one of the interviewees agreed that the new guidelines are an improvement and make the process easier.

Although the stakeholders recognise some difficulties in using the approach, it does appear to be used by the relevant bodies and one can expect that with the revised guidelines it should become somewhat easier to assign development paths to projects. Nevertheless, the fact that the DPA approach is used does not necessarily imply that sustainable development principles are better integrated into the Cohesion Policy funding in the region. The next section discusses the outcomes of using the DPA approach in more detail.

²³⁹ See DPA Guidance, pp.12

²⁴⁰ See Advice and Guidance on Development Path Analysis (DPA), pp. 8

²⁴¹ See Advice and Guidance on Development Path Analysis (DPA), pp. 29

Outcomes of using the DPA approach

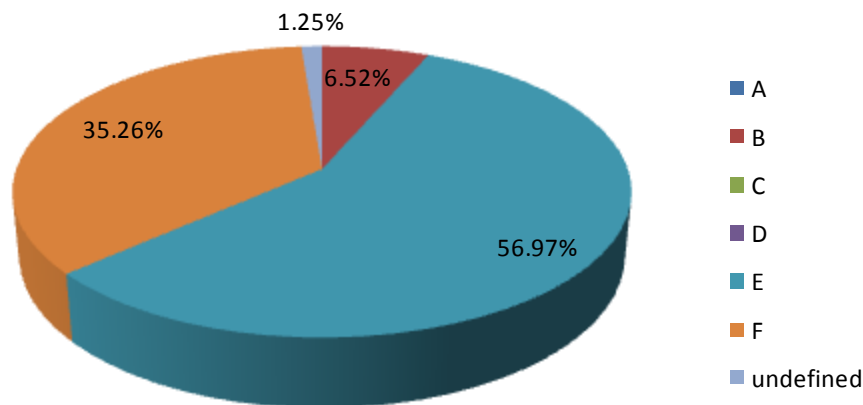
Although it is clear that the DPA approach is used relatively consistently in Northern Ireland's ERDF programme, the actual outcomes or benefits of the approach are less clear. The stakeholders consulted offered mixed views as to how much of an effect the development path allocation has on project selection, which suggests that the assignment of development paths is not systematically integrated into the project selection criteria across the OP's priorities. A stakeholder responsible for a number of projects funded noted that the main role of the approach is to ensure that the projects can at least be assigned path A (i.e. they are not directly damaging to the environment), with the actual development path playing a lesser role in selection of project applications. Two other stakeholders however argued that the path assigned to the project have a bearing on the final score a project receives. The interviewee that found the approach of least benefit was responsible for projects with a relatively clear environmental element and found the DPA approach to be of little additional value, given that sustainable development principles were already a key consideration in project selection.

These experiences suggest that the use of the DPA approach does not have as much of an impact on project selection as is suggested in the Operational Programme. However, interviewed stakeholders noted that the formal selection criteria generally do take into account environmental considerations even if the actual development path assigned to the project may not have a direct bearing on the scoring of projects. Nevertheless, considering that the DPA approach is required and generally viewed as a positive initiative, there appears to be scope for integrating it into project selection in a more systematic fashion.

Analysis of Programme investments

The following figure shows the distribution of all investments based on activities outlined in the OP and a DPA methodology developed specifically for this study.

Figure 12: Share of EU funding by development path



The figure shows clearly that majority of the funding is committed to actions falling under development paths E and F, or “Eco-efficiency” (improving resource efficiency of existing activities) and “Decoupling” (breaking the link between economic development and environmental damage). This is broadly in line with the development paths assigned to a sample of activities in the DPA guidance, where most of the activities were classified as “Actions that improve the resource efficiency (“eco-efficiency”) of existing activities” or “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”.

6.0 Implementation and absorption

6.1 Absorption

According to the 2009 Annual Implementation Report (AIR), the committed Community funds as of December 31st 2009 amounted to €141,897,890 allocated in the following fashion:

Table 45: Committed Community funds categorised according to Lisbon earmarking

Code	Priority Theme	Community Amount
2	R&TD infrastructure (including physical plant, instrumentation and high-speed computer networks linking research centres) and centres of competence in a specific technology	€8,660,731
3	Technology transfer and improvement of cooperation networks between small businesses (SMEs) between these and other businesses and universities, post-secondary education establishments of all kinds, regional authorities, research centres and scientific and technological poles (scientific and technological parks, technopoles, etc)	€12,006,103
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€18,943,443
6	Assistance to SMEs for the promotion of environmentally friendly products and production processes (introduction of effective environment managing system, adoption and use of pollution prevention technologies, integration of clean technologies into firm production)	€13,063,615
8		€15,312,000

9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€60,430,194
10	Telephone infrastructures (including broadband networks)	€2,191,751
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€4,263,720
39	Renewable energy: wind	€314,663
43	Energy efficiency, co-generation, energy management	€219,671
57	Other assistance to improve tourist services	€6,142,860
86	Evaluation and studies; information and communication	€349,139
Total		€141,897,890

Source: AIR 2009, pp. 8

Looking at the examples of funded projects provided in the AIR, a number of projects with an environmental/sustainable development theme stand out. Under Priority 1, these include:

- **Carbon Trust scheme:** The scheme aims to “increase businesses profitability by addressing technical energy efficiency problems and by introducing companies to innovative technology and processes to help reduce energy costs”. The scheme also encourages businesses to develop energy efficient technologies;
- **Envirowise:** The scheme aims to increase business profitability by achieving greater resource efficiency and reducing costs. It focuses on minimising waste and clean technologies; and
- **NI Industrial Symbiosis Programme:** The scheme aims to improve business resource efficiency by changing business and manufacturing processes and using technology to ensure better energy and raw materials utilisation and minimise waste²⁴².

Under Priority 3, such projects include, for instance:

- **Offshore Wind and Marine Renewables:** The study looks at the energy supply potential of offshore wind and wave/tidal resources; and
- **Action Renewables:** The programme aims to facilitate penetration of sustainable energy in Northern Ireland through advice and training to construction and SMEs, policy support into photovoltaic energy research, and monitoring²⁴³.

²⁴² See AIR 2008, pp. 11

²⁴³ See AIR 2008, pp. 16

Priority 1 projects are of particular interest, since they show that the sustainable development theme does appear to be integrated into priorities with business, competitiveness and innovation as their main focus.

6.2 Preliminary outcomes

The AIR contains a set of indicators outlining the achievements of the programme to date. A selection of core output indicators is presented in the table below.

Table 46: Progress of the Operational Programme - selected core output indicators

Priority	Indicator	2007		2008		2009		Achieved			Cumulative
		Output	Target	Output	Target	Output	Target	2007	2008	2009	
1	Number of RTD Projects	72	100	204	150	270	200	72 %	136 %	135 %	121 %
	Number of co-operation projects (enterprises - research institutions)	31	60	37	60	126	60	52 %	62 %	210 %	108 %
2	SMEs - Number of projects	N/A	N/A	129	129	118	133	N/A	100 %	89 %	N/A
	SMEs - Of this [number of projects] : number of start-ups supported (first 2 years after start-up)	N/A	N/A	44	44	33	45	N/A	100 %	73 %	N/A

	Tourism - Number of projects	0	0	1	1	6	71	N/A	100%	8%	10%
3	Information Society - Number of projects	0	10	5	13	9	13	0%	38%	69%	39%
	Energy - Number of projects	0	0	2	2	6	6	N/A	100%	100%	100%
	Average							41%	91%	98%	76%

Source: AIR 2009, p. 2

Looking at the above selection of indicators (only core output indicators with available data are presented above), the ERDF programme appears, on the whole, to be generating the desired outputs, especially in 2008 and 2009. This does not necessarily reflect the success of the programme, however, since this depends also on how ambitious the targets are.

There is little information to draw on in order to assess the preliminary outcomes and impacts stemming from the outputs generated. Some of the relevant indicators for which data is available are presented below.

Table 47: Progress of the Operational Programme - selected output/result/impact indicators

Priority	Indicator	2007		2008		2009		Achieved			Cumulative
		Output	Target	Output	Target	Output	Target	2007	2008	2009	
1	Establish 6 new centres of excellence	0	1	2	1	2	1	0%	200%	200%	133%
	40 university derived businesses established	1	2	N/A	3	N/A	5	50%	N/A	N/A	N/A
	60% of businesses to produce new, improved products and services	57%	53%	N/A	57%	N/A	58%	108%	N/A	N/A	N/A
	Establish 50 new knowledge transfer projects	0	0	2	10	1	10	N/A	20%	10%	15%
	Setting up of approximately 250 new companies by 2013	22	22	34	34	36	36	100%	100%	100%	100%
	500 businesses to improve ICT usage	59	50	128	80	120	80	118%	160%	150%	146%
	33 new companies per annum to undertake R&TD for the first time	31	33	75	33	76	33	94%	227%	230%	184%
	Increase private sector investment in R&TD by £36 million per annum	11m	36m	68m	36m	61m	36m	31%	189%	169%	130%
2	75 business improvement projects per annum	62	75	89	75	167	75	83%	119%	223%	141%
	80 new inward investment projects	0	11	35	11	13	11	0%	318%	118%	145%
	£250 million levered as a result of inward investment	169m	35m	174m	35m	65m	35m	483%	497%	186%	389%
	60 collaboration projects per annum	31	60	37	60	126	60	52%	62%	210%	108%
	Development of tourism projects including Signature tourism projects	0	0	1	1	6	71	N/A	100%	8%	10%

	Contribute to annual growth of +4.5% per annum in visitor numbers	2.11	2.08	2.1	2.17	N/A	2.27	101%	97%	N/A	N/A
	Contribute to increasing visitor revenue by +7.5% per annum	376 m	401 m	403m	431 m	N/A	464 m	94%	94%	N/A	N/A
3	By 2013 to increase the availability of net generation services to 500 targeted locations NI	0	0	2	2	42	29	N/A	100 %	145 %	142%
	Between 2007 and 2013 to support at least 10 broadband application and/or technology projects per annum	0	10	2	10	4	10	0%	20%	40%	20%
	By 2013 to have levered at least £6million additional investment from the private sector from funds supported under the fund	0	0	137,000	1m	709,000	1m	N/A	14%	71%	42%
	By 2013 to have at least 25% of projects supported under the fund entering new markets	0	0	100%	25%	83%	25%	N/A	400 %	332 %	366%
	Average							94%	160 %	146 %	138 %

Source: AIR 2009

The achievement rate in the table above suggests that the programme has been quite successful in generating non-core outputs. It is however important to note that for a number of important indicators (such as gross jobs created, number of start-ups, additional capacity of renewable energy production, reduction of greenhouse gas emissions, or improved sustainability) no data are available. interviewed stakeholders generally believed that it is too early to make an assessment Of the environmental impacts of the programme.

7.0 Conclusions

The primary focus of Northern Ireland's 2007-2013 ERDF Sustainable Competitiveness Programme, are actions focusing on competitiveness, innovation, and supporting enterprises. Consequently, actions focusing on environment are allocated only €17,825,000 of the total ERDF allocation of €306,833,439 (approx. 5.8%). Despite the fact that environment does not appear to be a major area of focus, sustainable development is identified as a cross-cutting theme in the Operational Programme and an Environmental Working Group is responsible for taking the theme forward.

The integration of sustainable development principles into the projects funded by the OP is to be ensured in part by the use of Development Path Analysis (DPA). The OP calls for potential projects to be scored using the method and relevant bodies are provided with guidelines for doing so.

Interviews with relevant stakeholders show that this method, although used widely, is not integrated into systematic way into project selection and its benefits vary depending on area in question. Nevertheless, the examination of programme investment shows that most of the funding falls under the development paths E and F, or "Eco-efficiency" (improving resource efficiency of existing activities) and "Decoupling" (breaking the link between economic development and environmental damage), This suggests that the Projects funded appear to conform to the sustainable development principles. Based on the review of documents and interviews this cannot however be directly attributed to a conscious attempt to ensure the sustainable potential of selected projects.

As in the case of the DPA, there is limited evidence that the SEA, another informative instrument, has an impact on project selection. Although the use both the DPA and the SEA in principle constitutes a positive development towards integration of environmental issues in funding programmes, there is little evidence of the actual effectiveness of such tools.

In terms of impacts and outcomes, the implementation reports note that progress has been made, but in many areas information is incomplete, suggesting that it may be too early to examine outputs and impacts.

8.0 References

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9.0 Interviewees

- Peter Archdale, The Council for Nature Conservation and the Countryside
- Davina McCay, Department for Enterprise, Trade and Investment
- Trevor Forsythe, Department for Enterprise, Trade and Investment
- Bill Stevenson, Department for Enterprise, Trade and Investment
- Charles Hamilton, Invest Northern Ireland

1.16 POLAND: URBAN TRANSPORT PROJECTS

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1.0 Executive Summary

This city case study examines Cohesion Policy investments in the public transport system in the context of the overall public transport policy of Krakow. In particular, the case study attempts to examine whether and how the EU projects are part of a wider strategy aimed at modal shift to sustainable transport modes.

- In the last decade, car transport has created substantial air quality problems in Krakow. Between 2000 and 2008, the number of cars per inhabitants has increased more than 40%. Pollution from cars contributed to exceeding acceptable levels of nitrogen dioxide and PM10.
- An important measure implemented by city authorities to improve the functioning of public transport is the creation of separated bus lanes. In June 2009, Krakow had 22.3 km of separated bus lines, while for instance Warsaw had only 13.3 km).
- In the last four years the city of Krakow has received PLN 293.7 million (approximately **Euro 77.3 million**) of Community assistance for the modernisation of the public transport system in Krakow.
- Funding from Cohesion Funds has been used mainly for the modernisation of tram lanes (including separation of tram/bus lanes from congested roads), the construction of fast tram line between the city centre and the densely populated eastern neighbourhoods and the purchase of 48 modern low-floor trams (24 in the 2004-2006 and 24 in 2007-2013 period)
- Implementation of these projects contributes to increase the accessibility and reliability of public transportation. As a result Krakow's public transport system enjoys the highest passenger satisfaction rate in Poland, according to a 2011 public opinion poll.
- Moreover, newly purchased trams are more energy efficient than the old types (electric energy consumption of new trams is almost two times lower than the one of old-type trams used in Krakow)
- The uptake of EU funds from Cohesion Policy has been facilitated by the city's participation in the CIVITAS CARAVEL initiative under the 6th Framework Programme, which included exchange of experiences with partner municipalities

Processes of Integration	Criterion	Key question
Strategic	Inclusion	X
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and Context

With a population of 756 thousand inhabitants Krakow is now the second largest city in Poland. For many decades air quality in Krakow has been one of the worst in the country and the growing motorisation rate has led to congestion and further air pollution. In 2009, intensive car transportation contributed to exceeding acceptable levels of atmospheric concentration of PM10 and nitrogen dioxide. Three monitoring points in Krakow have registered numerous episodes in which PM10 exceeded the daily norms. At the main monitoring station in the centre of the city, mean annual concentration of nitrogen dioxide amounted to 70 $\mu\text{g}/\text{m}^3$, whilst the acceptable level amounts to 40 $\mu\text{g}/\text{m}^3$.

Reversing negative trends resulting from increased private car usage is in general a very difficult task. It requires introduction of incentives to make public transport more convenient e.g. separating lanes for public transport vehicles, building new bicycle paths, increasing limited car traffic zones. It also requires multimillion investments, targeting both line infrastructure (construction and modernisation of tram lines) and mobile assets (purchase of trams and buses).

According to the Supreme Chamber of Control (SCC), local authorities in major Polish cities have not managed to increase attractiveness of public transportation and thus facilitate local modal split. Across eight cities controlled by SCC, a significant increase in public transport could be observed only in Krakow between 2004 and 2009²⁴⁴. In the last four years Krakow has benefited from two major investment programmes aimed at improving public transport in the city. 24 modern trams were purchased as part of a project financed by the European Regional Development Fund and other mobile assets will be purchased within the scope of the projects co-financed by the Cohesion Fund.

Development of the public transport in Krakow has been a long term effort of the city. The first Transportation Strategy, adopted in 1993 was focused on balancing private and public transportation and a more active traffic management. The key element of the strategy was to promote public transport (financial regulations/information and training) and construction of a fast-tram system. Other instruments of the transportation strategy are: implementation of car-free zones and limited parking time zones, construction of major city by-pass roads, development of bicycle paths. The objectives of public transport development have been to raise service quality so as to outcompete individual transport where possible. Action has been undertaken to substitute public transport for individual cars through enforcement of limited traffic zones.

The city began utilizing EU funds for the development of public transport already in the last programming period. The most important transport projects supported from the EU funds 2004-2006 include: *CIVITAS CARAVEL, Integrated public transport in the Krakow agglomeration – stage I, Krakow City Card – integration of metropolitan services – stage I*. Moreover, there is a number of large transport projects financed from the municipal budget and supported with a loan from the European Bank for Reconstruction and Development, the most important one being “Krakow Fast Tram”.

²⁴⁴ Raport z kontroli działań na rzecz usprawnienia systemu transportowego w największych miastach Polski. Supreme Chamber of Control. 2010. p. 7

Significant results of relevant projects implemented during the previous programming period

Cohesion Policy 2004-2006, ERDF

- Redevelopment of several main streets in the city centre, including designation of a separate tram and bus lane and modernisation of a tram terminus;
- Redevelopment of another major tram line, its adjustment to the parameters of the Krakow Fast Tram (KFT), construction of a bus terminus;
- Purchase of 24 modern low-floor trams, adjusted to the KFT needs.
- Implementation of an electronic city card system

EBRD loan:

- construction of new tram routes and redevelopment of some existing tram routes together with the necessary infrastructure (Krakow Fast Tram).

6th Framework Programme

- capacity building and development of new initiatives – Civitas Caravel

A complete list of projects implemented in Krakow is provided as an annex to this case study

All the public transport projects implemented by Krakow with support from the EU funds have contributed to development of a sustainable transport system in the city. Many of them have been largely successful, while some have not been continued in the subsequent programming period. Completed projects provided the city with a solid basis for developing further initiatives and for applying for EU support to implement them.

3.0 Governance mechanisms

No unique governance mechanism for the integration of the Cohesion Policy with sustainable development principles has been identified. Developing project proposals for the Community assistance beneficiaries respond directly to the provisions set in the programming documents. Therefore, it is of crucial importance to ensure integration of the Cohesion Policy and sustainable development principles at the programming stage.

The beneficiaries of Cohesion Funds as part of the project Integrated public transport in Krakow Phase 1 and 2 are the city of Krakow and its **Municipal Transport Company (MTC)**.

MTC is a Joint Stock Company, fully owned by local authorities, and that operates public transport in Krakow. Each year MTC transports more than 300 million passengers. However, revenues from tickets do not allow covering full costs of public transport services and thus financial contribution from local budget is indispensable. The prices of tickets are set by the City Department for Communal Infrastructure. This department is also in charge of:

- specifying location for the bus and tram stops;
- increasing frequency of trams and bus services;
- changes in routing;
- opening new bus and tram lines.

MTC has a dominant share in public transport services Krakow. In 2008 there city authorities signed contract with another (private) operator. The contract was signed for the period until 2014. That second operator uses 25 modern buses to provide services on selected lines. The current share of private operators in regular bus communication in Krakow is not significant.

The European Bank for Reconstruction and Development due diligence in 2009 confirmed that there are no significant adverse environmental or social impacts or risks associated with the Company or with the project. The MTC is very well organised and managed. It has environmental and quality management systems and practices in place which are certified according to ISO 14001 and ISO 9001 standards. The project is in the advanced stage of development and has been developed in compliance with Polish and EU requirements. The construction of a new tram line and the refurbishment of tram tracks were subject to an EIA according to the Polish law. The permits required for the construction activities have already been obtained by the MTC, and the environmental documentation, including an EIA and associated public consultation and disclosure, has been verified and accepted by authorities issuing the permits for compliance with Polish and EU requirements.

The Stakeholder Engagement Plan (SEP), including a grievance mechanism, has been prepared for the project and will be implemented by the MTC. SEP will be disclosed on the Company's website <http://www.mpk.krakow.pl/>.

4.0 Overview of environmental objectives, measures and allocations

Access to the EU funds was one of the factors that motivated preparing and adopting the *Integrated public transport strategy 2007 – 2013* (approved by the City Council in 2008). The strategy allowed preparation of the project proposals to the EU programmes, namely:

- projects under Operational Programme Infrastructure and Environment:
 - Priority Axis VII: Environmentally friendly transport
 - Measure 7.1. Development of railway transport;
 - Measure 7.3. Public transport in urban areas.
 - Priority Axis VIII: Transport safety and national transport networks
 - Measure 8.3. Intelligent transport networks.
- Malopolskie Regional Operational Programme 2007 – 2013
 - Priority 5: Krakow metropolitan area
 - Measure 5.3. Development of integrated metropolitan transport.

The urban municipality of Krakow has been a beneficiary of numerous transport projects co-financed from the EU funds. Most of these projects have been supported under the 2007 – 2013 **Malopolskie Regional Operational Programme** (MROP). The projects consist mainly of construction or redevelopment of road infrastructure, some including designation of separate bus lanes. Several projects cover upgrade of tram infrastructure. There is also one project for construction of a Vistula overpass for pedestrians and bicycles (already completed). The Office of Municipal and Transport Infrastructure (OMTI) is responsible for implementation of the projects under the MROP.

The city is currently implementing one transport project co-financed under the **Operational Programme (OP) Infrastructure and Environment** – “Integrated public transport in the Krakow agglomeration – stage II”. This project is managed by the Municipal Transport Company (MTC) and is one of the largest projects of such type in Poland. It consists of three

main tasks: Długa Street redevelopment, construction of a new tram line and purchase of over twenty 32-metre-long tram cars. To date (January 2011), the city has completed redevelopment of Długa Street. Construction of the new tram line should finish in April 2011, while the tram cars should be purchased by the end of 2013.

Moreover, the project “Construction of a tram line connecting Brożka Street and the Jagiellonian University Campus, with a traffic control system”, which is already being implemented, is also applying for co-financing from the OP Infrastructure and Environment, Measure 7.3 – Urban transport in metropolitan areas. The project covers construction of a new tram line, connecting the Jagiellonian University (JU) Campus with the city centre, construction of a bus terminal and widening of the streets connecting one of the major housing estates in Krakow (Ruczaj) with more central parts of the city. The project includes solutions for disabled, also the visually and hearing-impaired, that improve access to infrastructure and make using it safer. Within this investment the city will develop new infrastructure that will improve the public transport system in Krakow and integrate the city’s southern and western districts with the centre. The project is crucial for the city’s transport policy, as it connects the new University Campus and a number of new housing estates with the centre. The necessity of a new tram line in this area of Krakow has been stressed for long. The project is currently financed from the municipal budget and its total value equals PLN 195,150,765.00. Expected co-financing from the OP Infrastructure and Environment amounts to PLN 53,500,000.00.

5.0 Analysis of measures and allocations

The evaluated project is second phase of successfully implemented “Integrated Public Transport in the Kraków Agglomeration” project that benefit from the Cohesion funds in the previous programming period. The phase one of the project was co-financed by European Regional Development Fund (ERDF) under the 2004-2006 funding period. Total project expenditures amounted to PLN 254.8 million (**Euro 67 million**). The grant from ERDF amounted to 50% of qualified expenditures. The first phase of the project was implemented between 2006 and 2008 and it comprised the following tasks:

- modernisation of tram line and assisting infrastructure,
- purchase of 24 modern trams.

During the project implementation, MTC also received a loan from the European Bank of Reconstruction and Development of PLN 110 million (c.a. **Euro 28.9 million**).

Phase two of the project is co-financed by Cohesion Fund resources under the 2007-2013 programming period. Total project costs amount to PLN 430.4 million (**Euro 113.3 million**). Co-financing from Cohesion Fund amounts to PLN 184.2 million (**Euro 48.5 million**). The project contract was signed in August 2010. The project comprises the following tasks:

- construction and modernisation of tram lines with assisting infrastructure.
- purchase of 24 modern trams.

The project under Phase 2 is financed from Cohesion Policy 2007-2013 under the framework of **Operational Programme Infrastructure and Environment** (Priority Axis VIII “Environmentally friendly transport”, Measure 7.3 “Urban transport in metropolitan areas”). The goal of this Measure is to increase the modal share of public transport in mobility of the inhabitants of metropolitan areas. The Measure has been made available to 9 largest metropolitan areas of the country. Priority has been given to projects which integrate different modes of transport in the metropolitan area and at the same time are in line with updated

integrated urban transport strategies. Support has been limited to railway, tramway, underground railway and trolleybus modes, as the most environmentally friendly.

The implementation of Phase 1 and Phase 2 projects constitutes an important part of public transport strategy for Krakow. In particular, the project aims at:

- Keeping the share of public transport at current level of 60%. Improved accessibility, reliability and quality of public transport will increase attractiveness of public transport for the inhabitants.
- Improving accessibility of public transport in Krakow: the most significant investment in this field is the newly built line of fast tram connecting central zones of the city with densely populated and poorly connected eastern neighbourhoods of Krakow.
- Shortening public transport travel times: the project envisages the construction of dedicated tram/bus lanes that allows avoiding traffic jams.
- Replacement of obsolete mobile assets: current average age of trams in Krakow is 30 years. 48 modern trams (NGT6 trams produced by Bombardier) were purchased within the scope of the project and they are:
 - low-floor trams allowing accessibility to disabled people, elderly people, passengers travelling with children. This feature shortens duration of passenger exchange. Purchase of new trams will increase the share of low-floor trams from 25% to 75% in 2012.
 - equipped with devices for voice announcement of the stop.
 - equipped with monitoring devices that increase travel safety.
 - more energy efficient; electricity consumption of new trams (NGT6) is almost twice lower than that of old type trams used in Krakow; energy savings are possible thanks to energy recuperation systems installed in new trams.

Implementation of Phase II of the existing project is crucial to the infrastructure development of the city and neighbouring municipalities. It aims to reduce congestion and pollution in the Kraków agglomeration through an increased share of public transport in the overall transportation means. Moreover, the project will enhance regional development through sustainable improvement of the living standards for inhabitants of Kraków and increase the potential for economic growth.

6.0 Implementation and absorption

The contract for financing the Phase 2 project was signed between City Transportation Company (MTC) and the Centre for EU Transport Projects (implementing agency for EU projects in the transport sector) in August 2009. At that time, the urban transport project was one of two projects approved for financing under priority Axis 7.3. At the end of August 2010, absorption of Community assistance for this measure remained very low, amounting to only **4.19%** of Community assistance available for 2007 – 2013.

Despite the above, the physical project implementation is quite advanced. In line with EU procedures it was possible to carry out investment tasks before signing financing agreement for Cohesion Fund co-financing and some of the tasks have already been completed. The tendering process is completed and it is expected that entire project will be completed by 2013. In April 2011, a newly built fast tram line improving communication of the city centre with densely populated eastern neighbourhoods will be opened and 24 trams purchased

within the project will be delivered to CTS by 2013. In September 2010 the investor (MTC) signed a loan agreement with the European Investment Bank amounting to PLN 150 million (**Euro 39.5 million**) to support project implementation. .

7.0 Conclusions

Implementation of the described projects is an important step towards environmentally friendly urban transport. Without Community assistance implementation of these projects would not be possible (due to lack of budgetary financial resources in local budget).

In Krakow, city authorities managed to successfully **combine different sources of funding**: loans from EBRD, Cohesion Policy grants, supplemented by EU framework research programmes which helped build the capacity to design projects. It has also been mentioned in interviews that the city has had a particularly good cooperation with JASPERS which helped prepare better projects (e.g. modify details of the fast tram project).

Implementation of Phase 1 and 2 projects is part of a **long-term strategy** to increase accessibility and reliability of public transportation. Construction of a fast tram connection between city centre and eastern neighbourhoods will influence travellers' decisions on selecting transport mode (i.e. shift from cars to public transport). Modernisation of tram lines, connected with construction of dedicated tram/bus lanes will also contribute to shortening travel time. Thus it is likely to increase attractiveness of public transport in Krakow. Replacement of obsolete trams contributes not only to increased travel comfort but also to shorten travel times and reduce energy use. Extension of tracks complemented by exchange of rolling stock creates a synergy encouraging modal shift.

As reported by the Supreme Chamber of Control, the number of users of public transport increased substantially between 2004 and 2009. Factors which could contribute to this include investments in public transport (extension of the network, more comfortable modern rolling stock); designation of separate bus and tram lanes (which make public transport competitive to the car); increased difficulties with parking in the city centre; increased tourism. Still there is much room for improvement in this field as Krakow remains one of the most congested towns in Poland. In particular, it seems that other policy instruments (such as traffic restrictions) as well as investments in neglected bike infrastructure are necessary to enforce modal shift and reduce congestion.

The ongoing projects are **complementary** to each other and build upon the results of projects that have already been implemented in the previous programming period. The development and improvement of public transport in Krakow is in the first place promoted by construction of new tram lines with the necessary infrastructure or by upgrading already existing tram connections. Construction of the tram line within the OP Infrastructure and Environment Project constitutes a good example of such an approach. It is expected that this investment will integrate with the city centre eastern and south-eastern districts as well as the municipalities neighbouring with that part of Krakow. This task is closely connected with redevelopment of a number of other streets implemented within the Małopolskie Regional Operational Programme, which should improve traffic flow between Krakow's southern districts and the city's eastern ring road. All this justifies a conclusion that the projects adhere to the sustainable development principle, as through integration of two EU-funded projects it will be possible to activate the city's eastern part and improve communication in that area (both car and public transport).

Each of the implemented or ongoing projects has improved the quality of public transport in Krakow. Although the projects under the MROP contain mainly construction tasks, many of them include designation of a separate lane reserved only for public transport (bus lanes). This shows that municipal authorities pay attention not only to improving conditions of car transport (e.g. through road surface upgrade) but also to amplifying benefits of public transport (shorter commuting time for buses that can use separate lanes, thus avoiding traffic jams). In 2010 Krakow had 25 km of separated bus lanes, more than any other Polish city (currently Warsaw is intensively implementing bus lanes so it is no longer the case). The tasks carried out by the MTC also support development of a sustainable transport system. Purchase of modern and comfortable tram cars and construction of new tram lines constitute the most significant tangible effects of the EU projects implemented in Krakow.

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9.0 Interviewees

- Janusz Moskwa, Head of the European Funds Office, Krakow City Hall
- Tomasz Zwoliński, Krakow City Hall
- Marek Gancarczyk, Municipal Transport Company
- Katarzyna Stec, Office of Municipal and Transport Infrastructure
- Łukasz Franek, Krakow University of Technology
- Adam Łaczek, Cities for Bicycles Poland (NGO)
- Kacper Kępiński, Przestrzeń-Ludzie-Miasto (NGO)
- Jaroslav Straka, European Commission, DG Regional Policy

10.0 Annex: list of EU co-financed transport projects, according to source of support

- **2007-2013 MAŁOPOLSKA REGIONAL OPERATIONAL PROGRAMME**

Construction of a flyover along the streets: Nowohucka and Powstańców Wielkopolskich

Priority Axis V: Krakow Metropolitan Area

Measure 5.3: Development of integrated metropolitan transport

Project value: PLN 43,523,227.58

EU co-financing: PLN 23,788,809.41

Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow

Project implementation period: from 2009 – 11 to 2011 – 6

Redevelopment of the Dietla-Starowińska and Poczta interchanges, together with the tram line between Sebastiana Street and Blich Street

Priority Axis V: Krakow Metropolitan Area

Measure 5.3: Development of integrated metropolitan transport

Project value: PLN 34,679,959.99

EU co-financing: PLN 19,898,337.70

Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow

Project implementation period: from 2009-9 to 2009-12

Extension of Surzyckiego Street and Botewa Street and construction of Śliwiaka Street (connection with the S7 expressway)

Priority Axis IV: Infrastructure for economic development

Measure 4.1: Development of road infrastructure

Project value: PLN 76,910,936.73

EU co-financing: PLN 58,051,000

Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow

Project implementation period: from 2009-9-1 to 2011-3-31

Construction of an overpass for cyclists and pedestrians over the Vistula

Priority Axis VI: Intraregional cohesion

Measure 6.1 Urban development

Project value: PLN 38,089,899.09

EU co-financing: PLN 14,976,948.32

Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow

Project implementation period: from 2008-7-31 to 2011-3-31

Construction of a tunnel under the Ofiar Katynia roundabout in Krakow

Priority Axis V: Krakow Metropolitan Area

Measure 5.3: Development of integrated metropolitan transport

Project value: PLN 25,235,098.34

EU co-financing: 17,664,568.84

Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow

Project implementation period: from 2007-2 to 2010-3

Redevelopment of 29 Listopada Avenue with construction of separate lanes for public transport

Priority Axis V: Krakow Metropolitan Area

Measure 5.3: Development of integrated metropolitan transport
Project value: PLN 26,761,344.64
EU co-financing: PLN 18,460,192.44
Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow
Project implementation period: from 2007-2-1 to 2010-3-31

Redevelopment of Konopnicka Street with construction of separate lanes for public transport

Priority Axis V: Krakow Metropolitan Area
Measure 5.3: Development of integrated metropolitan transport
Project value: PLN 13,570,854.15
EU co-financing: PLN 9,499,597.90
Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow
Project implementation period: from 2007-11 to 2010-3

Construction of a new section of Księcia Józefa Street (bypass of Przegorzały)

Priority Axis IV: Infrastructure for economic development
Measure 4.1: Development of road infrastructure
Project value: PLN 19,873,577.00
EU co-financing: PLN 12,439,500.00
Project implementation unit: Office of Municipal and Transport Infrastructure in Krakow
Project implementation period: from 2007-5-24 to 2009-1-31

- **OPERATIONAL PROGRAMME INFRASTRUCTURE AND ENVIRONMENT**

Integrated public transport in the Krakow agglomeration – stage II

Priority VII: Environment-friendly transport
Measure 7.3: Urban transport in metropolitan areas
Project value: PLN 430,440,037.01
EU co-financing: PLN 184,241,541.11
Project implementation unit: Municipal Transport Company

- **PHARE**

Redevelopment of Klasztorna Street – stage one – section from Jana Pawła II Avenue to Żaglowa Street

Project value: EUR 648,869.21
EU co-financing: EUR 486,651.91
Project implementation unit: Road and Transport Management Office
Project implementation period: from 2006-6-29 to 2006-10-31

- **INTEGRATED OPERATIONAL PROGRAMME FOR REGIONAL DEVELOPMENT 2004-2006 (EUROPEAN REGIONAL DEVELOPMENT FUND)**

Integrated public transport in the Krakow agglomeration – stage I

Measure: Development of public transport in agglomerations
Project value: PLN 254,776,688.54
EU co-financing: PLN 100,144,992.64
Project implementation unit: Municipal Transport Company

Project implementation period: from 2006-4-1 to 2008-5-31

Krakow City Card – integration of metropolitan services – stage I

Measure: Modernisation and extension of regional transport systems

Project value: PLN 9,267,390

EU co-financing: PLN 5,520,000

Project implementation unit: Municipal Transport Company

Project implementation period: from 2006-6-29 to 2007-12-31

Redevelopment of tram and bus routes along the streets: Monte Cassino - Kapelanka – Brożka

Measure: Modernisation and extension of regional transport systems

Project value: PLN 25,348,254.20

EU co-financing: PLN 18,556,800

Project implementation unit: Road and Transport Management Office

Project implementation period: from 2005-8-2 to 2007-1-10

- **EUROPEAN COMMISSION FRAMEWORK PROGRAMME CIVITAS II**

CARAVEL – Travelling towards a new mobility

Project value: EUR 3,651,000

EU co-financing: EUR 1,650,000

Project implementation units: Krakow City Hall, Municipal Transport Company, Krakow University of Technology and Forms Group

Project implementation period: from 2005-2-1 to 2009-4-30

CIVITAS CATALIST – Dissemination and best practice transfer action of the Civitas initiative

Project value: EUR 30,678

EU co-financing: EUR 30,678 (does not require own funds)

Project implementation unit: Krakow City Hall

Project implementation period: from 2007-8-1 to 2011-7-31

- **Executive Agency for Competitiveness and Innovation**

AENEAS - Attaining Energy Efficient Mobility in an Ageing Society

Project value: EUR 94,000

EU co-financing: EUR 64,000

Project implementation unit: Krakow City Hall

Project implementation period: from 2008-8-1 to 2011-5-31

- **EUROPEAN REGIONAL DEVELOPMENT FUND within the CENTRAL EUROPE transnational programme**

Via Regia Plus

Project value: EUR 200,000

EU co-financing: 85% of the project value

Project implementation unit: Krakow City Hall

Project implementation period: from 2008-7 to 2011-9

Activity (Cd)	DPA	Description	Budget EU
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 225 000 000
10	E	Telephone infrastructures (including broadband networks)	€ 150 000 000
16	E	Railways	€ 504 501 472
17	E	Railways (TEN-T)	€ 3 902 505 126
19	E	Mobile rail assets (TEN-T)	€ 486 296 020
20	A	Motorways	€ 1 726 068 500
21	A	Motorways (TEN-T)	€ 7 705 135 675
22	A	National roads	€ 1 924 880 452
27	F	Multimodal transport (TEN-T)	€ 111 255 539
28	F	Intelligent transport systems	€ 140 000 000
29	A	Airports	€ 403 484 082
30	A	Ports	€ 424 793 876
31	E	Inland waterways (regional and local)	€ 80 913 119
34	A	Electricity (TEN-E)	€ 206 550 000
35	A	Natural gas	€ 388 430 000
36	A	Natural gas (TEN-E)	€ 198 900 000
37	A	Petroleum products	€ 153 000 000
39	F	Renewable energy: wind	€ 181 511 977
40	F	Renewable energy: solar	€ 11 943 873
41	F	Renewable energy: biomass	€ 257 878 841
42	A	Renewable energy: hydroelectric, geothermal and other	€ 46 015 244
43	E	Energy efficiency, co-generation, energy management	€ 278 087 766
44	B	Management of household and industrial waste	€ 1 021 864 921
45	B	Management and distribution of water (drink water)	€ 278 394 255
46	B	Water treatment (waste water)	€ 2 518 048 295
47	B	Air quality	€ 62 500 000
48	B	Integrated prevention and pollution control	€ 55 000 000
50	D	Rehabilitation of industrial sites and contaminated land	€ 203 100 102
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 89 800 000
52	E	Promotion of clean urban transport	€ 2 014 041 961
53	C	Risk prevention	€ 607 563 536
54	C	Other measures to preserve the environment and prevent risks	€ 10 000 000
58	D	Protection and preservation of the cultural heritage	€ 1 020 000
59	A	Development of cultural infrastructure	€ 303 950 000
75	A		€ 210 000 000

76	A	Health infrastructure	€ 349 990 000
85	0	Preparation, implementation, monitoring and inspection	€ 550 429 280
86	0	Evaluation and studies; information and communication	€ 30 829 862
TOTAL			€ 27 913 683 774,0

1.17 POLAND: IMPACT OF COHESION POLICY ON DELIVERY OF SUSTAINABLE TRANSPORT POLICY GOALS

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1.0 Executive Summary

This Member State case study examines Cohesion Policy investments in the transport sector in Poland in view of their link to overall transport policy in the country. This case study assesses the likely impacts of Cohesion Policy on the delivery of sustainable transportation policy goals in Poland

- Poor quality of road and railway infrastructure in Poland decreases the country's attractiveness to investors. Poland does not have consistent motorway network and major TENT-T road corridors are not completed yet.
- Poland is a country with one of the highest number of people killed in road accidents in European Union and the bad state of road infrastructure is blamed for this situation.
- Community assistance to transport infrastructure in Poland amounts to Euro 25 billion in programming period 2007 - 2013. This assistance is likely to induce demand for transportation and influence future modal split.
- Forecasts of traffic flows for major transport investments are done within the scope of feasibility studies. There is insufficient evidence, however, to predict cross-modal impacts of Cohesion Policy interventions at country level.
- The last fifteen years have seen increased individual car transportation, decreasing share of rail in passenger and freight transportation, decreasing share of public transportation at local level, and growing environmental pressures from transport systems in Poland.
- There is an imbalance in Cohesion Fund and ERDF allocations between road and other modes of transportation. More than 60% of the Community transport-related assistance has been allocated to road infrastructure, 22% to rail, and over 10% to urban transport. The remaining funds are allocated to airports, ITS, multimodal transport etc. These proportions have been decided based on existing modal shares rather than desired directions of the sector's development.
- Modernisation and development of the national road network is done at a faster pace than modernisation of the railway system. There are significant delays in use of Community assistance for railway modernisation. It is likely that some priority projects will not be implemented in this financial perspective. This will impact negatively on the competitive position of railways. The likely result is modal shift from rail to road.
- The slow absorption of Cohesion Policy funding in the railway sector is mainly due to the lack of capacity of the beneficiary, the state company responsible for railway infrastructure, to prepare project documentation on time. Little has been done in the last years to improve the situation. The company also struggles with difficulties to provide the necessary co-financing.
- The rate of Community assistance to railway modernisation is lower than to road construction/modernisation as a result of the requirement to apply the funding gap methodology for railway projects.
- Despite some improvements in recent years, Strategic Environmental Assessments (SEA) are not recognised as an important tool in the decision making process. SEA findings have a negligible influence on policy goals and policy design. Questions have been raised about the involvement of investors (road agency) in the SEA process.

2.0 Background and Context

Poland has been allocated approximately Euro 67 billion in Structural Funds for 2007-13, which makes it the largest beneficiary of European Cohesion Policy for this period. Financial assistance to transport infrastructure has been defined as one of the key priorities of the Cohesion Policy interventions in Poland in 2007 - 2013. Approximately Euro 25 billion will be allocated to transport infrastructure investments, which is equivalent of 38% of the total allocation for Poland (European Commission, 2009). In the 2007 – 2013 programming perspective, Community assistance is channelled to the Polish transport system through eighteen operational programmes using resources of the Cohesion Fund and European Regional Development Fund.

Poland has a dense transport network. Its degradation and low standard constitute a fundamental barrier to national and regional economic growth in Poland. They also limit investment possibilities in the sector of enterprises (Ministry of Regional Development, 2007). The most urgent investment needs relate to road and rail connections between cities (especially TEN-T networks), and public transportation in agglomerations.

This case study assesses the likely impacts of Cohesion Policy on the delivery of sustainable transportation policy goals in Poland.²⁴⁵ With more than Euro 25 billion assistance to transport sector the Cohesion Policy is likely to influence the long-term modal split in Poland.

The case study is set at Member State level and it does not focus on specific region or project. Particular attention is on interventions aimed at linking cities/regions with road and rail networks. Less attention is paid to the Community assistance to urban transport.

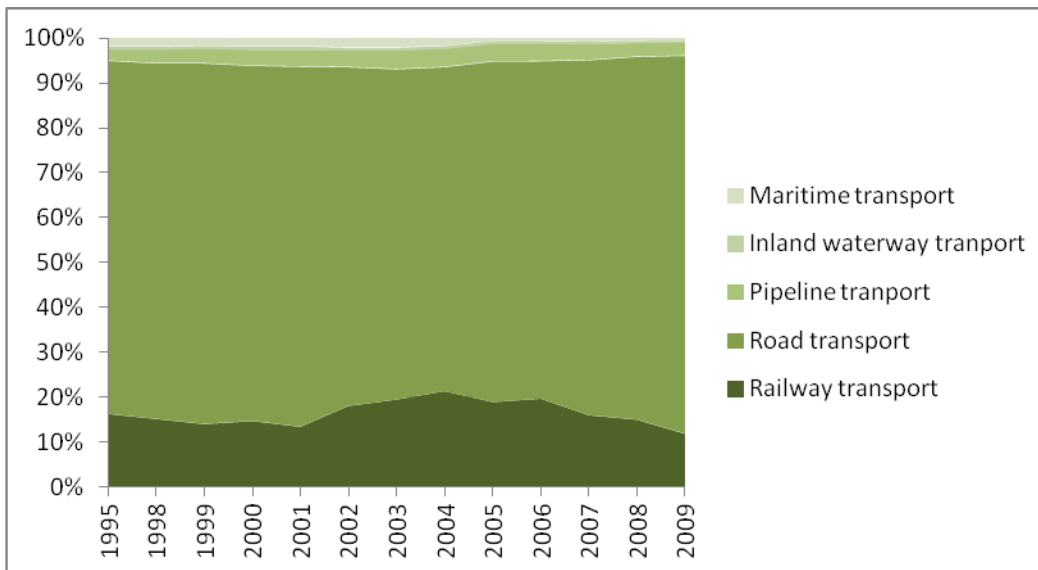
2.1 Current status of the environment

When compared with the EU sustainable development indicators, Polish transportation is not on a sustainable path.

Despite poor quality of road infrastructure most of the **freight transport** in Poland is carried out on roads. In 2009 84% of goods (by weight) were transported by road, whilst the share of rail amounted to 12% (Figure 13). Other modes of transport (inland waterway, maritime, pipeline and air) play minor role in freight transport.

Figure 13. Modal split in freight transport between 1995 and 2009 (% of total weight transported in tonnes)

²⁴⁵ Integrating transport with sustainable development is one of the key objectives of Community policy. The shift towards environment friendly transport modes, to bring about a sustainable transport and mobility system, was defined as one of the operational objectives of EU Sustainable Development Strategy (Council of the European Union, 2006).

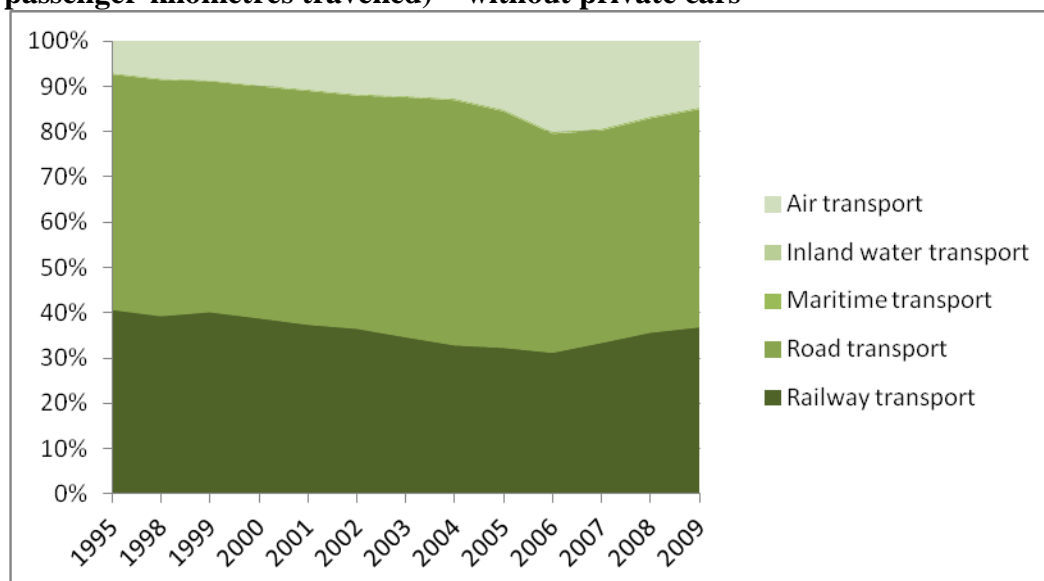


Source: transport statistics, Central Statistical Office

The share of intermodal transport in freight transportation in Poland is negligible. In 2009 intermodal transport corresponded to only 1.4% of weight and 3.3% of tonne-kilometres in rail transport. Lack of appropriate infrastructure, and mobile rail assets as well as high infrastructure charges are key factors halting development of this mode of transport.

Road transport is the dominant mode of public passenger transport in Poland with a 48% share in 2009 (not including individual cars). Whilst the share of rail in passenger transport amounts to 37%, number of passenger-kilometres travelled by this mode of transportation has dropped by 30% compared with the 1990s. This relates to increased usage of private cars (**Error! Reference source not found.**) and wider access to air transport. Increased usage of private cars results from many factors, such as increased economic welfare, individual preferences, or accessibility and travel costs. Due to lack of efforts to modernise Polish railways, poor rail infrastructure (excessively long travel times) and obsolete mobile rail assets rail is losing its competitive advantages. The negative image of railway transport as an unreliable, uncomfortable way of travelling prevails, despite some clear improvements in the last years, at least on the main inter-city links.

Figure 14. Modal split in passenger transport between 1995 and 2009 (% of total passenger-kilometres travelled) – without private cars

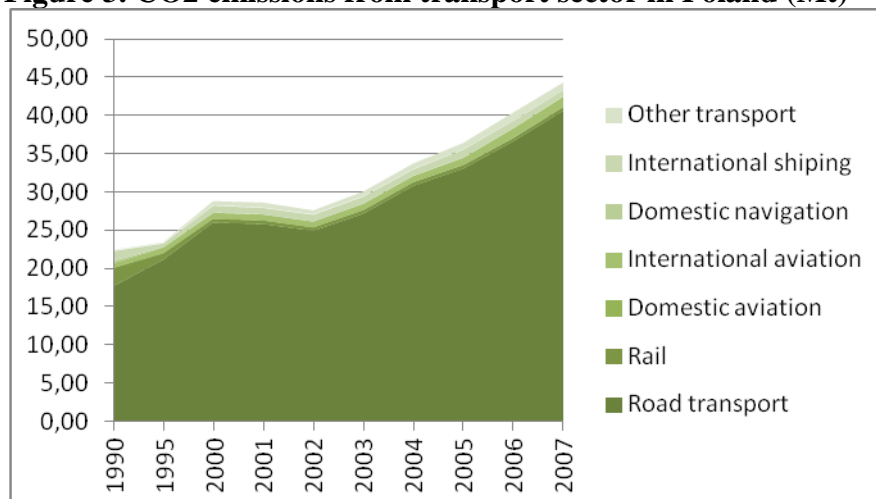


Source: Central Statistical Office

The number of passenger cars has been constantly growing since 1990s. In 2009 it amounted to 431 per 1,000 inhabitants. 70% of passenger cars in Poland are more than 10 years old. These are cars with lower fuel efficiency and emission standards than modern ones. Rapid growth in motorisation contributes to congestion and air pollution (especially in the cities).

Growing motorisation contributes to increasing transport born GHG emissions. GHG emissions from transport have more than doubled over the 17 year period from 1990 to 2007. In 2007 emissions from transport sector amounted to 44.31 Mt of CO₂. This corresponded to 14.4% of total CO₂ emissions from fuel combustion. 92% of transport emissions originate from road transportation.

Figure 3. CO2 emissions from transport sector in Poland (Mt)

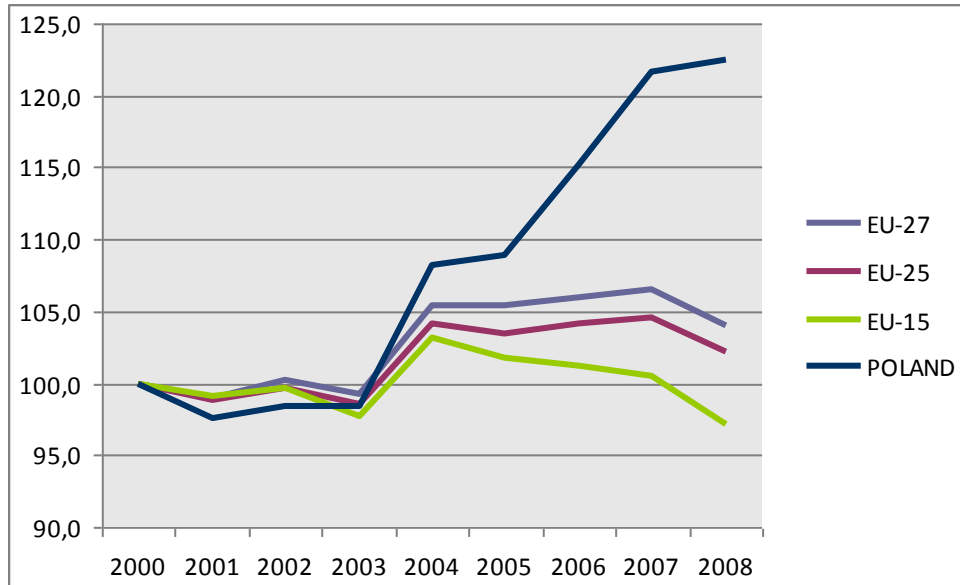


Source: OECD; 2010

One of the indices applied in monitoring sustainable transport policy goals is the volume of freight transport relative to GDP. This index shows whether **decoupling** of transport growth from GDP growth takes place or not. As presented in Figure and Figure freight and

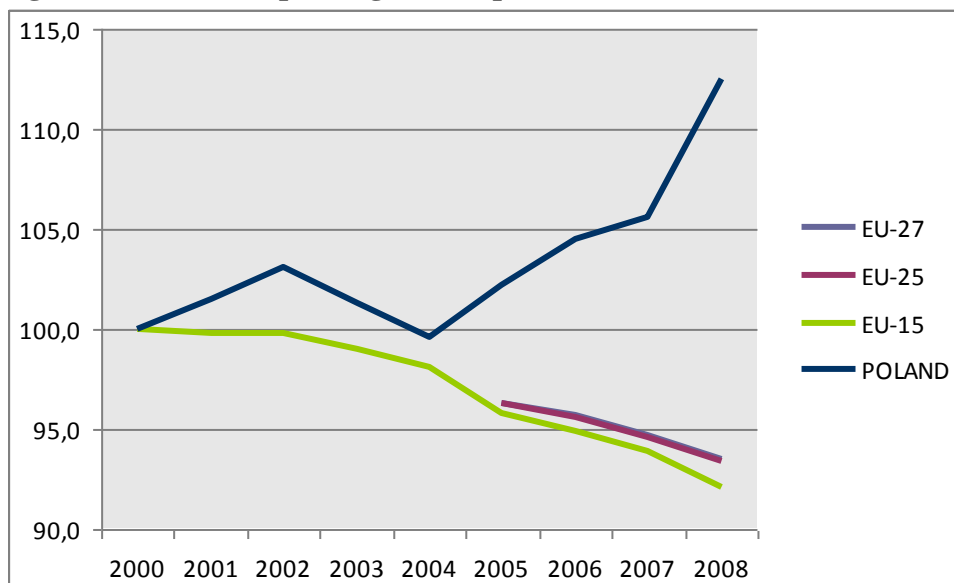
passenger transport in Poland have grown faster than GDP which suggests that decoupling is not taking place. This is particularly noteworthy as decoupling has been observed in passenger travel in EU-27, EU-25 and EU-15.

Figure 4. Volume of freight transport relative to GDP (2000 = 100)



Source: Eurostat

Figure 5. Volume of passenger transport relative to GDP (2000 = 100)

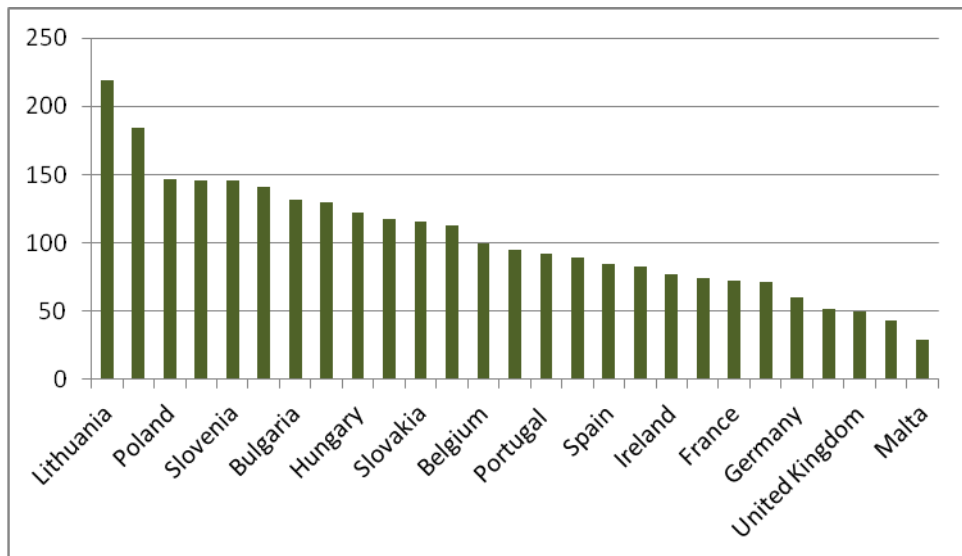


Source: Eurostat

The number of people killed in road accidents is considered as one of indicators of sustainable transport. Similarly to pollution, noise or congestion, car accidents generate external costs that are not reflected in market prices paid by road users. External costs of accidents in Europe range between 2.5% - 3.0% of the GDP in EU Member States (WHO). Poland has one of the highest number of people killed in road accidents in European Union. Only in Lithuania and Latvia are number of people killed in car accidents (per million of

inhabitants) higher. The poor state of road infrastructure is commonly blamed for the disastrous statistics.

Figure 6. Number of people killed in road accidents (per million of inhabitants)

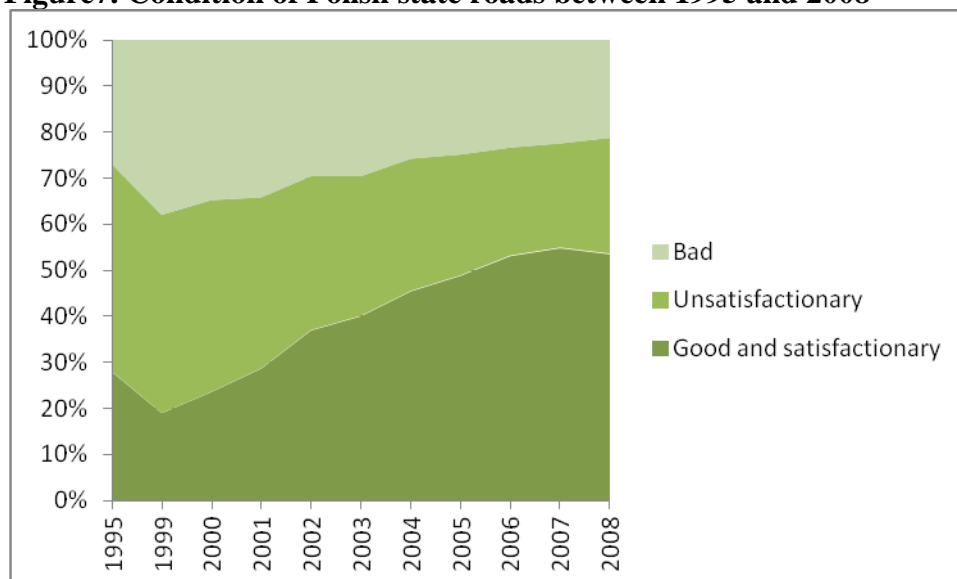


Source: Eurostat

2.2 Current investment context

As a result of many years of underinvestment, the condition of Polish transport infrastructure is one of the worst in the European Union. In 2008 46.4% of state roads were in bad or unsatisfactory condition (see **Error! Reference source not found.**). Overloaded trucks are one of the key factors contributing to damages of the road surface. The majority of Polish roads can accommodate axle pressure between 60 to 80 kN whilst the European Union standard for roads accepting heavy goods vehicles is 115 kN). At the end of 2008 only 25% of national roads met 115 kN standard. It is frequently underlined that the poor quality of road infrastructure and lacking ‘backbone’ of motorways is among key factors which decrease Poland’s attractiveness for foreign investment. Long travel times hinder accessibility of the most remote regions, particularly in eastern Poland.

Figure7. Condition of Polish state roads between 1995 and 2008



Source: annual reports of the General Directorate of Roads and Motorways

Whilst road density in Poland is relatively high, the share of motorways and highways is much lower compared to EU-15 or EU-25. Poland does not have consistent motorway network and major TENT-T road corridors are not completed yet.

Table 48. Progress in construction of motorways in TEN-T corridors (as of August 2010)

TEN-T Corridor	Route of corridor	Planned length of Polish section (km)	Completed (km)	Completed (%)
II	Berlin-Warsaw-Moscow	610	254	42%
III	Berlin/Dresden-Wrocław-Lviv-Kiev	670	440	66%
VI	Gdańsk-Warsaw-Katowice-Brno/Zilina	568	135	24%

Poland has relatively dense **railway network** compared with other EU countries (Railway density in Poland and EU-27 (Table 49). The share of electrified tracks amounts to 59% (in EU-27, in 2005 this was 49%). Since 1990, however, the total length of railway network has fallen from 24.1 to 19.3 thousand km. The last new railway track was built in 1987, which places Poland among the countries with the most obsolete and outdated railway infrastructure. 37% of the railway network is in good condition, 36% in acceptable and 27% in unsatisfactory. Low travel speed on Polish railways is an important factor deteriorating competitive position of rail. Only 5% railway allows trains travelling with the speed of 160 km/h or more. In practice, however, trains do not travel with such speed as travel control systems and appropriate mobile rail assets are missing. On the majority of the railways (71%) the speed limits are between 40 and 120 km/h (Ministry of Infrastructure, 2010).

Table 49. Railway density in Poland and EU-27

Name	Density per 1,000 sq km	Density per 100,000 inhabitants
Poland	65	53
EU-27	49	44

Source: based on EUROSTAT and Central Statistical Office

3.0 Governance mechanisms

Despite some improvements in recent years the role of SEA in the political decision making process is rather negligible. Public authorities are aware of the obligations resulting from SEA legislation. There is no understanding, however, why this tool is important.

The quality and practice of SEAs differs across public administrations. According to one respondent, in some areas, SEAs are conducted by the project promoters (e.g. SEA for the road development programme that was conducted by the General Road and Motorway Directorate). Such practice questions the independent character of the assessment and raises concerns that the outcome of the SEA could be distorted in order to suit the agency interested in implementing a road construction programme in the preferred variants. Moreover, the methodology for conducting SEAs is still not well developed. Another common problem that affects the quality of SEAs in Poland results from the fact that tenders for SEA are often awarded based on the lowest price offer.

One of the concerns expressed by SEA experts is that its conclusions are of little use in decision making processes in Poland. Most frequently political decisions with regard to interventions subject to SEA are taken much before the strategic assessment. SEA is not considered as a tool for presenting alternative scenarios for interventions in question. Most frequent changes in programming documents resulting from SEA relate to diagnostic chapters rather than practical formulation of the policy tools. Moreover, SEA conclusions are often of general character rather than specific recommendations regarding changes in the measures and allocations. For instance the SEA for the OP Infrastructure and Environment stated that: *the programme implementation will foster decoupling of energy use from economic growth*. This general statement may be valid for some selected measures of the programme, but is unlikely to be valid for the overall effects of entire programme. In the opinion of decision makers, linking programming process with sustainable development is an important issue but there is a limited understanding of how to do this practically.

It should be noted, however, that there are examples where some important SEA conclusions were taken into account in priority definition and allocation decision. For instance, support to investments increasing co-modality of public transport was included in the Operational Programme Development of Eastern Poland as a result of SEA recommendations.

The SEA for the OP Infrastructure and Environment resulted in adding some indicators related to the modal share of ‘environmentally friendly’ transport. General recommendations for projects regarding measures mitigating their impact on environment were also suggested.

Like SEAs, ex-ante assessments of the NSRF and OP’s influenced primarily the chapters describing the background situation and context and helped improve the integrity of the documents rather than leading to changes in priorities. For example, the ex-ante report for OP

Infrastructure and Environment questioned the rationale of financing air transport as a sector which is developing relatively fast by itself and already enjoys tax exemptions. However, this suggestion was rejected in the OP, justified by the positive economic impact of air transport.

4.0 Overview of environmental objectives, measures and allocations

Development and modernization of transport infrastructure is one of key objectives defined in National Strategic Reference Framework for 2007 – 2013. This objective will be achieved through:

- Connection of the main economic centres in Poland by a network of motorways and express ways and modern railway networks.
- Security of connection of all land neighbours of Poland by networks of motorways and express ways and inclusion of the country biggest urban centres of the Eastern Poland in the transport system.
- Improvement of accessibility of international railway transport and improvement of connections between the biggest economic centres and agglomerations.
- Increase in the share of public transport in the biggest agglomerations.

Community assistance for the transport sector in Poland amounts to **Euro 25 billion** in the programming period 2007 – 2013. Additional financial resources are mobilised to co-finance projects implemented under Community assistance programmes.

Investments in the transport sector are financed through the Cohesion Fund and the European Regional Development Fund within the framework of the following operational programmes in Poland:

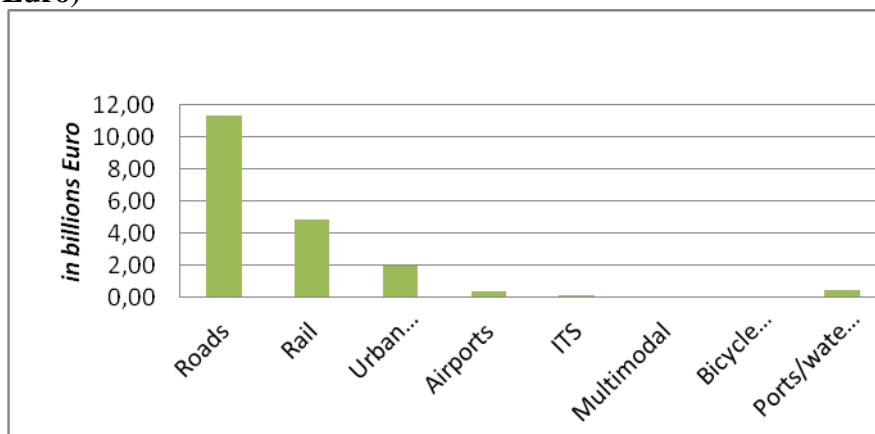
- Operational Programme Infrastructure and Environment (OP I&E)
- 16 Regional Operational Programmes
- Operational Programme Development of Eastern Poland.

The abovementioned operational programmes offer support to projects that aim to achieve sustainable transport policy goals (e.g. railways, multimodal, clean urban transport).

Operational Programme Infrastructure and Environment

Overall Community assistance to the transport sector under OP I&E amounts to Euro 19.4 billion. 58.5% is allocated to road construction/modernisation, 25.2% is allocated to development of railway systems, and 10.4% to urban transportation. Other investments (i.e. airports, ITS, multimodal systems, ports/waterways) represent small fraction of the overall transport budget.

Figure 8. Community assistance under OP Infrastructure and Environment (in billion Euro)

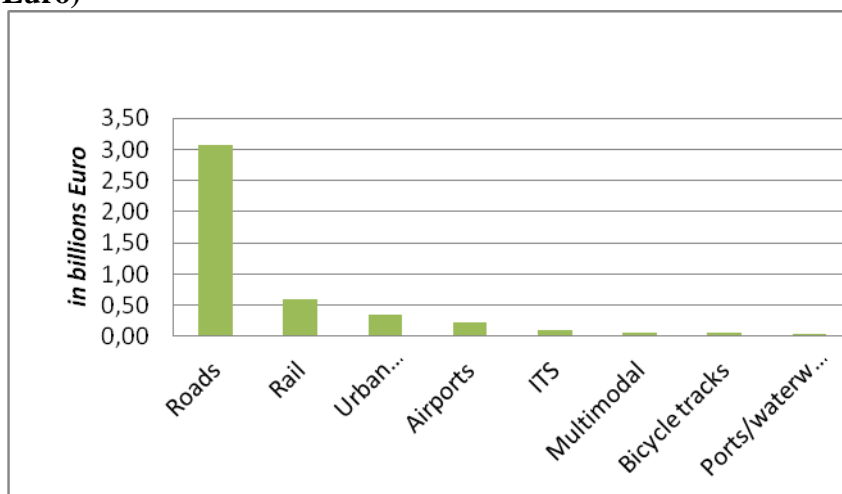


Source: OP Infrastructure and Environment

Regional Operational Programmes

There are 16 regional operational programmes in Poland. Overall community assistance to transport sector under these programmes amounts to Euro 4.5 billion. 68.4% is allocated to road investments, 13.3% to investments in rail infrastructure, and 7.6% to urban transport.

Figure 9. Community assistance under 16 regional operational programmes (in billion Euro)

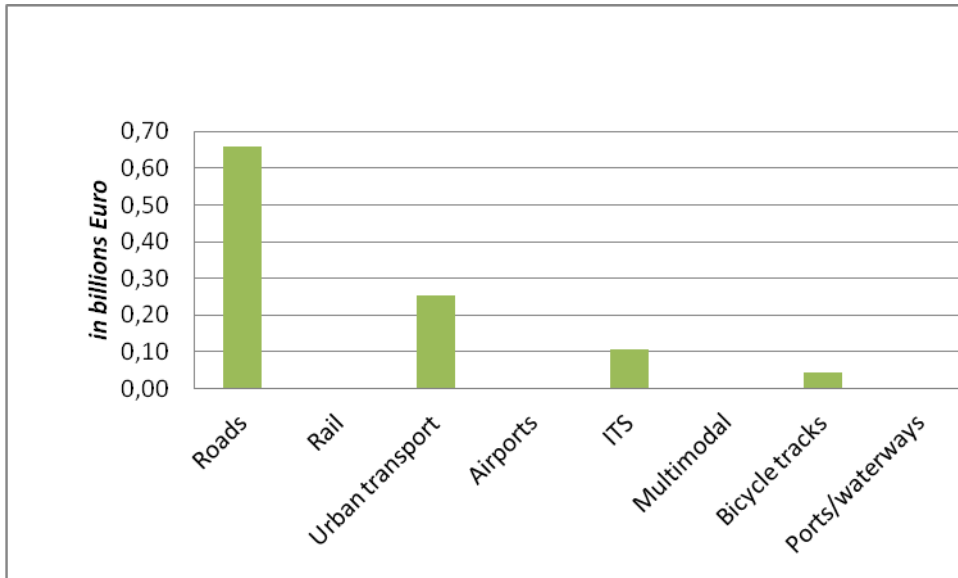


Source: regional operational programmes

Operational Programme for Development of Eastern Poland

Overall community assistance to transport sector under OP for Development of Eastern Poland amounts to Euro 1.06 billion. 62.1% is allocated to road construction/modernisation, 23.7% to urban transportation, 10.2% to ITS and 4% to cycle tracks. There are no allocations available for railway investments under this OP.

Figure 10. Community assistance under OP for Development of Eastern Poland (in billion Euro)



Source: OP Development Eastern Poland

5.0 Analysis of measures and allocations

Win-loss analysis

Indicator: Investments in transport infrastructure by mode

Promoting sustainable transportation requires appropriate investment policy geared to railways, inland waterway, short sea shipping and intermodal operations (European Commission, 2001). Allocations in the programming period 2007 – 2013 reveal an imbalance in financial support to in favour of road infrastructure. Out of the total Euro 25 billion in Community assistance, more than 60% is allocated to roads, 22% to rail, and 10% to urban transportation. The remainder (ca. 8%) is allocated to other transport priorities (e.g. ITS, multimodal transport, airports, ports and waterways).

As far as investments in road and railway construction/modernisation are concerned, it should be noted that in the current programming period there was no requirement to keep a fixed ratio between financial allocations to road and rail projects (60/40 ratio was endorsed in previous programming period).

According to interviewees, there were two major factors that influenced the actual division of allocations for OP Infrastructure and Environment:

- Absorption capacity (in particular low absorption capacity of Polish Rail Line Company PKP PLK S.A., that is responsible for project preparation and implementation);
- Current modal split (i.e. share of given mode in current modal split should reflect share of allocation for this mode in the total transport budget).

This approach indicates that the Operational Programme is not designed to provide incentive for changes in modal split but rather reinforce the current situation.

Cohesion Policy offers interesting opportunities for development of public transportation in the cities. It should be noted that development of bicycle paths is not considered as an important priority in most of the operational programmes.

Indicator: Modal split of passenger transport

The objective of OP Infrastructure and Environment's Priority Axis VII is 'increasing the rate of environment-friendly transport in total passenger and cargo transport'. (Ministry of Regional Development, 2007). The document, however, does not provide any measurable objective for passenger modal split. It presents only a 'context indicator' i.e. the share of environment friendly modes (rail, inland water, maritime) in passenger transport in 2005 amounting to 24.86%. The weakness of the indicator is that it does not reflect trends in switching the mode between public transportation and individual cars. As a consequence, there is not even an attempt to measure Cohesion Policy's impact on modal split. This puts in question the above-mentioned objective of the Priority Axis VII as it seems rather a general declaration than a reflection of actions undertaken throughout the entire OP (a much larger allocation is devoted to road networks under Priority Axis VI and VIII)

Several respondents expressed the opinion that current Cohesion Policy interventions will improve the competitive position of road transport to rail transport. This is because progress in modernisation and development of the road network is faster than progress in the modernisation of rail infrastructure (rail lines, railway stations, rolling stock). According to one respondent it is likely that investments in motorways and express roads will shift part of passenger transport from rail to bus (in result of shortening travel time on road). A similar situation was observed in Spain where development of a reliable motorway network led to shift from train to bus transportation.

Whilst it is difficult to quantify the cross-modal impacts of the Cohesion Policy (there is lack of such studies in Poland), it is likely that slow progress in railway modernisation will strengthen the current modal split in passenger transport. According to some experts current interventions may result in a further shift towards road transportation.

Indicator: Modal split of freight transport

Several respondents marked that slow progress in the modernisation of Polish railway lines as well as high infrastructure charges contribute to the low attractiveness of this mode of transportation. Despite the poor quality of Polish roads most freight transport is carried out this way. Modernisation of roads and construction of motorways may further increase the attractiveness of this mode of transportation.

The Operational Programme Infrastructure and Environment presents the reference indicator i.e. share of environmentally friendly modes in freight transport (by weight) amounting to 20.28% in 2005. Contrary to expected effects the value of the indicator has been dropping since 2005 (20.99% in 2006, 17.39% in 2007, 16.15% in 2008 and 12.76% in 2009). Given lack of progress in modernising the railway system it may be difficult to achieve the expected results.

Greenhouse gas emissions by transport mode

CO₂ emissions from road transport sector have risen twofold between 1990 and 2007. There is not sufficient evidence to assess the effect of Cohesion Policy interventions on GHG emissions from the transport sector. Modernisation of the road network is expected to reduce congestion. On the other hand the average speed on new express roads and motorway is

higher, which increases emissions per kilometre travelled. At the same time, measures supporting environmentally friendly transport have the potential to stimulate reduction of GHG emissions.

It should be noted that reduction of GHG emissions from transport sector requires implementation of complex policies/measures aimed at promoting sustainable transportation. The GHG emission forecasts for two scenarios: (1) anticipating continuation of current trends, and (2) anticipating promotion of sustainable transportation were analysed by the Institute for Sustainable Development (Institute for Sustainable Development , 2009).

Table 50. GHG emissions from transport (in million ton of CO₂)

	2005	2020	2030
Continuation of current trends	37	58	62
Towards sustainable transportation	37	45	47

Source: Institute for Sustainable Development

The cited report concludes therefore that even in the “towards sustainable transport” path GHG emissions from transport will continue increasing in the next 20 years, however, this increase will be much greater in the business-as-usual scenario.

People killed in road accidents

As stated in the National Strategic Reference Framework 2007 – 2013 reduction of road accidents is one of anticipated effects of Cohesion Policy interventions in transport sector. Achievement of this objective, however, will not be possible without auxiliary measures (e.g. education campaigns).

Reduction of the number of road accidents will result inter alia from improvement of the standards of Polish roads. One of the factors jeopardising safety are ruts on the roads with poor quality pavement. This problem will be gradually eliminated by adjusting roads to 115 kN standard.

Impacts on biodiversity

Most recent estimations of potential conflicts between planned transport corridors and Natura 2000 were presented in the Strategic Environmental Assessment of Spatial Development of Poland until 2030 study.. The study identified 418 conflicts with planned transport corridors (Instytut na Rzecz Ekorozwoju, Atkins - Polska, 2010).

Table 51. Proposed transport corridors (until 2030) and Natura 2000 Network

Share of corridors in particular Natura 200 sites	Number of sites	Overlapping territories of transport corridors and Natura 200		Total area of Natura 2000 sites overlapping with the corridors
		(hectares)	%	
(%)	(no)	(hectares)	%	(hectares)
100	109	40,336.70	2.56	40,336.70
75-99	53	180,449.80	11.45	214,479.70
50-74	52	240,351.20	15.25	395,470.60
25-49	76	816,535.90	51.81	2,269,975.30
Below 25	128	298,382.70	18.93	3,722,206.10
Total	418	1,576,056.30	100.00	6,642,468.40

Source: Institute for Sustainable Development, Atkins-Polska

In current programming period majority of conflicts relates to road construction projects. The need for improvement in Environmental Impact Assessment (EIA) implementation practices in Poland has been emphasised by several experts.

5.1 Development Path Approach analysis

The Development Path Approach can be applied to evaluate the overall impact of transport investments under Cohesion Policy in Poland. Table 52 has an overview of the Development Path and win-loss analysis for the most significant operational programme i.e. OP Infrastructure and Environment.

Some of the interventions examined in the case study e.g. intermodal transport, clean urban transport and upgrade of the existing railway network can be classified as activities pursuing eco-efficiency (Path E), as they can contribute to reduction of GHG emissions while satisfying the demand for mobility. These interventions, as shown in the previous section on allocations represent a minority of Cohesion Policy funding available.

Most Cohesion Policy interventions in road and air transport fall within development path A (i.e. declining sustainability). As described earlier, these investments are likely to contribute to further increase in the modal share of GHG-intensive transport in Poland. However, it should be noted that some road interventions (such as construction of city bypasses) may significantly improve road traffic safety and decrease congestion and local air pollution in urban areas.

Table 52. Development path and win-loss analysis of particular interventions financed from Operational Programme Infrastructure and Environment 2007 - 2013

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
6.1. Road TEN-T Network	7,437	An expected result of all transport measures is stimulating economic growth and increasing competitiveness of Poland and its regions		Incentive for further shift to road transport as it becomes less time-consuming and cheaper mode of transport. The effect may be strengthened by slow progress in railway modernisation. Incentive for increase in GHG emissions in result of: -increased demand;	Significant scale of impacts	A

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
				-modal shift to roads; -increased speed on new roads (especially motorways/express roads).		
6.2. Road access of the largest cities of the eastern Poland	1,011			Incentive for further shift to road transport as it becomes less time-consuming and cheaper mode of transport. The effect may be strengthened by slow progress in railway modernisation. Incentive for increase in GHG	Significant scale of impacts	A

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
				emissions in result of: -increased demand; -modal shift to roads; -increased speed on new roads (especially express roads).		
6.3. Development of TEN-T air network	353			Incentive for modal shift towards air transport Incentive for increase in GHG emissions.	Moderate/Significant scale of impacts	A
7.1. Development of railway transport	4,863		Incentive for modal shift towards railway transport. Slow	Increase in GHG emissions due to: -induced demand	Small/Moderate scale of impacts	E

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
			modernisation of Polish railway is likely to undermine this effect. Decrease in GHG emissions due to: -modal shift towards rail;			
7.2. Development of maritime transport	607		Stimulating modal shift in freight transport towards maritime transport. Decrease in GHG emissions due to:	Increase in GHG emissions due to: -induced demand.	Moderate impact	E

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
			-modal shift towards maritime transport;			
7.3. Urban transport in agglomerations	2,014		Stimulate modal shift towards public transport in agglomerations. Decrease in GHG emissions due to: -modal shift from car to public transport		Negligible	E
7.4. Development of intermodal transport	111		Development of necessary infrastructure stimulating modal shift to rail and		Negligible	E

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
			maritime transport. Decrease in GHG emissions due to: -increased share of intermodal transport in freight transport			
7.5. Modernisation of inland waterways	81		Stimulate modal shift in freight transport towards waterways. Decrease in GHG emissions due to: -modal shift towards waterways		Significant	E

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
8.1. Road safety	100		No impact	No impact	Negligible	n/a
8.2. National roads (non TEN-T)	2,655		Reducing congestion in the cities. Decrease of traffic born air pollution in the cities.	Incentive for further shift to road transport as it becomes less time-consuming and cheaper mode of transport. The effect may be strengthen by slow progress in railway modernisation. Incentive for increase in GHG emissions in result of: -increased demand; -modal shift to roads; -increased speed on new roads	Moderate/significant	A

Measure	Community allocation (million Euro)	Wins		Losses		Development path
		Economic	Environmental – GHG emissions / modal split	Environmental – GHG emissions / modal split	Environmental - biodiversity	
				(especially motorways/express roads).		
8.3. Intelligent transport systems ITS	140		Potential decrease of GHG emissions as result in improvements in traffic flows		Negligible	E
8.4. Safety and security of air transport	50		No impact	No impact	Negligible	n/a

5.2 Use of conditional or complementary instruments

Infrastructure charges

Infrastructure charges are currently applied for access to rail lines and they are among the highest in the EU despite the low quality of the infrastructure. Regardless of the high level of these charges, they do not cover the cost of infrastructure maintenance. This points at a significant level of ineffectiveness in the infrastructure manager's operation and is attributed to lack of necessary reforms of the company (PKP PLK S.A.), neglected by subsequent governments. At the same time, because the Polish Rail Company collects infrastructure charges from operators, it has to apply a funding gap analysis which lowers effective rate of Community co-financing to rail line modernisations.

As stated by most of the experts the high level of charges jeopardises the competitive position of railway transport and it impedes the development of intermodal freight transport. The unpredictable long-term level of these charges discourages investors from investing in logistic centres. As long as carrying goods on roads is cheaper, intermodal transport will not become attractive for freight transportation.

Public roads are directly managed by state, regional or local level authorities. The main sources of revenue for road maintenance and investments are the fuel excise duty and fuel charge. However, there are also two types of direct user charges in Poland: tolls (limited to selected sections of motorways), and vignettes (in form of time-based payment). Road infrastructure charges are rather low (e.g. maximum annual payment for the vignette for heavy goods vehicle with permissible mass >12 t amounts to EUR 625. Motorways built under Cohesion Policy are toll-free, at least during the first years of operation. As a result, beneficiaries of road investments are not obliged to apply a funding gap analysis to justify the amount of EC co-financing under Cohesion Policy.

The fact that Polish Rail Company collects infrastructure charges from the operators results in obligation to apply funding gap methodology that lowers effective rate of Community co-financing to rail line modernisations

6.0 Implementation and absorption

One of the reasons for slow progress in the modernisation of Polish railways is the low absorption capacity of Polish Rail Line Company. Road authorities (in particular General Road and Motorway Directorate) are better qualified in investment project preparation and implementation.

6.1 Absorption

Several experts expressed the opinion that absorption capacity of the beneficiaries in the railway sector is "many times lower" than for road project beneficiaries. Table 53 presents absorption levels for the transport priorities of the largest operational programme i.e. OP Infrastructure and Environment.

Table 53. Progress in absorption of Community Assistance under OP Infrastructure and Environment (as of 1.09.2010)

Measure	Total	Absorption rate
---------	-------	-----------------

	Community co-financing 2007 – 2013 (Euro, million)	for Community co-financing (%)
6.1. Road TEN-T Network	7,437	66.13%
6.2. Road access of the largest cities of the eastern Poland	1,011	0.00%
6.3. Development of TEN-T air network	353	3.24%
7.1. Development of railway transport	4,863	13.32%
7.2. Development of maritime transport	607	8.82%
7.3. Urban transport in agglomerations	2,014	4.17%
7.4. Development of intermodal transport	111	0.00%
7.5. Modernisation of inland waterways	81	0.00%
8.1. Road safety	100	30.00%
8.2. National roads (non TEN-T)	2,655	24.25%
8.3. Intelligent transport systems ITS	140	0.00%
8.4. Safety and security of air transport	50	94.82%

Source: Ministry of Regional Development

Absorption for measures that have been classified in OP Infrastructure and Environment as environment friendly is lower than for road transport projects (13.32% in railway projects, no projects in intermodal transport, and intelligent transport systems).

Interviewees suggested the following reasons for low absorption capacity of the largest beneficiary (Polish Rail Line Company):

- **Less experienced staff/institution** – the staff of in PKP PLK S.A is less experienced in EU project preparation compared with the General Directorate for Roads and Motorways. Some respondents pointed out organizational problems and lack of ability to attract well qualified and sufficiently remunerated professionals involved in investment preparation and monitoring. According to one respondent, the trade unions did not agree on higher payments in the newly formed Investment Department at PKP PLK S.A. Polish law also imposes restrictions on hiring new staff. Some respondents pointed out necessary reforms in organization/management of PKP PLK.
- **Problems with environmental permitting.** PKP PLK S.A. was very reluctant to comply with the obligation of conducting EIAs for investment in railway lines This **reluctance to adapt to full and appropriate environmental permitting procedures** was described by some respondents as a “serious problem”.
- **Delays in strategic planning** - only when the Master Plan for Rail Transport 2030 was prepared in 2008 (with a subsequent implementation plan), a strategic vision for railways started taking shape. Lack of such strategic planning was one of the reasons why preparatory works were delayed. Another problem was the lack of ability of PKP PLK S.A. to rank priority projects (according to their strategic importance).
- **Difficulties with providing required co-financing** – PKP PLK S.A. has had difficulties in securing financial means needed to implement EU projects. This included problems in obtaining loans from the EIB because the Ministry of Finance was reluctant to grant its guarantees. This is another sign of the low political significance of the sector.

Two respondents stated that slow progress in reforms and modernization of Polish railway result from the relatively low political importance given to rail transport by decision makers. Investments in motorways are considered more attractive politically.

The European Commission made repeated efforts to remedy the problems with absorption, by:

- holding meetings with the beneficiary;
- providing the assistance of JASPERS in developing projects; and
- involvement in developing the master plan 2015 for the railway sector.

However, it is clearly visible from the point of view of the EC that PKP PLK S.A. is a much weaker beneficiary than e.g. the General Directorate for Roads and Motorways.

6.2 Preliminary outcomes

Expected results of transport projects under OP Infrastructure and environment are presented in Table 54.

Table 54. Expected outputs of the investments: OP Infrastructure and Environment

Name of the priority	Expected results (2015)
TEN-T Roads and airports	636 km of motorways built 1,578 km of express roads built 1,500 km of roads adjusted to 115 kN standard
Environmental transport	1,566 km of railways modernised 550 km of tram/trolleybus lines built/modernised 5 logistic centres built 379 km of waterways modernised
Transport safety and national transport network	641 km of express roads constructed/modernised 300 km of state roads adjusted to 115 kN standard 20 spots with high-accident risk rebuilt 11 projects for improving safety features of airports

Source: Operational Programme Infrastructure and Environment 2007-2013

Several respondents emphasised that there is a lack of an integrated approach to implementation of railway projects. One of the experts pointed out that the selective approach to railway modernisation i.e. lack of comprehensive modernisation of railway lines together with adjacent infrastructure reduces the overall impact (in terms of travel time saved). For instance, modernisation of the railway line between Warsaw and Poznań (E-20 line) covered only selected sections (c.a. 50% of the total track). The railway stations on this route were not modernised, reducing the ability to increase the average travel speed of inter-city trains. In fact, in 2003 travel time between Warsaw and Poznań was 2 hours 34 minutes compared with 2 hours 56 minutes in 2010. This resulted from poorly maintained and deteriorating infrastructure of the railway stations that were not subject to modernisation under EU project, which means that trains need to slow down very often, even if the tracks between stations have been modernized.

Another problem, relates to traffic flow forecasts of passenger trains. This is particularly the case of trains serving agglomerations where low demand forecasts result in some station

closures. This then leads to overcrowding and an inability to open a larger number of train connections.

Community co-financing for road investments amounts to 85% compared with 60-65% for railway investments. During the interviews several respondents indicated that this is due to the application of funding gap analysis for railway projects, as these projects are classified as revenue generating ones. Particularly where traffic (and therefore infrastructure charges) is high the funding gap and therefore EU contribution is low.

Recovering costs through infrastructure charges is desirable. It should be noted, however, that when the charges are applied solely for railway transport, road transportation is eligible for greater co-financing. This creates a situation where the transport mode with higher externalities (roads) is exempt from user charges and the more environmentally-friendly one (rail) is fully subject to user charges as a result of the funding gap methodology under Article 55 of the Regulation 1083/2006. This points at the need to evaluate the impacts of such elements of the general policy framework and improve the consistency of their application (i.e. ensuring that user charges are implemented and taken into account in calculating the co-financing rate also for road transport)..

Recently, the Polish government proposed to increase its co-funding shares in order to increase the size of EU grants for railway projects. This proposal needs to be agreed between Ministry of Infrastructure and Ministry of Regional Development and approved by the European Commission.

7.0 Conclusions

In 2007 – 2013 operational programmes have offered financial assistance to environment friendly transport: modernisation of railways, urban transport, intermodal transport, intelligent transport systems or bicycle paths. Nevertheless, more than 60% of Community assistance will be spent on road infrastructure. This assistance is likely to induce demand for transportation and influence future modal splits but there is not sufficient evidence to predict cross-modal impacts of Cohesion Policy interventions at Member State level. It should be noted that the proportions of allocations have been decided based on the actual modal shares rather than on objectives related to a desired modal split.

Modernisation and development of the national road network is done at a faster pace than modernisation of the railway system. There are significant delays in absorption of Community assistance for railway modernisation. It is likely that some priority projects will not be implemented in this financial perspective. This will have a negative impact on the competitive position of railways with a likely modal shift from rail to road. The lack of an integrated approach to investment planning in Polish railways means that the overall effects of investment do not translate into more reliable service and travel time savings.

The slow uptake of funding for the railway sector has been caused mainly by the low capacity of the beneficiary, PKP PLK S.A. to prepare projects and implement them in time. The situation is widely known but little progress has taken place during the last years in this field. Solving this problem is a precondition for any effective future Cohesion Policy support for the railway sector in Poland.

Community co-financing shares are lower for railway modernisation than for road projects as a result of the funding gap formula which are considered revenue generating. Roads that are not classified as revenue generating are exempt from the obligation to apply the funding gap formula (although direct user charges are applied in case of roads as well). Infrastructure charges for freight transport in Poland are among the highest in European Union. Moreover they are paid by transport companies for access to low quality infrastructure. As stated by most of the experts the high level of charges jeopardises the competitive position of railway transport.

Despite some improvements in recent years Strategic Environmental Assessment (SEA) is not recognised as an important tool in decision making process. SEA findings have a negligible influence on policy formulation and design. The SEA process itself has been questioned in cases where the investor (road agency) was heavily involved in drafting the report and could easily influence its conclusions.

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9.0 Interviewees

1. Anna Siejda; Director of the Center for EU Transport Projects
2. Przemysław Wróbel; Director of the Implementation Department; the Center for EU Transport Projects;
3. Jarosław Kopyłowski; Inspector; Implementation Department; the Center for EU Transport Projects;
4. Jarosław Pasek; Director of the EU Funds Department; Ministry of Infrastructure;
5. Marcin Kamola; Transport expert; Transport Consultants Group
6. Jakub Majewski; Transport expert;
7. Andrzej Kassenberg; President of the Institute for Sustainable Development;
8. Representatives of the Polish Rail Company – Polish Rail Lines (*phone interviews*)
9. Rober Cyglicki, director of Greenpeace Poland
10. Jaroslav Straka, European Commission, DG Regional Policy.

1.18 POLAND: VIA BALTICA (S8) EXPRESSWAY IN NORTH-EASTERN POLAND

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1.0 Executive summary

- This major project case study examines the planned construction of an expressway between the city of Bialystok and the Lithuanian border in north-eastern Poland.
- The project was proposed for financing under Cohesion Policy 2007-2013 but as a result of controversies the plans to finance using EU funds was eventually abandoned (some sections of the project have been implemented using national funding).
- The process leading to the withdrawal of road investments which could harm Natura 2000 sites was unprecedented in Poland. The role of EU legislation and involvement of the European Commission, as well as NGOs, has been crucial in ensuring this outcome.
- In addition, the case study provides the example of a good practice in the application of SEA for the road network in North-Eastern Poland, where as many as 40 possible variants for the pan-European transport corridor were taken into account.
- The case study emphasises the need to carry out proper SEAs for entire transport corridors and indicative lists of major projects under OP's, which would allow better decision-making at an early stage. The SEA process should also play a significant role in determining the future shape of the TEN-T network in the country.
- The national EIA practice, including institutional setup and public consultations has improved following the success in solving this particular environmental conflict case, which is a “spillover” from implementing Cohesion Policy projects.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	X

2.0 Background and Context

This case study concerns the construction of the **S8 expressway, Bialystok – Lithuanian border section in north-eastern Poland**, a major project which had been proposed for financing under Operational Programme Infrastructure & Environment. It was included in the indicative major project list under Priority Axis 6 *TEN-T Road and Air Transport Network*, Measure 6.1 *Development of the TEN-T Road Network*. However, as a result of a long process it was concluded that the routing of the expressway is not optimal and therefore the original project was abandoned. The mechanisms which led to this are described below, beginning with the background regarding the origins of the project.

Figure 1 The corridor I road network



In order to include the accession countries in the already existing trans-European Transport Networks (TEN-T), the EU has established the Transport Infrastructure Need Assessment process (TINA). This process was designed to set up the priorities for future infrastructural needs and investigate how these might be funded. Based on consultations and analysis, the TINA Secretariat published its final report in 1999, identifying a number of priority projects to be carried out in CEE.

Via Baltica is the name of the first pan-European transport corridor from Helsinki to Warsaw. The expressway is one of the priorities for completing a seamless transportation network stretching across Europe from Portugal to Finland via Poland.

The key objective of the **Strategy of Transport Infrastructure Development** in 2004 - 2006 and the following years was to substantially improve transport accessibility of Poland. One of top priorities is the improvement of transport routes between Warsaw and other European capitals, followed by the upgrade of the Polish inter-regional transport routes. The Strategy mentioned explicitly the “Reconstruction of the national road No. 8 (Via Baltica) in pan-European corridor I to meet parameters of the expressway, connecting Warsaw and Białystok with the Lithuanian border in Budzisko”. In the programming period 2004-2006, the EU financial support was directed only to a section of Via Baltica Motorway namely “Construction of S8 expressway (Via Baltica) from Warsaw to Wyszaków, including Wyszaków bypass”.

Under Cohesion Policy 2007-2013, the construction of another section of the expressway and specifically its most sensitive section, Białystok – Lithuanian border was planned and included as a major project in the indicative list for Operational Programme Infrastructure and Environment.

The routing of the corridor in north-eastern Poland identified in TINA was the result of a political process which did not include any type of environmental assessment study. The chosen Białystok variant had been promoted already at pan-European conferences of transport ministers in 1994 and 1997. Although at that time the actual transit traffic along the corridor used a shorter route (Lomza variant), the Białystok variant was politically more attractive as it would entail connecting the city of Białystok (largest city in north-eastern Poland) to an upgraded road network.

However, the Białystok route is 30 km longer than the Lomza variant, and more significantly, it cuts through three designated Natura 2000 sites and runs very close to a fourth one. The plans to develop the transport corridor via Białystok could have caused irreversible damage to those sites.

Sensitive natural areas which were going to be affected by the project included the following:

- The **Biebrza Marshes** Natura 2000 site is also a Ramsar wetland of global significance. It is Poland's largest national park (60 000 ha), protecting one of the largest, most natural peatlands in Central Europe. It is of great importance for five (Aquatic Warbler, Greater Spotted Eagle, Great Snipe, Black-tailed Godwit, Corncrake) of the 48 most threatened bird species in Europe and also hosts wolves, otters, beavers and the biggest Polish population of moose. It is a Site of Community Importance (under the Habitats Directive) and Special Protection Area (under the Birds Directive).
- The **Augustow Primeval Forest** and the **Knyszyn Primeval Forest** Natura 2000 sites host significant breeding populations of several bird species of unfavourable conservation status in Europe and have breeding populations of two (Corncrake, Great Snipe) of Europe's 48 most threatened bird species. These sites, in terms of their size

and naturalness, represent very well preserved ecosystems, including many features of continental primeval forest, hosting wolf, lynx and European bison. Part of the Augustow Forest is a national park and small parts are nature reserves. The marshy part of the **Rospuda river valley** in Augustow Forest is a protected landscape area, a planned nature reserve due its unique fen habitats, and a planned protection zone as it is the last Polish site for the orchid, *Herminium monorchis*. The Knyszyn Forest is mostly covered by Poland's largest landscape park and parts have nature reserve status. Both are Sites of Community Importance (under the Habitats Directive) and Special Protection Areas (under the Birds Directive).

3.0 Overview of environmental objectives, measures and allocations

The project for the construction of section Bialystok – Augustow – Budzisko of the Via Baltica express road was placed on the indicative list of major projects of Operational Programme “Infrastructure & Environment” 2007 – 2013 (POIS 6.1-26). The total project cost was 1,828.08 million PLN (€ 457 million). Implementation of the project was foreseen for 2011-2015.

The main objective of **Priority Axis 6 TEN-T road and air transport network**, under which the project was planned, is *increasing Poland's transport accessibility and improving interregional connections by developing the road and air TEN-T network and improvement of communication connections between main cities in the regions of eastern Poland with the remaining parts of the country through development of road network within these regions*²⁴⁶. The community co-financing for this priority axis is € 8,802,366,611 and the total cost of investments including national co-financing is € 10,548,295,844.

The specific objective of the priority axis relating to road transport is *improving traffic flow and safety, carrying capacity and quality of roads in TEN-T network in transit transport, connections between the country's big cities, including the main centres of eastern Poland and transfers through towns*²⁴⁷. The emphasis on Eastern Poland in the priority axis objectives can be explained by the fact that the areas have traditionally suffered from lower level of economic development than the remaining parts of the country. Poor accessibility of the eastern regions by roads, in particular the complete lack of motorways or expressways, has been interpreted as a major obstacle to the economic development of that area.

On the other hand, the eastern part of Poland is the richest in terms of biodiversity and hosts the country's most important natural resources. While the Operational Programme does contain recommendations regarding mitigation measures aimed at limiting the environmental impacts of infrastructure investments, there is no attempt to discuss whether the potential trade-off between development of road infrastructure and biodiversity should imply a change in the development strategy for those particular regions.

²⁴⁶ OP Infrastructure and Environment

²⁴⁷ OP Infrastructure and environment

4.0 Governance and public participation

This section attempts to provide a brief chronology of the events and processes which led not only to abandoning the major project which is the subject of the case study, but also to profound changes in the plans for the entire expressway network in north-eastern Poland. The ultimate change was driven by the need to properly take into account potential impacts on Natura 2000 sites and to build a road network that would be viable both from an economic and an environmental point of view.

Environmental NGOs (e.g. WWF, Birdlife, Bankwatch etc.) monitored closely and from a very early stage the implementation of the Via Baltica transport investments, and in particular the planned Bialystok – Lithuania Border section of the S8 expressway. They communicated on this subject with the Bern Convention Secretariat²⁴⁸ since 2002 and with the European Commission and European Parliament since 2003. NGOs also participated in EIA procedures carried out according to national legislation (by submitting comments, filing complaints), using it as a public participation tool in efforts to prevent environmental damage to naturally valuable sites.

In 2003, the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats, part of the Council of Europe)²⁴⁹ recommended Poland should carry out a full Strategic Environmental Assessment (SEA), in line with EU procedures. The objective of this process would be to minimize as far as possible any negative impact on natural protected areas. The results of the SEA should constitute the ground to decide the final routing of the international Via Baltica road corridor. As a consequence of this, an SEA examining the most appropriate route was commissioned by the Polish Road Agency in 2005 and as many as 40 variants of ‘Via Baltica’ route were considered. The SEA process was finalised in 2009 and its results were implemented in 2010.

The tendering and the execution of the SEA were overseen by the Tendering Committee and then the Steering Committee, which included representatives of NGOs, such as WWF. This can be seen as a good example of partnerships in decision-making on the future shape of the road network.

Meanwhile, before the completion of the SEA process, decisions continued to be taken on a number of projects on road 8/S-8 and connected road 19/S-19 along the Bialystok route of Via Baltica, which were failing to consider alternative routes and disregarded the ongoing SEA process. At that point the major project S8 expressway Bialystok – Lithuanian border was placed on the indicative list of major projects in the Polish Operational Programme “Infrastructure and Environment” (2007-13).

Regardless the ongoing SEA process, preparations for implementing this particular expressway project were advancing. Separate EIAs were performed for short sections of the Bialystok-Lithuanian border expressway rather than the entire major project. This approach was criticized by NGOs, in particular as it prevented a genuine assessment of the alternative

²⁴⁸ Secretariat of the Bern Convention (Convention on the Conservation of European Wildlife and Natural Habitats) provides administrative support for the convention’s governing body, the Standing Committee. The Standing Committee monitors implementation of the Convention and provides guidance and recommendations to improve its effectiveness.

²⁴⁹ The environmental NGOs monitoring the project failed to complain to the Standing Committee of Bern Convention in 2003. Recommendations on the case were endorsed at the Standing Committee meeting in December 2003
<https://wcd.coe.int/wcd/ViewDoc.jsp?id=1488505&Site=DG4-Nature&BackColorInternet=DBDCF2&BackColorIntranet=FDC864&BackColorLogged=FDC864>

routes and cumulative effects of construction of the various sections. Because of these concerns, in January 2006, the NGOs submitted a complaint to the European Commission on the Via Baltica (reference number – 2006/4417, SG (2006) A/3483).

In December 2006, the Commission officially opened legal proceedings against eight road projects on the Via Baltica (road no. 8/S-8: Bialystok-Katrynka Upgrade, Katrynka-Przewalanka Upgrade, Sztabin Bypass, Sztabin-Kolnica Upgrade, Kolnica-Augustow Upgrade, Augustow Bypass, road no. 19/S-19: Wasilkow Bypass, and Wasilkow – Belarus border Upgrade) by sending Poland a Letter of Formal Notice (LFN). Because of the urgency of the matter (logging had in fact started on the proposed route of the Wasilkow Bypass and contractors were already on site at Augustow Bypass), EC issued a Reasoned Opinion in February 2007. As the expected reaction was not observed, in March 2007 Poland was referred to the European Court of Justice (ECJ) in relation to these two projects (case no. C-193/07)

As a result of the judgments of the Polish administrative courts (issued 2007-2008) both road projects referred to the ECJ were halted as breaching the national environmental legislation. Finally, the EC withdrew the case of Augustow and Wasilkow Bypass from ECJ (April 2009).

4.1 Comprehensive, good practice SEA

An independent company (Scott Wilson) was contracted with carrying out the SEA for the ‘Via Baltica’ transport corridor. The SEA study initially looked at 40 possible variants of the transport corridor and then analysed in detail 4 shortlisted variants. The initial analysis covered road network coherence criteria, traffic criteria, social criteria, economic criteria and environmental criteria. A multi-criteria analysis was carried out to identify three most promising variants for further analysis. The fourth variant, via Bialystok, which had been the basis for proposing the S-8 expressway project under Operational Programme Infrastructure and Environment was added to the detailed analysis as well due to its special (legally endorsed) status. In the second stage of the SEA, the four shortlisted variants were analyzed in detail in view of their impact on environment, including the safety and health of people. Wide public consultations were carried out at that stage.

The result of this work was the ‘Strategy for Via Baltica expressway development’ and accompanying SEA report in November 2007 and this was accepted by the SEA Steering Committee (which included NGO representatives) on 12 December 2007. In June 2008 the results of the strategic studies (‘The strategy for Via Baltica expressway development’ and accompanying ‘SEA report’) had been publicly available²⁵⁰: The experts officially recommended the variant through Lomza instead of the Road Agency’s favoured variant along road no. 8 (planned S-8) through Bialystok and the most valuable nature sites in NE Poland. The Road Agency approved those strategic studies in July 2008 and presented them to the Ministry of Environment and the Chief Sanitary Inspection for their opinions.

However, the recommendations of the SEA were translated into a decision on the routing of planned expressways in north-eastern Poland only two years later. In late 2009 the Council of Ministers endorsed a new order for the network of national roads and motorways modifying the shape of expressway as suggested in the ‘Strategy for Via

250 http://viabaltica.scottwilson.com.pl/index.php?option=com_content&task=view&id=6&Itemid=4

Baltica express development' and SEA report. This shows that SEA results were implemented with long delay.

4.2 Finalisation and incorporation of SEA results

After detailed studies and wide public consultations, the SEA experts recommended the road along Lomza town as the best route for 'Via Baltica' (Budzisko – Suwalki – Raczki – Cimochoy – Kalinowo – Elk – Nowa Wies Elcka – Szczuczyn – Stawiski – Lomza – Ostrow Mazowiecka – Wyszkw – Warsaw).

On 20th October 2009 the Polish Council of Ministers amended the Decree on the network of highways and expressways, deciding on a new routing for the entire Polish section of Via Baltica expressway. This has been welcomed by environmental groups as a major progress for the conservation of Poland's unique nature and represents a significant step in the right direction towards the proper implementation of Polish and European environmental legislation. The new route follows the findings of a Strategic Environmental Assessment that was recommended by the 2003 Bern Recommendation.

In February 2010 (as a consequence of amending the Decree), the construction of the expressway Bialystok – Augustow was removed, at the request of the Ministry of Infrastructure, from the indicative list of major projects under the Operational Programme "Infrastructure & Environment" 2007 – 2013.

An alternative expressway along the national road 61 is going to be developed instead. However, the project is not yet at a stage where it could apply for 2007-2013 Cohesion Policy funding.

The decision to build the international corridor on the western route (via Lomza expressway S-61) ensures that the expected transit stream of heavy vehicles will not have negative impacts on three Natura 2000 sites (Biebrza Marshes, and Knyszyn and Augustow Primeval Forests).

5.0 Conclusions

The re-routing of the first pan-European transport corridor (Via Baltica) in line with environmental considerations was driven by EU legislation. The proactive attitude of EU institutions as well as NGO involvement created an effective safeguarding mechanism which prevented negative impacts on Natura 2000 sites. The fact that the project was going to be financed under Cohesion Policy attracted particular attention of European institutions.

Although overall **effectiveness of the SEA Directive** is being questioned, the Via Baltica case proves that it can be an excellent tool to reconcile trade-offs between economic development and environmental sustainability. Applying SEA facilitated a multi-variant analysis and helped solve the problem of possible collisions with Natura 2000 sites on a macro scale. Assessments of needs and economic analysis carried out on this level are also more valuable. Altogether, it leads to a situation in which the project gains public acceptance, because its justification, coming from different angles, is visible to the public.

As indicative lists of major project, especially in CEE countries, are to a large extent a result of political ambitions and there is pressure to quickly implement these projects, the **outcomes of environmental impact assessments are not necessarily taken into account**. Moreover,

impact assessments are carried out after the inclusion of the project in the major project list. Therefore, it seems reasonable to conduct SEA at an earlier stage, in order to exclude or reconsider badly designed or environmentally harmful projects. It could help also to assess the cumulative impact of infrastructures development on the Natura 2000 network. This would be in line with Article 6.3 of the Habitats directive, which entails assessment of impacts of projects “with combination with other plans of projects”. The proper SEA process would prevent the so-called “piecemeal” approach to EIA, where impacts are assessed for e.g. short sections of a motorway, separately for each project, without looking at their cumulative (joint) impacts and all possible alternatives.

As underlined by many interviewees, the SEA should be implemented not only for future OPs and their indicative lists of major projects, but also in the current process of TEN-T revision.

Based on lessons learned from the re-routing of the Via Baltica and the Augustow Bypass case, it appears that the quality of EIA and of specific assessment according to Art. 6 of Habitats Directive have improved. Moreover, it also appears that public participation in the transport infrastructure development field has also improved. This applies especially to region of NE Poland and for major transport projects designed to be co-financed by the EU.

Implementation of Cohesion Policy investments in Poland, particularly in the field of transport, led to institutional reforms enabling smoother and higher quality SEA procedures, which is a positive “spillover” effect. In 2008, the General Directorate for Environmental Protection was established, together with 16 Regional Directorates. One of the primary tasks of these institutions is carrying out EIA procedures and management of Natura 2000 sites. The creation of these new, independent institutions ensured extra capacities to deal with EIAs for transport projects. In fact one of the aims of the institutional reform was to facilitate implementation of transport investments funded by the EU, which before had been delayed due to problems with environmental procedures. .

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7.0 Interviews

- Jerzy Doroszkiewicz, the Polish Road Agency, branch in Białystok
- Małgorzata Gorska, Polish Society for Protection of Birds (OTOP)

- Wacław Jastrzebski, URS/Scott Wilson
- Marta Wisniewska, WWF Poland
- Jaroslav Straka, European Commission, DG Regional Policy

Activity (Cd)	DP A	Description	Budget EU
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 225 000 000
10	E	Telephone infrastructures (including broadband networks)	€ 150 000 000
16	E	Railways	€ 504 501 472
17	E	Railways (TEN-T)	€ 3 902 505 126
19	E	Mobile rail assets (TEN-T)	€ 486 296 020
20	A	Motorways	€ 1 726 068 500
21	A	Motorways (TEN-T)	€ 7 705 135 675
22	A	National roads	€ 1 924 880 452
27	F	Multimodal transport (TEN-T)	€ 111 255 539
28	F	Intelligent transport systems	€ 140 000 000
29	A	Airports	€ 403 484 082
30	A	Ports	€ 424 793 876
31	E	Inland waterways (regional and local)	€ 80 913 119
34	A	Electricity (TEN-E)	€ 206 550 000
35	A	Natural gas	€ 388 430 000
36	A	Natural gas (TEN-E)	€ 198 900 000
37	A	Petroleum products	€ 153 000 000
39	F	Renewable energy: wind	€ 181 511 977
40	F	Renewable energy: solar	€ 11 943 873
41	F	Renewable energy: biomass	€ 257 878 841
42	A	Renewable energy: hydroelectric, geothermal and other	€ 46 015 244
43	E	Energy efficiency, co-generation, energy management	€ 278 087 766
44	B	Management of household and industrial waste	€ 1 021 864 921
45	B	Management and distribution of water (drink water)	€ 278 394 255
46	B	Water treatment (waste water)	€ 2 518 048 295
47	B	Air quality	€ 62 500 000
48	B	Integrated prevention and pollution control	€ 55 000 000
50	D	Rehabilitation of industrial sites and contaminated land	€ 203 100 102
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 89 800 000
52	E	Promotion of clean urban transport	€ 2 014 041

			961
53	C	Risk prevention	€ 607 563 536
54	C	Other measures to preserve the environment and prevent risks	€ 10 000 000
58	D	Protection and preservation of the cultural heritage	01 020 000
59	A	Development of cultural infrastructure	€ 303 950 000
75	A		€ 210 000 000
76	A	Health infrastructure	€ 349 990 000
85	0	Preparation, implementation, monitoring and inspection	€ 550 429 280
86	0	Evaluation and studies; information and communication	€ 30 829 862
TOTAL			€ 27 913 683 774,0

1.19 POLAND: WARSAW-LODZ RAILWAY UPGRADE

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1.0 Executive summary

- This major project case study examines the upgrade of the railway line connecting Poland's capital, Warsaw, with the country's third largest city, Lodz.
- The project consists of two phases: the first one, focusing on the Skierniewice – Lodz Widzew section of the railway, has been completed under Cohesion Policy 2004-2006 (ERDF); the second phase, focusing on the remaining sections, is planned to be carried out under the 2007-2013 framework (Cohesion Fund)
- The first phase has already brought significant improvements in terms of train speed and railway line capacity
- The EU co-financing was crucial, because otherwise, due to the low profitability of the railway line, it would have been impossible to finance the upgrade. At the same time, the improved state of the railway attracts more trains, generating more income through infrastructure charges, which makes it much easier for the infrastructure manager to finance operation and maintain the railway line.
- The project is perceived as good practice in terms of taking environmental considerations into account, in particular in relation to protection of natural habitats and ecological corridors
- The public consultations preceding the investment are also regarded as good practice; they were conducted more extensively than required by national law; the fact that the project was co-financed by the EU was a key factor in ensuring such a thorough consultation process
- The project is supposed to contribute to a modal shift to a less GHG-intensive transport mode and it improves mobility, allowing easier commuting to work. It can be attributed to development path E (eco-efficiency).
- The project is resulting in an increase in train connections between the two cities; the actual effect on modal split has not been possible to measure yet, but the shift of passengers to rail is highly probable (judging e.g. by the reduction in bus connections)
- The project is cost-effective in relation to some other railway investments in Poland when taking into consideration the achieved reduction in travelling time

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	
	Partnerships	
	Consultation	X

2.0 Background and Context

On 7 December 2007 the European Commission approved an operational programme in Poland for the period 2007-2013, entitled the "Infrastructure and Environment Operational Programme". This programme involves Community support for Poland within the framework of the "Convergence" objective. The total budget of the programme is € 37.56 billion. The Community assistance amounts to € 22.18 billion from the Cohesion Fund and € 5.74 billion from the ERDF. It is the biggest Operational Programme in Poland (the EU contribution is approximately 41% of the total EU support for Poland under Cohesion policy 2007-2013). This is also the biggest-ever operational programme in the whole of the European Union.

The Infrastructure and Environment Operational Programme aim to address development difficulties in Poland caused by the degradation or by the lack of infrastructure. Its objective is supporting the development of technical infrastructure, and simultaneously protecting and improving the condition of the natural environment and health as well as preserving cultural identity and developing territorial cohesion.

For achieving the program objectives 15 priority Axis are designed:

- Priority 1: Water and sewage management – Cohesion Fund
- Priority 2: Waste management and the protection of the earth – Cohesion Fund
- Priority 3: Resource management and counteracting environmental risks – Cohesion Fund
- Priority 4: Initiatives aimed at adjusting enterprises to the requirements of environmental protection – ERDF
- Priority 5: Environment protection and the promotion of ecological habits – ERDF
- Priority 6: TEN-T road and air transport network – Cohesion Fund
- Priority 7: Environment-friendly transport – Cohesion Fund
- Priority 8: Transport safety and national transport networks – ERDF
- Priority 9: Environment-friendly energy infrastructure and energy efficiency – Cohesion Fund
- Priority 10: Energy security, including the diversification of energy sources – ERDF
- Priority 11 Culture and cultural heritage – ERDF
- Priority 12 Health, safety and improvement of health protection system – ERDF
- Priority 13 Higher education infrastructure – ERDF
- Priority 14 Technical assistance – ERDF and
- Priority 15 Technical assistance – Cohesion Fund

The analysed project is part of indicative list of major project from Operational Programme – Infrastructure and Environment for years 2007-2013²⁵¹ under Priority Axis 7, Environmentally friendly transport. The priority axis purpose is to increase the ratio of alternatives to road transport in the overall passenger and cargo transport picture (railway transport, sea transport, public transport in metropolitan areas, multimodal transport, inland waterways) This will result in a better balance of the transport system, decrease the negative effects of transport on the environment and limit traffic congestion.

²⁵¹ Information about Warsaw-Lodz modernisation works on www.plk-sa.pl, accessed in September 2010

2.1 Current status of the environment

The table below summarises the results of the contextual environmental analysis, which are relevant to the transport sector, presented in the OP Infrastructure and Environment.

Table 1 Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Climate change	The most significant economic factors which affect the implementation of the provisions of the United Nations Framework convention concerning climate change and the Kyoto Protocol are as follows: low profitability level of enterprises (which does not allow for allocating necessary means for technical and technological modernisation) and the dynamic development of car transport. However, the emission of greenhouse gases in Poland has decreased by 30% between 1989 and 2004 due to the economic transformation processes in the country, and thus Poland has fulfilled the requirement to reduce the emission of greenhouse gases by 2012.
Air pollution	The monitoring of the air pollution shows that the concentration of SO ₂ , NO _X and CO ₂ is decreasing. Instances of exceeding the acceptable norms are not registered or rarely registered and local in nature. One of the common pollution factors, with a fairly high concentration frequently exceeding acceptable norms, particularly in towns and cities, is suspended dust PM ₁₀ . There is also a high concentration of ozone.
Excessive noise	The condition of acoustic climate in Poland is deteriorating. This results from the systematic growth of the automobile industry, a global increase in the number of cars, the speed of cars and the spread of the intensified car traffic into territories with previously proper acoustic climate. The group of acoustic hazards includes: traffic noise, railway noise, industrial noise and air noise.

CO₂ emissions from road transport sector, relevant to the analysed case study, have risen twofold between 1990 and 2007. There is not sufficient evidence to assess the effect of Cohesion Policy interventions on GHG emissions from the transport sector. Modernisation of the road network is expected to reduce congestion. On the other hand the average speed on new express roads and motorway is higher which increases emissions per kilometre travelled. At the same time, measures supporting environmentally friendly transport have the potential to stimulate reduction of GHG emissions.

It should be noted that reduction of GHG emissions from transport sector requires implementation of complex policies/measures aimed at promoting sustainable transportation. The GHG emission forecasts for two scenarios: (1) anticipating continuation of current trends, and (2) anticipating promotion of sustainable transportation were analysed by the Institute for Sustainable Development (Institute for Sustainable Development , 2009).

The SWOT analyses of the transport sector from the OP Infrastructure and Environment outline following weaknesses related to rail transport:

- Poor condition of the railway infrastructure negatively influencing the speed and travelling comfort as well as attractiveness of goods transport
- Worn out and obsolete railway stock reducing the competitiveness of railway services and the use of technical parameters of modernised lines
- Low quality of railway services and difficulties with railway financing

2.2 Current Investment context

Overall Community assistance to the transport sector under OP Infrastructure and Environment amounts to € 19.4 billion. 58.5% is allocated to road construction and modernisation, 25.2% is allocated to development of railway systems and 10.4% to urban transportation. Other investments (i.e. airports, ITS, multimodal systems, ports/waterways) represent small fraction of the overall transport budget

Table 2 Breakdown of finances by priority axis is presented in the table.

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
Water and sewage management	2 783 942 550	491 283 979	3 275 226 529
Waste management and the protection of the earth	1 215 740 049	214 542 362	1 430 282 411
Resource management and counteracting environmental risks	556 788 510	98 256 796	655 045 306
Initiatives aimed at adjusting enterprises to the requirements of environmental protection	200 000 000	467 000 000	667 000 000
Environment protection and the promotion of ecological habits	89 800 000	15 847 059	105 647 059
TEN-T road and air transport network	8 802 366 611	1 745 929 233	10 548 295 844
Environment-friendly transport	7 676 019 211	4 385 979 953	12 061 999 164
Transport safety and national transport networks	2 945 490 000	519 792 353	3 465 282 353
Environment-friendly energy infrastructure and energy efficiency	748 037 701	655 009 248	1 403 046 949
Energy security, including the diversification of energy sources	974 280 000	718 931 765	1 693 211 765
Culture and cultural heritage	489 970 000	86 465 294	576 435 294
Health, safety and improvement of health protection system	349 990 000	61 762 941	411 752 941
Higher education infrastructure	500 000 000	88 235 294	588 235 294
Technical assistance – ERDF	187 800 000	33 141 176	220 941 176

Technical assistance – Cohesion Fund	393 459 142	69 433 966	462 893 108
Total	27 913 683 774	9 651 611 419	37 565 295 193

The priority Axis 7 Environment-friendly transport has the following investments focus

- railway transport,
- sea transport,
- municipal public transport in metropolitan areas,
- multimodal transport,
- inland water-way transport

The estimated effects of implementing the Priority Axis are:

- increasing the rate of transport alternative to road transport in the passenger and cargo transport (railway transport, sea transport, intermodal transport, inland water-way transport, public transport in metropolitan areas),
- better balance of the transport system,
- decreasing the negative effects of transport on the environment,
- decreasing traffic congestion.

3.0 The Warsaw-Lodz Railway upgrade

Warsaw is the biggest city in Poland and Lodz is currently the third largest city in Poland. They are capitals of two neighboring regions: Mazowieckie and Lodzkie, which differ significantly in terms of economic conditions. The average monthly salary in Warsaw is 1.5 times the one in Lodz. The unemployment rate is 3 times lower in Warsaw than in Lodz. Unlike in Lodz, the number of people living in Warsaw is increasing²⁵². These socioeconomic factors are illustrated by the data in the table below.

Table 3 Socio-economic factors

Year 2009	Warsaw	Lodz
No. of inhabitants	1 714 446 (+1,3% in 5 yrs)	742 387 (-4,1% in 5 yrs)
Average monthly salary	4603.26 PLN	3159.24 PLN
Unemployment rate	2.9%	9.5%

Source: Main Statistical Office of Poland, Bank of Regional Data, www.stat.gov.pl

As the rail distance between Warsaw and Lodz main train stations is relatively small (129 km), there is intensive passenger transport, which involves not only tourists, but also regular commuters. Additionally, the conditions of road connections between those cities are very poor (though this will change in 2013 when the A2 motorway is completed) and traffic congestion among the two cities' centres is common. As a result of these shortcomings, rail transport appears to be a very competitive option for passengers between these two cities. Nevertheless, since 1990 the railway line between Warsaw and Lodz deteriorated due to lack of public financing and a slump in the volume of railway transport, which has characterised the majority of Polish railway lines. In 2006, it took over two hours (128 minutes) for a regional train to connect main stations in Warsaw and Lodz, which gave an average speed of

²⁵² Bank of Regional Statistical Data on www.stat.gov.pl, accessed at September 2010

62 km/h. In a few spots between Skierniewice and Lodz trains could not go faster than 20 km/h. Table 2 prepared by experts from Sustainable Transport Center gives an overview of passenger train speed on main railway links in Poland in 2006. The railway between Lodz and Warsaw is one with the slowest average speed available.

Table 4 Passenger trains speed in Poland

STAN OBECNY	Warszawa	Łódź	Kraków	Wrocław	Poznań	Gdańsk	Szczecin	Lublin	Katowice
Warszawa									
Łódź	2:01 - 65,4 km/h								
Kraków	2:47 - 104,5 km/h	3:52 - 76,2 km/h							
Wrocław	4:52 - 78,9 km/h	3:52 - 62,8 km/h	3:49 - 66,8 km/h						
Poznań	2:47 - 109,9 km/h	3:21 - 73,7 km/h	6:09 - 64,7 km/h	2:04 - 79,8 km/h					
Gdańsk	4:02 - 81,3 km/h	5:56 - 65,6 km/h	7:02 - 88 km/h	6:37 - 72,2 km/h	4:26 - 70,7 km/h				
Szczecin	5:19 - 97,6 km/h	5:35 - 82,6 km/h	8:46 - 69,8 km/h	4:42 - 80,6 km/h	2:15 - 95,1 km/h	5:12 - 71,9 km/h			
Lublin	2:21 - 74 km/h	3:59 - 66,5 km/h	4:54 - 64,1 km/h	7:55 - 63,5 km/h	5:18 - 90,4 km/h	6:55 - 65,0 km/h	7:55 - 87,5 km/h		
Katowice	2:34 - 115,3 km/h	3:11 - 72,6 km/h	1:16 - 61,6 km/h	2:27 - 73,5 km/h	4:49 - 73,7 km/h	7:14 - 84,1 km/h	7:23 - 72,3 km/h	5:13 - 71,5 km/h	
Rzeszów	5:09 - 59,8 km/h	7:00 - 64 km/h	1:51 - 85,4 km/h	5:59 - 71,2 km/h	8:39 - 90,4 km/h	9:39 - 64,4 km/h	10:14 - 78,7 km/h	3:53 - 52,3 km/h	3:50 - 61,6 km/h

czas jazdy przyjęty dla najwyższego czasu przejazdu średnio dla jednego i drugiego kierunku

Source: Sustainable Transport Center, Report nr 4/2006, www.czt.zm.org.pl

At the same time the number of direct train connections between those cities as well as other commuter trains passing through this railway section was one of the highest in Poland. In average, about 6800 passengers²⁵³ travelled between Warsaw and Lodz each day using direct trains. All trains on that line were of local or regional type; no Express or InterCity trains used the route. Freight traffic on the studied railway line was not intensive.

The railway line is owned and maintained by PKP Polish Railway Lines (PLK) S.A., the national railway infrastructure management company. This line is not a part of the AGC254 agreement or of a TEN-T corridor. However, it is an AGTC²⁵⁵ corridor (nr CE65/1), characterised by high passenger traffic. The upgrade of this railway was based on provisions of the National Development Plan 2004-2006, Community Support Framework and Sectoral Operational Program Transport for years 2004-2006. The NDP 2004-2006 prioritised investment in railways which belong to the AGC and AGTC agreements and carry high train traffic and those two criteria are met by this railway line²⁵⁶.

The low number of freight trains and lack of Express / InterCity trains on this line contribute to low profitability records. Since in Poland, as in many other European countries, charges for freight transport are much higher than charges for passenger transport, having more intense freight traffic would facilitate the operation and maintenance of the railway. In addition the charges for Intercity and Express trains are generally higher than those for local and regional ones. Hence, the low intensity of Express/Intercity transport also reduces the overall profitability of the line operation. Therefore, the incentive to upgrade the line and the means to do so without the support of EU co-financing are low.

²⁵³ Presentation of Jacques Dirand from CER on the conference in Malmoe at 20 March 2010.

²⁵⁴ European Agreement on Main International Railway Lines, United Nations Economic Commission for Europe, 31 May 1985, http://www.unece.org/trans/conventn/AGC_e.pdf

²⁵⁵ European Agreement on Important International Combined Transport Lines and Related Installations (AGCT), 1 February 1991, <http://live.unece.org/fileadmin/DAM/trans/conventn/agtce.pdf>

²⁵⁶ National Development Plan for years 2004-2006

Regional and local trains are subsidised through state funds, but as public funds for the local and regional trains are limited, the operating train companies tend to have difficulties paying their bills to the railway operators on time. In this scenario, the railway line between Warsaw and Lodz could not be properly maintained or modernised using the budgetary resources of the railway infrastructure management company. This may have led to cross subsidies between freight and passenger traffic²⁵⁷. Seeking a public funding from EU Cohesion Policy was probably inevitable. At the same time, thanks to a significant increase in train speed, the upgrade of the railway is an incentive to introduce more profitable passenger trains on the Warsaw – Lodz line, which will make it easier for the infrastructure manager to finance operation and maintenance.

Another reason for the need of European Union co-financing was the general deficit of public funds for railway maintenance in Poland, resulting from the somewhat liberalised, but still quite monopolised railway market. PKP PLK S.A. is a state owned corporation and it is expected to earn money to satisfy most of the maintenance and investments need by itself. PKP PLK S.A. has a monopoly on the entire railway network in Poland (except for a few railways, which were previously part of the mining companies internal transport system). About one-third of these railway lines generate only costs, with no income at all, because of very low train traffic²⁵⁸. This reduces the profitability of the overall monopoly and it inevitably reduces the level of investments. Investments in rail infrastructures in Poland appears to be among the lowest in the European Union, with only about 4000 EUR per 1 km (22 out of 25 EU member states) for the time period 2002-2006, in spite of the fact that charges on access to infrastructure are relatively high for commercialised freight transport (1,5 time higher than EU25 average) [8]. In this situation additional sources of funds for investments are needed.

Non-governmental specialists from Sustainable Transport Center have concluded that the project was very cost effective if compared to other railway upgrade projects in Poland. Their calculations show that for the modernisation of a link between Skierniewice and Koluszki (part of Warszawa-Lodz railway), the cost of 1 minute travel time reduction on the entire line was only 9 million PLN (2,25 million EUR) in comparison to more than 30 million PLN (7,5 million EUR) in other modernisations. Cost of the reduction of 1 minute travel time for one train journey was only 91,000 PLN (22,750 EUR). Other modernisations had resulted in such time reductions for more than 600 thousand PLN (150,000 EUR)²⁵⁹. Table 5 gives an overview of effectiveness of various railway upgrades done or foreseen in Poland in years 2000-2006, including the Skierniewice-Koluszki section of the studied railway line, including comparison of cost per one minute of aggregated time savings for the number of passenger trains running on each line daily (the more trains, the more time savings).

²⁵⁷ Towards a Sustainable Land Transport Sector, Poland Transport Policy Note, World Bank, February 2011

²⁵⁸ Presentation of Jacques Dirand from CER on the conference in Malmoe at 20 March 2010.

²⁵⁹ Sustainable Transport Center, Report nr 3/2006, „Ocena efektywności modernizacji i remontów linii kolejowych w Polsce”, report can be accessed on www.czt.zm.org.pl

Table 5 Cost effectiveness of railway upgrades

Railway	Overall cost of works	Cost per 1 km of renewed railway link	Cost per 1 minute of travel time improvement ²⁶⁰	Cost per 1 km for 1 train	Cost per 1 minute for one train
	Million PLN			Thousands PLN	
Modernisation					
Minsk Mazowiecki-Siedlce (ISPA 2000/PL/16/P/PT/002)	484.004	4.654	32.267	97.5	675.9
Skierniewice-Koluszki (part of SPOT/1.1.1/82/04)	456.946	5.711	9.934	52.3	91
Brzeg - Opole	400	5	66.667	51.7	689.4
General maintenance works					
Wolbrom-Olkusz	15	0.652	1.316	62	204
Deblin - Pulawy	26.632	1.068	26.632	15	375.2
Szczecin Dabie - Swinoujscie	66.406	2.075	3.906	65	123
Tunel – Krakow	30.279	1.316	1.513	9.1	10.5
Main renovation					
Slawno - Darlowo	15	0.79	0.405	9	46

Source: Sustainable Transport Center, Report nr 3/2006, www.czt.zm.org.pl

4.0 Governance

Management of the project was assigned to the rail infrastructure manager PKP PLK S.A. and its Investment Unit. A designated project team was responsible for its management and it cooperated closely with a regional branch of PKP PLK S.A. in Lodz. Other units in PKP PLK S.A. such as Monitoring Unit, Promotion Unit, Environmental Department and Center for Railway Traffic Management were also involved in the project. The construction site was monitored very often – 26 times during the two-years construction phase, not only by PKP PLK S.A. itself, but also by representatives of railway operators, Polish ministries, Tax Office and European Union. PLK S.A. implemented the first phase of the project by granting 4 contracts to subcontractors. Two of them concerned construction work on the subsections of the railway line: Skierniewice-Koluszki, Koluszki – Łódź Widzew. The third contract related to a separate system of LCS for installation on the Koluszki railway station. The fourth contract was granted only for the management and control of the realized works. Sometimes there were problems in cooperation between those subcontractors which needed to be solved on the site by the Monitoring Unit or at monthly monitoring meetings.

All of the works were carried out without total closure of the railway line. Center for Rail Traffic Management was responsible for changes in railway timetable during the construction works. The timetable changed at that time even every two weeks and this was very negative from the point of view of the passengers and railway operators. In Poland railway operators

²⁶⁰This figure takes into account the number of passenger trains per day on the each line (data from year before modernisation); the cost relates to the aggregated saved time of that number of passenger trains

are responsible for informing about the timetable changes. Representative of Przewozy Regionalne, which ran the most of passenger trains on the line at that time, said that in most cases they did not manage to inform passengers about the changed timetable 7 days before the change, as it is required by Polish law. PKP PLK S.A. informed them about the changes too late. He said that the company introduced a special informing system for passengers (leaflets, posters, station announcements etc.), but could not count on the compensation for the timetable and train disruptions from the railway infrastructure management company. On the contrary, Przewozy Regionalne suffered losses because of the lower number of passengers and of the additional costs of the special information system.

4.1 Environmental Impact Assessment

At the time of preparation of the first stage of the investment, the transposition of EU legislation was incomplete and the public participation process was not embedded in Polish legislation. Polish EU funds applicants were advised by the Ministry of Regional Development to carry out the EIA and public consultation according to EU guidelines and not Polish law²⁶¹. Thus, public consultation for the first phase of the project was carried out by PKP PLK S.A. in 2005. It organised 4 public meetings in municipalities along the railway route and it collected and responded to public proposals concerning environmental issues. The entire process was summarised in a report by an NGO, which was advising PKP PLK S.A. in this consultation procedure. According to the view of another NGO expert from Zielone Mazowsze association, PKP PLK S.A., just as other companies who followed EU guidelines at that time, carried out the public consultation in a way which can be considered a good practice in Poland, if not even on a European Union scale.

On the other side, officials from PKP PLK S.A. who managed this consultation process say that it attracted fewer people than they expected and brought in mostly non-environmental proposals. They argue that for the sake of ensuring maximum environmental protection it was rather more useful to have a good quality Environmental Impact Assessment study, including an inventory of natural habitats and ecological corridors. The public demanded mostly that train stations should be located in more user-friendly places, trains should go substantially faster and modernisation works should not disrupt trains schedule substantially, especially during the peak hours. It was the EIA and other expert studies that showed places suitable for noise reduction walls, additional anti-noise windows insulation, underpasses for wildlife (dry pavements) and reflection systems to signal wildlife about the approaching train during the night. This railway line goes through only one Natura 2000 area, where it crosses the Rawka river near Skierniewice. The possibility for wild animals to migrate under the railway bridge was improved during the modernisation. There is also a new system of water outflow from the railway preventing oils from spilling to the surface waters²⁶². For the first time in Poland, anti-noise and anti-vibration rail track constructions have been used.

The ex-post assessment study is currently in preparation. In this framework, PKP PLK S.A. has had only one request for more noise reduction walls since the modernisation ended. The representative of Skierniewice town hall complained about the noise reduction walls, as in his opinion they have been badly located and do not properly protect from noise. An internet questionnaire revealed some negative opinions about the way historical heritage was

²⁶¹ Szymalski Wojciech, article „Fundusze unijne a jakość procedur Ocen Oddziaływania na Środowisko”, Zielone Światło bulletin nr 6 (spring 2006), Zielone Mazowsze

²⁶² Information from 13 May 2008 about realization of the I phase of Warsaw-Lodz modernization works on www.pkp.com.pl, accessed in September 2010

compromised on Żakowice, Andrzejów and Gałkówka stations and concerns were raised on the aesthetics and functionality of new train stations (especially in Koluszki)²⁶³. At the same time interviewees of this case study were convinced that all of the historical monuments were preserved. These negative opinions can be considered minor in comparison to the general positive opinions about the project.

Public consultation and EIA procedure for the second phase of modernisation followed the Polish Environmental Protection Act, and was realized in 2009. The procedures were carried by a recently established new type of governmental agency – Regional Directorate on Environmental Protection. The modernisation works of the second phase only started in September 2010.

4.2 Investments

PKP PLK S.A. applied for ERDF co-financing of the first phase of the project via Polish Sectoral Operational Program Transport (SPOT) for years 2004-2006. The project was classified under the priority axis “Modal Balance Transport Development” and measure “Modernization of railways between and in city agglomerations”. It was implemented according to the grant agreement nr SPOT/1.1.1/82/04. The contract guaranteed 905.2 million PLN (226 million EUR) of qualified costs where 75% came from ERDF and 25% by Polish State Budget.

The second phase of the project is a foreseen for funding from Operational Programme – Infrastructure and Environment for years 2007-2013 under Priority Axis 7, Environmentally friendly transport, Measure 7.1, Development of Rail Transport. There are three complimentary projects on the indicative project list for the OP:

Table 6 Project phases

Lots	Project name	Total cost (PLN million)	EU co-financing (Cohesion Fund)	EU co-financing rate	Project duration
LOT A	Modernization of railway line Warszawa-Lodz, stage 2, LOT A Warszawa Zachodnia - Skierniewice	1815.90	1088.92	ca. 60%	2010-2012
LOT B	Modernization of railway line Warszawa-Lodz, stage 2, LOT B – Lodz Widzew – Lodz Fabryczna together with underground Lodz Fabryczna station	1888.20	1227.33	ca. 65%	2011-2014
LOT C	Modernization of railway line Warszawa-Lodz,	123.31	80.15	ca. 65%	2010-2012

²⁶³ Articles from the www.zm.org.pl website: „Wnioski ws. modernizacji linii kolejowej Warszawa - Radom – Kielce”, Krzysztof Rytel

	stage 2, LOT C – remaining works				
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The contract for LOT A has been signed on October 18, 2010 with the project value increased to 2,215,333,931 PLN and Cohesion Fund co-financing of 1,088,881,120 PLN (49%)²⁶⁴. Unlike under the 2004-2006 framework, the projects are going to be financed from Cohesion Fund and not from ERDF. The foreseen EU co-financing is lower than in the first phase of the project which results from application of Art.55 of the General Regulation 1083/2006 on revenue-generating projects.

Completion of LOT A itself will contribute to further reduction in travelling time between Warsaw-Lodz as it concerns the major part of the railway line (Warsaw – Skierniewice). The remaining projects, LOT B and LOT C will not affect travel time significantly. The high cost of LOT B is caused by the planned underground station in the centre of Lodz (Lodz Fabryczna) – apart from the station the LOT B part of the project will only concern 8 km of the tracks.

The decision shift the station underground has been justified by the plans to connect the station via a tunnel with the westbound railway line and in the future integrating the station and the tunnel link into the projected high speed line Warsaw – Lodz – Wroclaw/Poznan. The cost-effectiveness of this solution could be questioned according to some interviewees.

5.0 Implementation and Absorption

In the past, deterioration of services on this railway line have resulted in more passengers travelling by car, or generally by motorised transport, between Warsaw and Lodz. The visible effect of this could be seen especially during the modernisation works, when travel time was even longer than earlier. At that time, private coach companies were opening direct Warsaw-Lodz shuttle connections, offering a better service in terms of comfort and time of travel than the railway. The loss of passengers on this line could start a vicious circle by limiting number of trains, meaning less money for the railway management company resulting in further deterioration of the railway due to a halt in investments. Modernisation of the railway reversed this trend. Faster trains are carrying now more passengers than before and this led train companies to run more trains on the line. Liberalisation of the market worked in this case, as new trains were run by a railway company which started competing with the already existing train connections. This competition shows that new technical parameters of the line can generate more income to the railway infrastructure manager, because of the higher number of trains, and help in better maintenance of the renewed railway. It shows also that modernisation could help in reducing the need of state grants. Railway operation have simply become more favourable and competitive, as expected positive results of a formal liberalisation of the railway market could occur.

The representative of Skierniewice city authorities was convinced about the positive impact of the modernisation on regional development. A lot of people from Skierniewice and its surroundings travel daily to Warsaw and Lodz. Skierniewice presents itself as a far suburb of Warsaw and Lodz and modernisation of the railway reduces the distance between these cities and improved the socio-economic conditions of Skierniewice population.

²⁶⁴ <http://www.cupt.gov.pl/?id=163>

The project can be attributed to development path 5 (eco-efficiency) as it contributes to satisfying the demand for transport, encouraging the shift to rail which is a less GHG-intensive transport mode than road traffic. It should be noted that the project involves an existing railway line and improved the overall environmental impact of the rail traffic on nature (e.g. by providing better animal passages).

In addition to supporting a transport mode which is less GHG intensive, the project improved the situation of people living along the railway, who commute every day to work in Warsaw, where the labour market situation is much more favourable. In this sense, the project can be considered a win-win scenario.

5.1 Absorption

The first phase of the project, which regarded the section of the railway line between Skierniewice and Lodz, was implemented in 2006-2008. It was finished in June 2008, without delays. Modernisation included the following works:

- exchange of railway tracks - total length 68.5 km
- exchange of 160 railway junctions
- exchange of railway electricity lines of total length 130.87 km
- construction of two, new pedestrian underpasses in Koluszki and Rogowo
- modernization of 2 bridges, 4 viaducts, 37 railway crossings
- modernization of railway automatic and communication systems with introduction of LCS railway management system.
- modernization of 30 station platforms
- 65 km of modernized railway supporting infrastructure

This maintenance work allowed trains running at speeds of 140-160 km/h.

However, although the project envisaged only modernisation of the infrastructure, it was complemented by another EU project, namely the purchase of new passenger rolling stock dedicated to this modernised railway line. Old locomotives and railcars which run on this railway had a construction speed limit of 120 km/h. New rolling stock was introduced on this line almost directly after modernisation works and allowed taking advantage of new speed and capacity possibilities. It runs at 130 km/h, but could be running at 160 km/h in the future, when formal obstacles are removed²⁶⁵. This coordination of infrastructure and rolling stock modernisation resulted in very positive improvement of quality for passengers and promotion of railway among the general public.

Absorption of EU funds in railway transport remains alarmingly low (19.44% of the allocation contracted in OP Infrastructure and Environment). The first phase of the described project was implemented relatively fast – throughout two years; the second phase which is currently under implementation was one of the first railway projects to be implemented in the 2007-2013 period).

Success factors which have contributed to the fast implementation and general good perception of the investment, mentioned by interviewees are:

²⁶⁵ Articles from the www.zm.org.pl website: „Pociągi Warszawa - Łódź nie pojadą 140 km/godz.”, Stanisław Biega

- Coordination of the upgrade with the purchase of new rolling stock which would be able to take advantage of the increased possible speed.
- Cost-effectiveness of the project in relation to the effect in terms of travel time.
- The project was beneficial to the local communities on the railway and therefore its implementation was prioritized

6.0 Conclusions

The modernisation of Warsaw-Lodz railway line can be considered a success story. The project used EU funding where public infrastructure could not be properly maintained as most of the services on the line were also publicly subsidised. The construction work was designed with due care and attention to environmental concerns and passengers' preferences. Particularly, the public consultations can be considered a good practice on a national scale. Proper attention has been to nature protection issues and appropriate solutions were applied not only to protect Natura 2000 sites, but also other habitats and ecological corridors. The project was managed effectively and to the extent possible the original railway timetable and capacity was maintained during the modernisation works.

The project brought visible results in terms of time savings and quality of service for the passengers. Modernisation improved the profitability of the service. Faster trains are now competitive to the car transport and there are indications of an impact on modal shift (increase in offer of passenger trains, decrease in coach services). It should be noted, however, that the effect on modal split could be reversed when the motorway A2 from Warsaw to Lodz is opened in 2013.

The railway upgrade project was coordinated with the purchase of rolling stock dedicated to the railway line, allowing more comfortable and faster travel and improving the impact of the upgrade. In this way three of the identified weaknesses were addressed: the state of infrastructure and rolling stock was improved and the railway manager could offer a better service and finance operation more easily thanks to increased revenues from access charges. Without the parallel investment in rolling stock the effect of the upgrade would not be fully utilized.

Thanks to the liberalization of the railway market, in line with EU regulations, and thanks to the large passenger numbers on this railway line, true competition between PKP Intercity and Przewozy Regionalne can begin.

The upgrade of the railway has increased the accessibility of the Warsaw labour market for inhabitants of Lodz and towns along the line. This is important taken into account the significance differences in unemployment rates (Warsaw 2,9% and Lodz 9,5% in 2009) and average salaries in the cities (Warsaw 4603 PLN and Lodz 3159 PLN in 2009).

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- „Wnioski ws. modernizacji linii kolejowej Warszawa - Radom – Kielce”, Krzysztof Rytel
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Results of the monitoring of passenger traffic in Lodzkie Woiwoodship during 2005/2006 railway timetable prepared by Zielone Mazowsze association

Presentation of Jacques Dirand from CER on the conference in Malmoe at 20 March 2010.

“Szanse i bariery utrzymania i rozwoju infrastruktury kolejowej w Polsce” – brochure of PKP PLK S.A., August 2010.

Szymalski Wojciech, article „Fundusze unijne a jakość procedur Ocen Oddziaływania na Środowisko”, Zielone Światło bulletin nr 6 (spring 2006), Zielone Mazowsze National Development Plan for years 2004-2006

8.0 Interviews

- Urszula Michajłow, Tomasz Cnota, Judyta Kurowska – PKP PLK S.A., Bureau for Strategy and Environmental Protection
- Sławomir Gmaj – Secretary of a Municipality of Skierniewice
- Krzysztof Urbaniak – Vice-director of Lodz Branch of Regional Passenger Railways (Przewozy Regionalne) Company
- Zdzisław Lisowski – Technical Director of a Warsaw-Lodz modernisation works, first phase, PKP PLK S.A.
- Jaroslav Straka, European Commission, DG Regional Policy

Activity (Cd)	DPA	Description	Budget EU
2	E	R&TD infrastructure and centres of competence in a specific technology	€ 225 000 000
10	E	Telephone infrastructures (including broadband networks)	€ 150 000 000
16	E	Railways	€ 504 501 472
17	E	Railways (TEN-T)	€ 3 902 505 126
19	E	Mobile rail assets (TEN-T)	€ 486 296 020
20	A	Motorways	€ 1 726 068 500
21	A	Motorways (TEN-T)	€ 7 705 135 675
22	A	National roads	€ 1 924 880 452
27	F	Multimodal transport (TEN-T)	€ 111 255 539
28	F	Intelligent transport systems	€ 140 000 000
29	A	Airports	€ 403 484 082
30	A	Ports	€ 424 793 876
31	E	Inland waterways (regional and local)	€ 80 913 119
34	A	Electricity (TEN-E)	€ 206 550 000
35	A	Natural gas	€ 388 430 000

36	A	Natural gas (TEN-E)	€ 198 900 000
37	A	Petroleum products	€ 153 000 000
39	F	Renewable energy: wind	€ 181 511 977
40	F	Renewable energy: solar	€ 11 943 873
41	F	Renewable energy: biomass	€ 257 878 841
42	A	Renewable energy: hydroelectric, geothermal and other	€ 46 015 244
43	E	Energy efficiency, co-generation, energy management	€ 278 087 766
44	B	Management of household and industrial waste	€ 1 021 864 921
45	B	Management and distribution of water (drink water)	€ 278 394 255
46	B	Water treatment (waste water)	€ 2 518 048 295
47	B	Air quality	€ 62 500 000
48	B	Integrated prevention and pollution control	€ 55 000 000
50	D	Rehabilitation of industrial sites and contaminated land	€ 203 100 102
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 89 800 000
52	E	Promotion of clean urban transport	€ 2 014 041 961
53	C	Risk prevention	€ 607 563 536
54	C	Other measures to preserve the environment and prevent risks	€ 10 000 000
58	D	Protection and preservation of the cultural heritage	€ 101 020 000
59	A	Development of cultural infrastructure	€ 303 950 000
75	A		€ 210 000 000
76	A	Health infrastructure	€ 349 990 000
85	0	Preparation, implementation, monitoring and inspection	€ 550 429 280
86	0	Evaluation and studies; information and communication	€ 30 829 862
TOTAL			€ 27 913 683 774

1.20 PORTUGAL: INTER-COMMUNAL SYSTEM FOR DISTRIBUTION AND CLEANING OF THE WATERS IN ALTO ZEZERE E COA

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1.0 Executive summary

- This case study focuses on a specific project on water distribution and on cleaning of waste-waters of the Alto Zezere and Coa in Portugal which qualified as a major project in the last programming period.
- The most urgent environmental challenge in Portugal is related to **limited water supply** throughout the country and **poor quality of water**
- The Operational Programme Territorial Enhancement aims to contribute to a more **sustainable and balanced territorial development** as well as to an open, more integrated and competitive Portuguese economy
- Priority Axis 2 of the Territorial Enhancement OP focuses on tackling the issue of water supply and waste water management; the project '**Inter-communal system for the distribution and cleaning of water in Alto Zezere and Coa**' has been financed under this axis, with the contribution of Cohesion fund
- Phase 1 and phase 2 of the project have been financed under the 2000-2006 programming period (they were major projects); a third phase of the project, which has also been partially financed in the previous programming period, is expected to be financed **under Priority Axis 2 of the Territorial Enhancement OP**.
- The Inter-communal system aims at increasing the percentage of population (in the area of Alto Zezere and Coa) reached by water supply to **99 per cent** (from 82.9 per cent) and the percentage of population served by waste water treatment to **98 per cent** (from 49 per cent)
- The Inter-communal system has been developed and managed by the **beneficiary company Aguas de Zezere e Coa (AdZC)**, which was created in 2000 for this purpose.
- The fact that AdZC is completely publicly owned and that the EU contribution in the three phases has been constant (approximately 60 per cent for each of the three phases), suggests that the **risk of crowding out** could be relatively high
- The environmental impacts of the project are questionable: the analysis in fact suggests that water pricing in the region does not ensure full cost recovery and that the polluters-pay principle is not applied. The Portuguese government is exploring innovative tools, such as the tariff equilibrium fund to solve this problem.

This report will look to address the following criteria:

Processes of Integration	Criterion	Key question
Strategic	Inclusion	X
	Consistency	X
	Weighting	
	Financial resources	X
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	
	Partnerships	
	Consultation	

2.0 Background and Context

On 12 October 2007, the European Commission approved a **‘Territorial Enhancement’ Regional Operational Programme** for the 7 NUTS II regions in Portugal for the 2007-13 period. The Operational Programme falls within the Convergence Objective framework and has a total budget of around **€6.6 billion**. Community funding amounts to some €4.7 billion (around €1.6 billion through the ERDF and around €3.1 billion through the Cohesion Fund). This represents approximately 21.7% of the total EU investment for Portugal under Cohesion Policy for 2007-2013.

The Thematic Territorial Enhancement Operational Programme is structured along ten priorities: five will be financed by the Cohesion Fund while the remaining five will be financed by the ERDF. The Cohesion Fund investment will allocate 50% of its funds to the transport sector and 50% to the environment and sustainable energy use efforts.

Priority Axis 2 is of particular relevance for this case study. Its aim is to improve public water supply and water treatment systems access in order to achieve better efficiency and reduce water mismanagement. One of the general objectives of the Programme is to increase the share of the population served by the public water supply system to 95% and to increase the share of the population served by water treatment systems to 90%. This is to be done through support for the construction of water supply and water treatment infrastructures. Under the Structural Water Supply Network priority, Portugal has financed the **‘Inter-communal system for distribution and cleaning of the waters of Alto Zezere and Coa’**, on which this case study will focus.

2.1 The Inter-communal system for the distribution and cleaning of waters in Alto Zezere and Coa

The **‘Inter-communal system for distribution and cleaning of waters in Alto Zêzere and Cõa’** was established in July 2000. Its aim is to satisfy the water needs of the population of the region, in quantitative and qualitative terms, and increase the level of treatment of waste waters. It is expected to supply water to approximately 149,000 inhabitants and treat water for 111,500 inhabitants. It serves an area of 6,934 km², corresponding to about 7 per cent of Portugal.

The Inter-communal system is situated in the region of Alto Zêzere e Cõa. The region is located in the North East of the Centro region²⁶⁶ and it generally shares the same difficulties as the rest of the Portuguese hinterland: low population density, high average age and lack of qualifications and inadequate water management, due to the fragmentation of distribution networks and the lack of infrastructure.

The latter challenge appears to be more acute in the North East and Centro Region than in the rest of the country. The share of population served by the supply of water in their houses is lower in the North of Portugal than in the rest of the country (82.9 per cent compared to 99.1 per cent in Lisbon for instance). Similarly, the share of population served by infrastructures for the drainage and treatment of waste water in the North and Centro Region is much lower than in the rest of the country: sanitation systems serve only 49 per cent and 60 per cent of the population in the North and Centro regions respectively.

²⁶⁶ However, the project for the inter-communal system is not part of the Operational Programme of the Centro region because not all the municipalities and the areas served by the water and water-waste service are located in the Centro region.

This has led not only to a **severe shortfall in quantity and quality of water** available in regions subject to periods of drought but also to **pollution downstream**. The risk of pollution is particularly alarming: many hydrographic basins originate in this region and, in particular, Rio Zezere feeds into the important reservoir of Castelo de Bode in the south of the Centro region, which provides for over a third of the Portuguese population. Hence, pollution and water shortage in the region of Alto Zezere and Coa can have widespread consequences on the Portuguese environment and population. The inter-communal system devised in the Region fulfils the needs of the local population, while ensuring high quality and a sustainable service at a socially acceptable tariff.

2.2 Current status of the environment

The Department of Science and Environmental Engineering of the Faculty of Science and Technology of the University of Lisbon has carried out the Strategic Environmental Assessment (Avaliação Ambiental Estratégica) of the Structural Interventions co-financed by the European Regional Development Funds and by the Cohesion fund. The results and conclusions of the SEA are reported in the Environmental Report (Relatório Ambiental), which also analyses the situation of the environment and the environmental impacts of the Operational Programmes in Portugal.

Table 1 summarises the results of the contextual environmental analysis presented in the Environmental Report, supplemented by interviews information.

Table 55 Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Resources Utilisation	<p>The productivity of natural resources in Portugal has been decreasing since 1997, breaking the positive trend of the early 1990s and diverging from the European energy.</p> <p>Energy consumption (expressed in primary energy consumption per unit of GDP) has remained stable over the last decade and there are continuous low levels of energy efficiency in Portugal. However, in recent years, there has been a significant increase in the number of organisations introducing certified environmental management systems; this could lead to gains in energy efficiency.</p>
Climate change	<p>Greenhouse Gas emissions in Portugal have increased by 37 per cent in the period 1990-2003, as a consequence of economic development and increase in energy consumption. The production and processing of energy, industry and transports are mainly responsible for this increase: GHG emissions from production and processing of energy and transports emissions increased respectively by 53 per cent and 95 per cent, representing more than 50 per cent of the total GHG emissions.</p>
Energy	<p>The production of electricity in Portugal is still very dependent on fossil fuels, although an increase in renewable energy installed capacity has been noted. Wind Energy exhibits the highest average annual growth (51.7 per cent) and in 2004 reached 616 MW of installed power.</p> <p>The incorporation of renewable energy sources in gross electricity</p>

	consumption was 36 per cent in 2003, approaching the target set for Portugal by the EU (39 per cent in 2010). However, it is important to notice that the production of electricity from renewable energy sources in Portugal is very much dependent on the water component (80 per cent of installed capacity in 2004) and thus very variable.
Water resources	<p>According to the National Water Institute, the quality of surface water was classified as very bad in 19 monitoring stations, poor in 17 stations, fair in 29 stations, good in 13 stations and excellent in none. The picture described by the National Water Institute justifies concerns that require an effective reduction in the pollution level of water from urban, industrial and agricultural production.</p> <p>In recent years major investments have been made in the creation of infrastructures for the improvement of urban water cycle, but there are still significant shortcomings. The north region still appears to be far away from achieving the target of population served by the supply of water at home.</p> <p>In the field of waste water management instead, the whole country is still far away from achieving the target of 90 per cent of the population served by drainage systems and systems of treatment of water waste. Only 74 per cent of the population is served by drainage systems and only 60 per cent of the population is served by waste water treatment systems.</p>
Land Use	In the early 2000s, as a result of a remarkable economic growth, the percentage of urban areas on the Portuguese territory increased substantially at the expenses of natural vegetation and agriculture space. The intensive urbanisation has often been characterised by a lack of consideration of the environment, thus undermining the sustainability of the territorial units. Investments have focused on construction, neglecting the development of socio-economic and environmental dynamics. The lack of territorial planning tools and of efficient land management have led to poor land use.
Biodiversity	Over the past three decades there has been a sharp increase in the percentage of Portuguese territory covered by protected areas. The National Network of Protected Areas currently includes 44 areas in mainland Portugal, equivalent to about 7.8 per cent of the mainland. Within Natura 2000, 29 areas have been classified as Special Protection Areas and 60 have been classified as Sites of Community Importance.
Waste	Portugal has one of the lowest waste generation rates in Europe (about 1.2 Kg per inhabitant), but with a growing tendency. Thus, measures for the prevention of waste production should not be neglected.

Table 2 presents preliminary results of the Strategic Environmental Assessment with regard to the possible evolution of environmental challenges if the Operational Programmes under the National Strategic Reference Framework (NSRF) are not implemented. Most of the indicators are either **far or very far from the targets** set by EU or national regulations. Moreover, some of the indicators are expected to **deteriorate in the future**, if nothing is done.

Table 2 Summary of the assessment of the current environment status (before implementation of NSRF)

Environmental Themes	Indicators	Present situation	Possible evolution
Governance	Transparency, participation, accountability, effectiveness and coherence	Far from targets	Positive
Human development	Health	Far from targets	No significant alteration
	Poverty	Far from targets	No significant alteration
Utilisation of resources	Materials consumption and productivity of resources	Far from targets	No significant alteration
Territorial planning	Land use	Very far from targets	Negative
	Evolution of the population	Very far from targets	Negative
Climate change	Gas emissions	Very far from targets	Negative
Biodiversity	Protected areas	Far from targets	No significant alteration
	Fragmentation of the eco-systems	Very far from targets	Negative
Quality of the environment	Quality of the water	Far from targets	Negative
	Land protection	Far from targets	No significant alterations
	Waste management	Close to targets	Negative
	Quality of the air	Close to targets	Positive
Natural Hazard	Coastal erosion, spills hydrocarbon fires, droughts, desertification, floods, earthquakes, hazardous substances	Far from targets	Negative

The Strategic Environmental Assessment and stakeholder opinions suggest that the most urgent challenge in Portugal is related to **water supply and waste water sanitation**. The lack of infrastructure for water management and wastewater is coupled with the risk of desertification that characterises Portugal and constitutes one of the most serious problems, both in environmental, social and economic terms. Moreover, the country is highly dependent on the water resources of other countries (i.e. Spain)²⁶⁷. The Inter-communal system for the distribution and cleaning of water (described in Section 7.0) is one of the measures recently put in place by Portugal in order to overcome these challenges.

2.3 Current investment context

Figure 15 shows the financial composition of the Portuguese Operational Programme ‘Territorial Enhancement’. Total EU contribution is €4.6 billion, which include €3 billion

²⁶⁷ 64 percent of mainland Portugal is included in the water basins of international rivers

from the Cohesion Fund and €1.6 billion from the ERDF. The national public contribution is €1.4 billion and the national private contribution is €540 million. Total investment corresponds to €6.6 billion²⁶⁸.

Figure 15 Breakdown of finances by Priority Axis, in €

Priority Axis	EU Contribution	National Public Contribution	Total Public Contribution
National Structural Transport Networks and Equipment (Cohesion Fund)	1 552 965 525	665 557 000	2 218 522 525
Water Supply Structural Network (Cohesion Fund)	803 000 000	344 142 857	1 147 142 857
Prevention, Management and Monitoring of Natural and Technological Risks (Cohesion Fund)	534 000 000	228 857 143	762 857 143
Prevention, Management and Monitoring of Natural and Technological Risks (Cohesion Fund)	70 000 000	30 000 000	100 000 000
Structural Networks and Equipment in the Autonomous Region of Madeira (Cohesion Fund)	100 000 000	42 857 143	142 857 143
Structuring Investments for the Multi Purpose Alqueva Project (ERDF)	275 000 000	117 857 143	392 857 143
Infrastructures for the Connection of Territories (ERDF)	270 000 000	115 714 286	385 714 286
National Infrastructures for processing Urban Solid Waste (ERDF)	155 000 000	66 428 571	221 428 571
Development of the National Urban System (ERDF)	799 000 000	342 428 571	1 141 428 571
Technical assistance	99 578 698	17 572 711	117 151 409
Total	4 658 544 223	1 971 415 425	6 629 959 648

The resources at the disposal of the Territorial Enhancement OP are primarily directed towards interventions that aim to contribute to a more sustainable and balanced territorial development as well as to an open, more integrated and competitive Portuguese economy. Actions are particularly focused on the improvement of connectivity, accessibility and mobility in Portugal, which do not have a clear environmental component and which might even bear negative impacts on the environment. However, Priority Axes 2, 3 and 8 in particular promote interventions for the protection and enhancement of the environment. Looking at the breakdown of finances described in Figure 15, it is possible to conclude that the authorities have decided to allocate a **relatively large share of the ERDF and Cohesion Fund to direct investments in the environment.**

3.0 Governance mechanisms

3.1 Aguas de Zezere e Coa S.A. (AdZC)

Local governments in Portugal have been responsible for the provision of water supply and sanitation services since the 1970s. Despite some restructuring in the industry that has taken place since 1993, municipalities still play an important role in this area, especially at the retail level. Nowadays, water services can be directly provided (a) by municipalities (through municipal services), (b) by municipalised services²⁶⁹ or (c) by companies. In this last case, one can find both municipal public companies and concessionaries, which can be private, public or public-private partnerships.

²⁶⁸ Table 61 at the end of this document reports the allocation of EU budget to the different categories of expenditures, as presented in the regional OP

²⁶⁹ These services are business units which, unlike municipal ones, have financial and management autonomy.

In the case of Alto Zezere e Coa, a network of 16 municipalities manages both poles of the water cycle: distribution and treatment. The grant for the construction, operation and management system was awarded for a period of 30 years to a privately-administered and publicly funded limited company, the **Águas de Zêzere e Côa S.A. (AdZC)**. The company results from the partnership between Águas de Portugal (a state owned company), the association of municipalities of Cova da Beira and the municipalities of Aguiar da Beira, Almeida, Belmonte, Figueira de Castelo Rodrigo, Fundão, Guarda, Manteigas, Mêda, Penamacor, Pinhel, Sabugal, Fornos de Algodres, Gouveia, Oliveira do Hospital e Seia. Each of these municipalities is shareholder as much as user of the system.

External organisations have been involved in the **Environmental Impact Assessment (EIA)** of the project. Due to its large size, separate EIAs were carried out for different interventions within the different phases of the project²⁷⁰. The results of the EIAs were taken into account **before the implementation of the different phases** and the different parts of the project. In cases where the EIA had outlined possible negative environmental impacts, the beneficiary company was obliged to change the project measures to avoid those impacts. For instance, in early 2010 AdZC was planning to build a clean water reservoir in a public protected park; the EIA outlined that this measure would bear negative impacts on biodiversity and on the landscape. As a consequence of this, AdZC was obliged to re-arrange for the creation of the reservoir in another area.

Similarly, a **feasibility study** was carried out for each sub-system, in order to analyse planned work and the integration of existing infrastructures in the systems.

At the same time, the Faculty of Science and Technology has carried out an **overarching SEA of all the OPs within the 2007-2013 National Strategic Reference Framework (NSRF)**. The SEA was carried out during the OP programming phase, in order to ensure that its contributions could then be taken into account and included in the programmes. The first document produced within the context of the SEA was the ‘Report on the Critical Factors of the Strategic Environmental Assessment’, which defines the scope of the SEA and identifies the priority objectives for the country.

The conclusions drawn by the SEA, which include the opinions collected during the consultation period, had the potential to positively influence the Operational Programmes, re-orienting some of their objectives or including clauses that ensure better protection of the environment and of sustainability. For this reason, the SEA places **large emphasis on the identification of factors that could strengthen the positive environmental impacts of the measures**. At the same time, it aims to identify those negative impacts/risks that should be avoided or mitigated, through the implementation of complementary measures. However, the SEA was unable to identify more sustainable alternatives, because the interventions are defined in a generic manner and there is a large variety of projects that could be suggested under each axis. Thus, the more relevant changes introduced as a result of the SEA relate to the general structure of the NSRF and of the OPs. Figure 16 presents the different phases of the process of Strategic Environmental Assessment.

²⁷⁰ Due to the number of EIA carried out, as part of this project, and due to limited time, it has been impossible to analyse them more thoroughly

Figure 16 Strategic Environmental Assessment



A consortium of research institutes²⁷¹ has also completed the **ex-ante evaluation** of the Operational Programme ‘Territorial Enhancement’. The objective of the ex-ante evaluation is to optimise the allocation of budgetary resources under Operational Programmes and improve programming quality. At the same time, the ex-ante aimed to improve the quality and effectiveness of the programme and ensure consistency with the objectives of sustainable development.

4.0 Overview of environmental objectives, measures and allocations

The overall objective of the Thematic Operational Programme on Territorial Enhancement is to equip the country, its regions and its municipalities with **conditions to attract investments and to ensure better living standards to the population**. For this reason, interventions financed under the Thematic OP focus primarily on the creation and modernisation of infrastructure that could attract investment and strengthen the competitiveness of the country, while promoting social and economic cohesion. In this way, the Thematic OP also aims at tackling some of the most urgent environmental concerns of Portugal to increase its attractiveness. In particular, it proposes to ‘preserve and enhance biodiversity, natural resources and the landscape; utilise energy in a sustainable way and prevent and minimise risks’. Moreover, another strategic objective of the Thematic OP is to ‘ensure equity in the provision of services of general interest, in order to promote social cohesion’; this is particularly relevant in the case of water and waste water management, since the territorial differences in the provision of this service appear to be quite substantial.

²⁷¹ Including Instituto de Dinâmica do Espaço e do e-GEO, Universidade Nova de Lisboa, CESUR and Instituto Superior Técnico.

Within these strategic objectives in mind, Priority Axis 2 on the Structural Waters Supply networks seeks to preserve and enhance water resources. At the same time, it aims to ensure equity in the provision of services and to strengthen infrastructures that ensure national competitiveness.

The strategic objectives of this priority axis have also been developed in line with the goals of the **Strategic Plan for the Supply of Water and the Sanitation of Waste Waters (PEAASAR II)**²⁷². As a result of the integration of Thematic OP objectives with the PEAASAR II objectives, the strategic objectives of Priority Axis 2 are:

- a) In relation to **quality, continuity and universality of the service**:
 - i. Serve 95 per cent of the total population of Portugal with water supply and serve 90 per cent of the population with wastewater management
 - ii. Promote appropriate cost-effectiveness solutions for the distribution and sanitation of waters in small (clusters of) municipalities
 - iii. Obtain adequate quality level, as measures by quality indicators defined by law

- b) In relation to **sustainability**:
 - i. Ensure full cost recovery in the provision of these services
 - ii. Optimise operation management and eliminate inefficiencies
 - iii. Contribute to boost entrepreneurship in this sector, both at the national and local level

- c) In relation to the **protection of the environment**:
 - i. Comply with national and European regulations
 - ii. Apply an integrated approach for the control and prevention of pollution, caused by human activity and by production processes
 - iii. Increase productivity and competitiveness of the production sector, through solutions that promote eco-efficiency

Allocations within axis 2 are expected to finance interventions for the commissioning, design and construction of infrastructure for the supply of drinking water and for the treatment of wastewaters. The types of measures that can be supported include the construction, remodelling and expansion of infrastructures for water supply and waste water treatment and the implementation of actions aimed at the efficient use of water with measurable results and excluding interventions in existing distribution networks.

These operations may be initiated by any public body managing public water supply and wastewaters treatment, regardless of their source of capital. Thus, beneficiaries of the interventions can include municipalities or network of municipalities, local businesses, with public or mixed capital, and ‘concessionarias de sistemas’ or inter-municipal groups. The Inter-communal system for the distribution and cleaning of waters in Alto Zezere and Coa is precisely one of the interventions financed under priority axis 2 and which involved a network of municipalities.

²⁷² Plano Estrategico de Abastecimento de Agua e de Saneamento de Aguas Residuais, PEAASAR II, <http://www.maotdr.gov.pt/Admin/Files/Documents/PEAASAR.pdf>

4.1 The Inter-Communal system

The Inter-communal system aims both to increase the quantity and quality of water supplied to the inhabitants of the region of Alto Zezere and Coa and to increase the level of treatment and sanitation of waste water in the region. Therefore, the project includes both the creation of a water supply system and the creation of a system for waste-water treatment. This section separately explores the structure and purpose of each system.

Water supply

The Inter-communal system for the distribution of clean waters in Alto Zezere and Coa was created to ensure the supply of water to approximately 149,000 people in the 16 municipalities included in this area. The system contributes to the achievement of the target of 95 per cent of the population served by water supply, as established in PEASAAR II and it actually aims at serving **99 per cent of the population**.

This objective was pursued during the **first phase of the project** (Sistema Multimunicipal de Abastecimento de Água e de Saneamento do Alto Zêzere e Côa - 1ª fase). Overall, the system involves 36 inflows, 23 ETA, 81 pumping stations and 1418 km of water pipelines. These infrastructures belong respectively to 11 sub-systems that usually serve one or two municipalities. The operations for the construction of the system, including the amplification and improvement of existing infrastructures, started in 2000.

Waste-water treatment

The Inter-communal system for the treatment of waste waters in Alto Zezere and Coa was created to intensify the sanitation of waste-waters in Portugal, help achieve the target of 90 per cent of the population served by waste-waters management system, set by the PEASAAR II, and improve the quality of the waters. According to the National Water Institute, the quality of surface water in Portugal is very poor and the country is far off from achieving the target of **98 per cent** of the population served by waste-water management systems: only 78 per cent of the population had access to this service in early 2010. The situation is even worse in the North East region of the Alto Zezere and Coa, where only **49 per cent** of the population is reached by waste-water treatment services.

Thus, the objective of the **second phase of the project** Inter-communal system for the treatment of waste waters is to produce a waste stream (or treated effluent) and a solid waste or sludge suitable for discharge or re-use back in the environment. The functioning of the system includes 141 ETAR, 97 pumping stations and 267.5 km of pipelines. Through these installations the system will be able to treat 11.6 million m³ per year of domestic and industrial water flows. Similarly to the system for water supply, these infrastructures belong respectively to 16 sub-systems.

So far, the project has been articulated over two different stages (phase 1 and phase 2), which have been concluded with the contribution of Cohesion Fund. The beneficiary Aguas do Zezere e Coa has received funds and has allocated investments to the two different parts separately. More recently, the AdZC has put forward a third project related to the Alargamento ao Mondego Superior Sul, which is eligible for funding under Priority Axis 2 of the Territorial Enhancement OP.

In 2004, six new municipalities in the area of Mondego Superior Sul joined the network of AdZC (Aguiar da Beira, Celorico da Beira, Fornos de Algodres, Gouveia, Oliveira do

Hospital e Seia), increasing the demand and requiring the implementation of measures that were not contemplated in the first two phases of the project. Consequently, the AdZC decided to extend the project into a **third phase ‘Alargamento ao Mondego Superior Sul’**. This not only allows AdZC to ensure the supply of water and improve the sanitation of waste-waters in the new area, but it also allows AdZC to tackle remaining issues and adapt to changes that have taken place in the 10 years of duration of the programme. The third phase involves both the construction and the remodelling of **infrastructures for water supply and for waste-water management**. Moreover, it is supposed to finance studies, technical projects and advisory report necessary for the construction of infrastructures, under this phase.

The third phase was launched in June 2004 (and it had received funds in the previous programming period) and it was supposed to be completed in December 2010. However, AdZC and the Managing Authority agreed to an extension until December 2011. For this reason, AdZC has applied for funding under Priority Axis 2 of the 2007-2013 Territorial Enhancement Operational Programme as well. Both AdZC and the managing authority have confirmed that the company is very likely to receive European Cohesion Fund to finance this phase.

4.2 Overview of allocations

The total **cost of the project for the construction of the ‘Inter-communal system for the distribution and cleaning of waters in Alto Zezere and Coa’ is €154,853,000**, with a total EU contribution of €98,831,000²⁷³. Total cost and total cohesion fund contribution of each of the separate parts of the project is presented in Table 56.

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http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=PT&the=72&sto=1552&lan=7®ion=ALL&obj=ALL&per=2&defL=EN
http://ec.europa.eu/regional_policy/projects/stories/details_new.cfm?pay=PT&the=72&sto=1552&lan=7®ion=ALL&obj=ALL&per=2&defL=EN

Table 56 Total investment and cohesion fund contribution per phase

Project	Approved (FC II)		Executed September 2010		Approval date	Conclusion date
	Total Eligible Expenses	CF	Total Expense	CF		
FC II (Programming Period 2000-	149,104,949.00	95,209,886.08	122,795,139.98	78,560,650.19		
Sistema Multimunicipal de Abastecimento de Água e Saneamento do Zêzere e Côa - 1ª Fase	54,910,000.00	34,593,300.00	54,913,675.49	34,574,947.54	13/Dez/01	31/Dez/07
Sistema Multimunicipal de Abastecimento de Água e de Saneamento do Alto Zêzere e Côa - 2ª Fase (*)	51,736,003.00	32,593,681.72	39,999,533.71	25,199,706.01	26/Set/03	31/Dez/10
Sistema Multimunicipal de Abastecimento de Água e de Saneamento do Alto Zêzere e Côa - 3ª Fase - Alargamento ao Mondego Superior Sul(**)	42,458,946.00	28,022,904.36	27,881,930.78	18,785,996.64	8/Dez/05	Conclusion data 30/12/2010. Requested postponement 31/12/11.
POVT - Axis 2 (Programming Period	54,146,591.90	37,902,614.33				
SMM Zêzere e Côa - Abastecimento de Água	16,897,158.90	11,828,011.23				31/Dez/11
SMM Zêzere e Côa - Saneamento	37,249,433.00	26,074,603.10				30/Dez/11

Phase 1 and phase 2 were financed under the 2000-2006 programming phase and they have now been concluded. In the current financing period (2007-2013) the beneficiary company Aguas de Zezere e Coa received funding for the Alargamento ao Mondego Superior Sul as part of the Inter-communal system of Alto Zezere and Coa. At the end of March 2009, the rate of implementation of the latter phase was 45.27 per cent.

The figures above suggest that 60 per cent of the project has been financed by European Cohesion Fund, both in the previous and in the current financing period. AdZC has confirmed that it would not have been possible to carry out the project and achieve the objectives without the contributions of the EU. The remaining share of the funding was provided uniquely through public funds. 87 per cent of the non-EU funds have been provided by the state-owned company Aguas de Portugal, which owns AdZC; the remaining 13 per cent of the funding was provided by the municipalities participating in the network. There was] no involvement of private companies in the financing of the project. This suggests that a **crowding out of private companies in the water management sector might be taking place**, due to the high involvement of the state²⁷⁴.

5.0 Analysis of measures and allocations

As mentioned in the previous paragraph, the ultimate goal of the Territorial Enhancement OP (and of the NSRF more in general) is to increase the competitiveness of Portugal and attract investments. In order to do so, the managing authority has put forward interventions that aim at **improving the conditions of existing infrastructures or, alternatively, to build new ones**. In this sense, a large share of the investments has been allocated to international transport improvement, for instance.

At the same time however, the OP recognises that the **preservation of natural resources and biodiversity and the prevention of natural risk** represent crucial aspect to increase the attractiveness of Portugal and to ensure social and economic cohesion in the country. For this reason, it also concentrates resources on measures that aim at improving public water supply,

²⁷⁴ This matter should be investigated further

increasing the efficiency of solid waste treatment and improve national civil protection systems against natural risks.

Consequently, there is a **large potential for both win-wins and win-losses** through the implementation of the Territorial Enhancement OP in Portugal. Some measures are likely to lead to both positive economic outcomes and positive environmental impacts; in some other cases, there is a clear risk that the implementation of the measures (for instance those related to transport infrastructures and better connectivity) would lead to negative environmental impacts. In this case decoupling and the identification of instruments to minimise negative environmental impacts is fundamental.

5.1 Development Path Approach analysis

The authorities managing and monitoring the Territorial Enhancement OP do not use the Development Path Approach to analyse the impacts of Cohesion Policy and similar funds on the environment. Thus, it was impossible to collect decision makers' opinions regarding the DPA and its merits.

However, an analysis of financial allocations shows²⁷⁵ that almost half of the EU funds (49 per cent) are allocated to activities that pursue **business as usual (Path A and B)**. In particular, 22 per cent of the funds are allocated to interventions that have the potential to lead to obvious loss of natural capital (e.g. transport networks) (Path A); 27 per cent of EU funds is also allocated to interventions that help to meet environmental legislation and to mitigate environmental impacts (Path B). The largest share of funds (36 per cent) is allocated to interventions that have the potential to improve resource efficiency of existing activities (strong relative wins) (Path E). The Development Path Approach analysis has not identified any interventions that have the potential to decouple economic activity from pressures on the environment/natural capital (absolute wins).

In line with the conclusions of the DPA, the strategic evaluation of impacts, conducted as part of the SEA, has also concluded that the Territorial Enhancement of OP presents both **opportunities and threats for the environment**. The programme in fact includes interventions on connectivity, mobility and accessibility with a significant physical and financial dimension, which can bear structural consequences on the territory and which have potentially large negative impacts.

Win-loss

The SEA has identified clear potential win-loss related to the interventions financed in the Territorial Enhancement OP. Those measures related to the international connectivity and accessibility of Portugal, financed within priority Axis 1 (National Structural Transport Network and Equipment) and priority Axis 7 (Infrastructures for the Connection of Territories), constitute clear potential win-loss. On one side, their objective is in fact to **contribute to the achievement of the TEN-T, railway highways and to the construction of the Lisbon airport**. Moreover, they aim to improve the internal and external connections of the Portuguese territory. The ultimate objective of these interventions is to facilitate economic activity in Portugal and attract investment from and to the rest of Europe. Thus, the economic benefits of these interventions are quite clear. On the other side, they bear clear potential negative impacts on the environment. They might affect significantly **land use and**

²⁷⁵ For more details see Table 61

land management, harm biodiversity, contribute to excessive natural resources use and to an increase in greenhouse emissions.

Similarly, some of the interventions that aim at building or renovating environmental infrastructures for water supply (Priority Axis 2) or processing solid waste (Priority axis 7) have clear positive socio-economic impacts, because they ensure accessibility to natural resources and improvement of living conditions. At the same time however, the construction of these infrastructures might bear negative impacts on the environment, related in particular to land use and biodiversity.

In order to minimise the negative impacts on the environment of these interventions, the SEA authority has suggested that this type of interventions should be developed in a cautious, articulated and coherent way, with the involvement of multiple actors to clearly identify all the potential consequences. Moreover, it suggests that particular attention should be placed on the monitoring and evaluation of these measures, which should include the Environmental Impact Assessment (EIA) and a transparent discussion of the possible alternatives.

Win-win

The Territorial Enhancement OP also envisages the actuation of interventions for the protection and valorisation of the environment that are clear potential win-wins. For instance, the interventions under priority axis 3 aim to improve the national civil protection system by increasing its capacity to cover the whole territory and to develop a nationwide system for the prevention, management and monitoring of natural and technological needs. This is to be realised through measures for **risk prevention, fight of cost erosion and rehabilitation of contaminated sites**. In this sense, these interventions have very clear positive environmental impacts. At the same time, these interventions contribute to the general objective of increasing the attractiveness of Portugal and enhance its territorial conditions. They have the **potential to attract investments**, increase the competitiveness of the country and ensure social and economic cohesion.

In order to analyse and draw conclusions on the sustainability and environmental impacts of the Inter-communal system project in particular, it is important to examine the issue of water pricing.

5.2 Water Pricing

Water pricing as an instrument of cohesion policy can be an effective mechanism to generate revenue for investment in water quality improvement and supply measures. The contribution of this revenue to total investment costs should increase relative to CP funding. The polluter-pays-principle forces those who use water to pay more and thus it should reduce water consumption by households and businesses alike. The objective of full cost recovery is stated as a goal of the WFD; however, in the implementation reports²⁷⁶, the Commission highlights that full cost recovery has not yet been achieved in many of the Member States and that progress is slow.

Portugal is one of the few Member States (together with Spain and possibly the Baltic States) where additional contributions collected by increasing charges up to a benchmark level of 5%

²⁷⁶ EC(2007): Towards sustainable water management in the European Union – First stage in the implementation of the Water Framework Directive 2000/60/EC : COM(2007)128 final, Brussels 22.3.2007, available at: http://eur-lex.europa.eu/LexUriServ/site/en/com/2007/com2007_0128en01.pdf

of average household income could help meeting the investment needs in this field²⁷⁷. Namely, if Portugal increases water charges to 5% of average household income, it will be able to use those revenues to cover the investment needs in the water supply and waste water treatment sector.

The National Survey on Water and Waste Water Systems (INSAAR)²⁷⁸ collects data on revenues and costs so as to calculate actual cost recovery levels, in accordance with the Water Framework Directive. National values for financial cost recovery in Portugal in 2008²⁷⁹ are 99 per cent for water supply and 54 per cent for waste waters. In the region that includes the **Alto Zezere e Coa, cost recovery for water supply is 81 per cent and for waste water treatment is 53 per cent**. This proves that full cost recovery has not been achieved yet.

The PEAASAR II recognises this problem and the fact that the determination of water pricing is quite cumbersome and delicate. Multiple factors need to be taken into account: first of all, the costs incurred by the company or municipality managing the service might differ substantially, due to the varieties of environmental conditions in Portugal²⁸⁰; secondly, it is necessary to take into account the economic conditions of households and the level of scarcity of the water supply and waste water treatment services, which also vary across the country. Portugal's inland regions are poorer than the coastal ones, and their populations sparser. This, combined with geographical factors, makes the cost of providing water and wastewater services significantly higher in the interior²⁸¹.

Hence, municipalities and operators in the interior regions, like the Alto Zezere and Coa region, need much higher tariffs and at the same time, due to economic situation, have difficulties in charging enough to ensure cost recovery, advocated by the Water Framework Directive (WFD), and to make the necessary investments for the adequate provision of services. This situation threatens the viability and sustainability of the system, because the costs end up being incurred by the tax payers and not by the consumers, clearly contradicting the polluters-pays principle.

The tables below present the different prices across regions, type of fund manager and population. They show that water pricing differs substantially within Portugal.

Table 57 Average tariffs per region (€/m³), 2005

Regions	Water Supply	Waste Water Treatment
Regiao Norte	0.37	0.45
Regiao Centro	0.38	0.42
Regiao LVT	0.45	0.40
Regiao Alentejo	0.45	0.45
Regiao Algarve	0.37	0.37

Table 58 Average Tariffs (€/m³), for a monthly consumption of 10m³ per consumer

Type of fund manager	Water Supply	Waste Water	Total
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²⁷⁷ Strategic Evaluation on Environment and Risk Prevention under Structural and Cohesion Funds for the Period 2007-2013, Synthesis Report, GHK Consulting et al, 2006 for Directorate General Regional Policy

²⁷⁸ <http://insaar.inag.pt/index.php?id=32>

²⁷⁹ Latest data available

²⁸⁰ Portugal's inland regions are poorer than the coastal ones, and their populations sparser. This, combined with geographical factors, makes the cost of providing water and wastewater services significantly higher in the interior.

²⁸¹ <http://www.globalwaterintel.com/archive/11/9/market-insight/portugal-looks-to-water-tariff-equilibrium.html>

		Treatment	
Municipalities	0.65	0.24	0.89
Municipalised services	0.92	0.33	1.25
Municipal Public Companies	0.75	0.36	1.11
Concessionaries	0.78	0.32	1.10

Table 59 Population in each price range, 2005

Price Range	Water Supply	Waste Water Treatment
<0,20 €/m ³	0,2%	30%
0,20-0,40 €/m ³	4%	46%
0,40-1 €/m ³	77%	22%
>1 €/m ³	19%	1%

Source: PEAASAR II, <http://www.maotdr.gov.pt/Admin/Files/Documents/PEAASAR.pdf>

This analysis thus suggests that **full cost recovery has not been achieved in Portugal**. Consequently the **environmental outcomes of the Inter-communal system are questionable**: the project is in fact bound to increase water consumption (see Table 6) and it is likely to make a negative contribution to sustainability in a region of water shortages. Incentives need to be put in place to reduce water consumption: the adjustment of water pricing as suggested by the WFD would enable long term financial and environmental sustainability.

In line with this, the PEAASAR concludes that tariffs should be modified on the basis of established, realistic and logic bands. It suggests that the central government should take administrative or regulatory steps to solve this situation, either through more comprehensive and independent regulation, or through incentives and other remedies. The Portuguese government was expected to decide by the end of 2010 whether to set up a fund to iron out regional imbalances in tariffs for water and wastewater services. The Portuguese Authority for the Regulation of Water and Solid Waste (Entidade Reguladora de Águas e Resíduos (ERSAR)) claims that “the proposed **tariff equilibrium fund** intends to promote tariff harmonisation, ensure affordability for all the population and promote the economic and financial sustainability of operators”²⁸².

6.0 Implementation and absorption

While in 2007 and 2008 the Managing Authority concentrated its attention on the internal and external organisation of the Thematic OP ‘Territorial Enhancement’, in 2009 it focused on the implementation of the programme. Thus, 2009 is considered as the first operational year: the number of applications received under every priority axes has increased as well as the rate of commitment and the rate of absorption. The largest progress has been registered in the transport (Priority Axis 1) and environmental axes (Priority Axis 2, 3 and 8).

6.1 Absorption

The number of applications received and the number of projects contracted by the Managing Authority has surged in 2009. More precisely, the Managing Authority has received 465 new

²⁸² <http://www.globalwaterintel.com/archive/11/9/market-insight/portugal-looks-to-water-tariff-equilibrium.html>

applications in 2009, which correspond to a request for EU funding of €3.050 million. This has also led to a **surge in the rate of commitment of the programme** (i.e. percentage of funds allocated, but not yet distributed, to the different projects), which increased from 10 per cent at the end of 2008 to 39 per cent at the end of 2009. 89 per cent of the funding already approved can be directly associated to the categories of expenditures identified by the Lisbon Strategy (and listed in Table 61). The absorption rate of the programme has also increased from approximately 0 per cent at the end of 2008 to 5.1 per cent (approx. €230 million) at the end of 2009.

The biggest progress in terms of implementation has been registered in the **transport** sector, with the approval and implementation of most of the interventions planned under Priority Axis 1 (National Structural Transport Network and Equipment). Similarly, the boost in environmental projects approved under priority axes 2, 3 and 8 largely contributed to the overall increase in the rate of commitment and absorption rate of the programme. In this respect, 22 projects have been approved (and 27 assigned) in the field of **water supply and waste-water management**, leading to an increase in the number of people served by these services of 1 million. Small progress has also been made in the allocation of funds under Priority Axis 8 for the improvement of **solid waste treatment**. No project has instead been approved under the renewable energy theme.

Another relevant step for the implementation of the Thematic OP has been the introduction, in 2009, of the **JESSICA facility**, financed under Priority Axis 10 (Technical Assistance), with a total allocation of €30 million. The main scope of the JESSICA facility is facilitating investments in urban development and in city competitiveness. However, the fact that the share of public funding is very large while private funding are limited or even nil, suggests that there might be a crowding out effect. This seems to be particularly the case in the Inter-communal system project, which will be discussed in Section 7 and which is exclusively funded publicly.

6.2 Impacts/expected impacts

Thanks to well-thought-out water management and a well-integrated system that involves multiple municipalities, the Inter-communal system has helped **increase the water supply in the area and improve waste-water management**. The Annual Report 2008 of Aguas de Zezere e Coa (the beneficiary company) reports that, after the introduction of the Inter-communal system, water supply reached **99 per cent** of the population, thus achieving its objectives. Waste water management instead reached **93.6 per cent** of the population. The objective of the second phase was to serve 98 per cent of the population; even though this objective has not yet been achieved, Aguas de Zezere e Coa expects to fill the gap in the next two years. Despite this, both indicators seem to be in line with the objectives. For this reason, the project implemented by Aguas de Zezere and Coa is generally considered successful.

As for water supply, the Inter-communal system ensures that distribution is now provided through surface water, **increasing the efficiency of the water distribution system**. Thanks to the new infrastructure, most areas have been able to avoid hardship despite the extreme drought conditions of summer 2005. Moreover, the number of pipelines was reduced, allowing for a better control of water quality and a lower need for treatment before distribution. This helps monitoring and eventually tackling the problem of surface water quality, outlined by the National Water Institute. At the same time, investments in the modernisation of existing infrastructures have led to lower water loss. The lower need for

water treatment, coupled with lower water loss, has contributed to a **reduction in the cost of management and distribution of water**.

As for the treatment of residual water, this now covers a significantly increased proportion of the population, with technical solutions adapted to local conditions and hardly any increase in usage costs. This allows for **substantial improvement in the quality of hydric resources** and leads to the conformity of the towns concerned with the European directive on urban residuary water. Table 60 presents the results of the activities of the Inter-communal system, in terms of quantity of water supplied and water treated and in terms of turnover generated by the beneficiary company Aguas de Zezere e Coa. These results confirm that the rate of waste water treatment in the region is very low, as mentioned in Section 4.2 (49 per cent).

Table 60 Operational results of the Inter-communal system

Activity	Quantity (m ³)			Turnover (euros)		
	2006	2007	2008	2006	2007	2008
Water supply	12,826,093	12,477,963	15,122,647	5,969,264	6,135,414	7,430,481
Water sanitation	4,968,558	6,288,518	8,317,219	2,522,537	3,333,528	4,646,235
Total	17,794,651	18,766,481	23,439,866	8,491,801	9,468,942	12,076,716

The project's rapid impact on **quality of life** has had a real structural effect on the region's socio-economic conditions. First of all, it ensures **equal access** to the water supply and water sanitation survey throughout the region. Secondly, the beneficiary company Aguas de Zezere e Coa now employs around 100 people and it is expected that its workforce will rise to 130 at the end of the new financing period. Its **effects on employment** can also be measured in relation to the outsourcing of various tasks: laboratory analysis, infrastructure handling, dredging etc. During the initial phase, activities associated with study, construction, control, land management and archaeological work accounted for around 2,500 jobs..

The previous considerations on water pricing suggest that the **environmental impacts of the project are questionable**. As shown in the table above, the Inter-communal system has definitely led to an increase in water supply and water sanitation in the region, which probably improve the socio-economic conditions of the population and iron out some of the inequalities in water distribution and sanitation across Portugal. At the same time however, without an effective water pricing mechanism and without the application of the polluters-pay principle, this project is also likely to lead to an increase in consumption of water. This could bear negative environmental impacts in a region characterised by water scarcity like Alto Zezere e Coa. Thus, it is not possible to conclude that the project will have positive environmental impacts unless the water pricing mechanism is adjusted to ensure the application of the polluters-pays principle and remove the incentives to increase water consumption.

7.0 Conclusions

Poor quality and inefficiency of water supply and of waste-water treatment represents one of the main environmental and socio-economic challenges in Portugal. The lack of infrastructures for water supply and waste water treatment is coupled with the risk of desertification that constitutes one of the most serious problems in Portugal, both in environmental, social and economic terms. For these reasons, addressing the problem of water supply and waste-water management is one of the priorities of the Territorial

Enhancement Operational Programme, financed both by ERDF and Cohesion Fund in the 2007-2013 programming period. The resources at the disposal of the Territorial Enhancement OP are primarily directed towards interventions that aim to contribute to a more sustainable and balanced territorial development as well as to an open, more integrated and competitive Portuguese economy.

Priority Axis 2 of the Territorial Enhancement OP complements the objectives of the Strategic Plan for the Supply of Water and the Sanitation of Waste Waters (PEAASAR II). It aims both to increase the share of population served by water supply and waste water treatment infrastructures, to improve the sustainability of the provision of these services and to increase water resources protection. Within this framework, and with these objectives in mind, Aguas do Portugal and 16 municipalities in the Alto Zezere e Coa region have decided to finance the creation of the 'Inter-communal system for distribution and cleaning of waters', under the supervision of the public owned company Aguas do Zezere e Coa (AdZC).

The creation of the Inter-communal system has been articulated over three different phases. The first two phases, which focused on the establishment and remodelling of infrastructures for water supply and waste-waters treatment respectively, constituted major projects in the 2000-2006 financing period. The third phase, which started in 2004 and received 66 per cent contribution from Cohesion Fund, is supposed to be financed under Priority Axis 2 of the Territorial Enhancement OP in the 2007-2013 programming period.

Preliminary outcomes, particularly from phase one and two, suggest that the project is advancing in line with the objectives and that it has contributed substantially to increase the share of population served by clean water supply. However, the implementation of the project is also likely to lead to an increase in water consumption, unless appropriate water pricing scheme are in place. The price of water needs to be increase to ensure full cost recovery, as envisaged by the Water Framework Directive, and to ensure that consumers are not incentivised to use more water. This would in fact bear substantial negative impacts in a region characterised by water scarcity and desertification risk like Alto Zezere e Coa.

Hence, the environmental outcomes of the project are questionable. According to the Strategic Plan PEAASAR II and according also to the National Survey on Water and Waste Water Systems (INSAAR), the region interested by the Inter-communal system project has difficulties in charging enough to ensure cost recovery and there is no full cost recovery. This implies that measures need to be taken at the national level or at the regional level to adapt water pricing to ensure full cost recovery and the application of the polluters-pay principle.

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9.0 Interviewees

Dr. Catalão Mil-Homens, Member of the Board of Aguas de Zezere e Coa

Helena Pinheiro Azevedo, Presidente da Comissão Directivo do Programa Operacional Valorização do Território President of the Executive Committee, Managing Authority Operational Programme Territorial Enhancement

Mario Rodrigues, Programme Manager, EU policies, Portugal – Desk officer at the European Commission

Pedro Mendes, Monitoring and Communication Officer, Unidade de Avaliação, Monitorização e Comunicação Evaluation, Managing Authority Operational Programme Territorial Enhancement

Table 61 Allocation of EU budget to the different categories of expenditures

Activity	DPA	Description	Budget EU
17	E	Railways (TEN-T)	€1,210,500,000
20	A	Motorways	€228,000,000
22	A	National roads	€182,465,525
25	E	Urban transport	€10,000,000
27	E	Multimodal transport (TEN-T)	€10,000,000
28	E	Intelligent transport systems	€10,000,000
29	A	Airports	€170,000,000
30	A	Ports	€107,000,000
39	E	Renewable energy: wind	€15,000,000
42	E	Renewable energy: hydroelectric, geothermal and other	€10,000,000
43	E	Energy efficiency, co-generation, energy management	€50,000,000
44	B	Management of household and industrial waste	€165,000,000
45	B	Management and distribution of water (drink water)	€533,000,000
46	B	Water treatment (waste water)	€555,000,000
48	B	Integrated prevention and pollution control	€20,000,000
50	D	Rehabilitation of industrial sites and contaminated land	€115,000,000
52	E	Promotion of clean urban transport	€10,000,000
53	C	Risk prevention	€419,000,000
58	D	Protection and preservation of the cultural heritage	€10,000,000
61	D	Integrated projects for urban and rural regeneration	€10,000,000
76	A	Health infrastructure	€354,000,000
79	E	Other social infrastructure	€345,000,000
81	?	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	€20,000,000
85	?	Preparation, implementation, monitoring and inspection	€69,578,698
86	?	Evaluation and studies; information and communication	€30,000,000
TOTAL			€4,658,544,223

1.21 ROMANIA: STIMULATING LONG-TERM SUSTAINABILITY OF WATER SUPPLY AND WASTEWATER SERVICES IN ROMANIA

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1.0 Executive Summary

- This major project case study explores investments in wastewater treatment and water supply in Romania. The focus is on the entire water sector rather than one specific project, to allow drawing broader conclusions on the role of Cohesion Policy investments. The case study also explores the tariff system in the sector as a specific issue.
- Ensuring urban wastewater treatment and access to safe drinking water are among key environmental challenges in Romania.
- According to EU legislation urban wastewater in Romania should be subject to advanced treatment processes (with nitrogen and phosphorus removal). Currently only 7% of urban waste water is treated in this way.
- Romania is the country with the lowest rate of inhabitants connected to centralised water supply systems in the EU. In the rural areas, 66 percent of the population is not connected to centralised systems.
- Community assistance from Cohesion Fund 2007-2013 for the extension and modernisation of water and wastewater systems amounts to € 2.776 billion, while the total cost of investments in water and wastewater systems will reach € 3.266 billion.
- The Romanian government has pushed through extensive reforms in the water sector, in order to reduce the excessive number of small-scale, inefficient water utilities and create 40-50 regional operators, covering an increasing number of municipalities.
- EU funding programmes re-enforce regionalisation in Romania, as access to Cohesion Fund is granted solely to regional operators.
- EU funding programmes enforce introduction of tariff policies allowing long term financial sustainability of water utility operations. However, social affordability of tariffs could represent a growing concern in the near future.
- Despite the significant reduction in a number of utilities in Romania, current progress in regionalisation is considered to be rather slow as many local entities are reluctant to enter regional systems.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	X
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and Context

On July 12, the European Commission approved the European Regional Development Fund (ERDF) and Cohesion Fund (CF) Operational programme for Romania for the period 2007-2013, entitled "Operational Programme Environment" (OP ENV). The total budget of the programme is around EUR 5,6 billion and the Community assistance amounts to EUR 4,5 billion (approximately 23 % of the total EU money invested in Romania under Cohesion policy 2007-2013).

The OP ENV for 2007-2013 focuses on investments and collective services which are required to increase long term competitiveness, job creation and sustainable development. Basic infrastructures and services will need to be created, upgraded and expanded in order to open up regional and local economies, set up an effective business support framework and exploit opportunities afforded by the European Market. According to the OP, establishment of effective water and environmental infrastructure will create potential for new jobs (construction, services, SMEs etc) and in a way reduce the workforce migration giving possibilities for population to develop businesses or to attract other investors by using also local competitive advantages (cheaper resources, valuable natural areas etc.). The actual job creation potential of water sector investments is however difficult to verify.

In order to achieve the objectives of the Operational Programme on Environment, it EU and State funds are allocated across the following priority axes:

- Priority axis 1: Extension and modernisation of water and wastewater systems
- Priority axis 2: Development of integrated waste management systems and rehabilitation of historically contaminated sites
- Priority axis 3: Reduction of pollution and mitigation of climate change by restructuring and renovating urban heating systems towards energy efficiency targets in the identified local environmental hotspots
- Priority axis 4: Implementation of adequate management systems for nature protection
- Priority axis 5: Implementation of adequate infrastructure of natural risk prevention in most vulnerable areas
- Priority axis 6: Technical Assistance

Priority Axis 1 is the biggest in terms of financial allocations. It addresses one of the main environmental challenges in Romania, related to the poor rate of connection of the communities to basic water and wastewater infrastructure (52%), poor quality of drinking water and lack of sewerage collection and treatment facilities in some areas. It also addresses the issue of limited efficiency of public water services, which is mainly due to the large number of small operators, many of them dealing with multiple other activities (public transport, urban heating, local electricity, etc.) and due to long term under-investments, poor management, lack of long term development strategies and business plans, etc.

The overall community allocation for Priority Axis 1 amounts to € **2.776 billion**. According to an indicative breakdown of the community contribution presented in OP Environment, this amount will be equally distributed between investments in water and wastewater treatment infrastructure.

Table 2 Financial plan for Priority Axis 1 of OP Environment (million €)

	Community Funding	National Counterpart	Total	Co-financing rate
Priority Axis 1	2,776.5	490.0	3,266.5	85%

Source: OP Environment

As part of its Cohesion Fund strategy the Romanian government has pushed through extensive investment in water supply, wastewater collection and wastewater treatment utilities (WWTU). The Cohesion Fund assistance for the modernisation and extension of water supply, wastewater collection and wastewater treatment infrastructures in Romania will reach **€2.776 billion** in programming period 2007 – 2013. Additional financial resources are available from European Agricultural Fund for Rural Development (EAFRD).

Limiting the excessive number of small-size WWTU and forming new regional operating companies (ROC) is one of the main features of the regionalisation reform. In 2005 there were c.a. 400 WWTU. This number has been systematically decreasing and currently there are 300 operators of which 123 are licensed by National Regulator. Regionalisation aims to reduce the number of WWTU to 40-50 regional operators.

The necessity to push through regionalisation reform became visible during the implementation of previous financial assistance programmes (ISPA, Municipal Utility Development Programme, and SAMDIT). The following reasons stood behind this reform:

- Delivering economies of scale in operation of WWTU;
- Encouraging financial sustainability of WWTU;
- Improving operational performance of WWTU;
- Attracting external funding for necessary investments.

The OP Environment sets a clear framework for the regionalisation reform: only those local authorities that form Intercommunity Development Associations (IDA) and Regional Operating Companies (ROC) can benefit from financial assistance from the Cohesion Fund (CF)²⁸³. This condition serves as a tool for accelerating the reform process. The creation of IDA/ROC is based on the voluntary agreements between local authorities and is not a legal obligation under Romanian law. However, some of the municipalities remain reluctant to enter IDA/ROC²⁸⁴, thus it is relevant to ask whether optimal regional system on county level should cover all the municipalities in that county.

This case study investigates the current status of the regionalisation reform in Romania. It looks into the main effects and the barriers of the reform process and it assesses whether the conditionality principle, introduced in Operational Programme Environment 2007 – 2013 (OP Environment) is a successful mechanism to accelerate the regionalisation reform.

2.1 Current status of the environment

Most of Romanian territories belong to Danube River Basin (97.4%). The length of Romanian section of Danube is 1,075 km, which corresponds to 37.8% of its total length.

²⁸³ At the same time, however, the EAFRD offers financing for projects in smaller municipalities that do not enter IDA/ROC.

²⁸⁴ The motivations behind this reluctance are explored in section 3.0

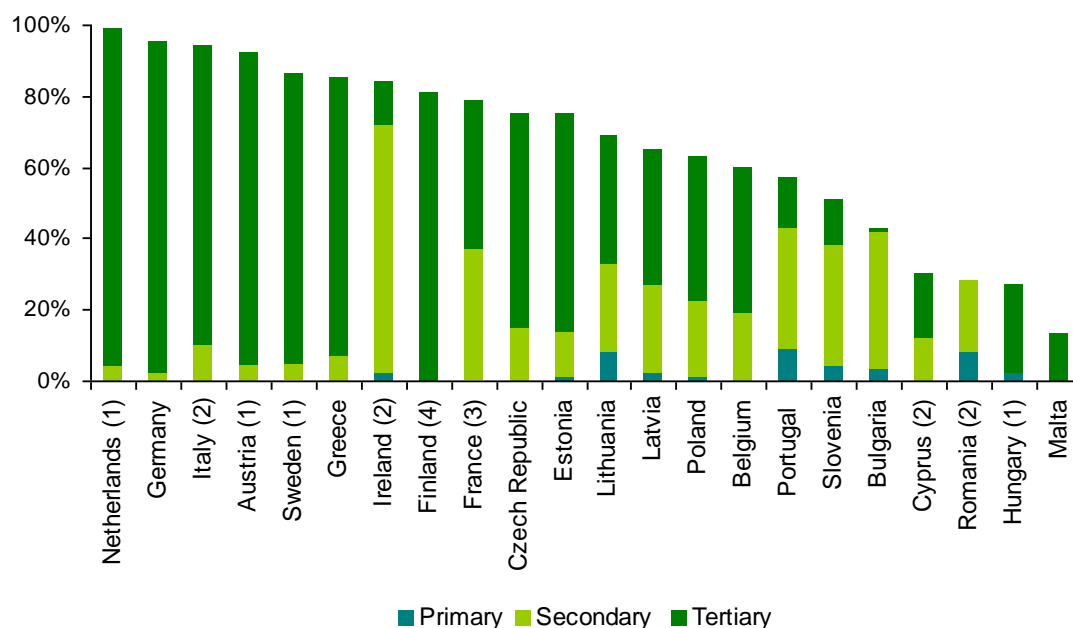
Poor water quality in the Danube River Basin results largely from insufficient urban wastewater treatment.

According to OP Environment, water pollution is Romania's largest environmental issue: water pollution from household and industrial and agricultural sources has a negative impact on fish breeding, irrigation and drinking water supplies. Poor water quality arises mainly from poor controls over industrial effluents and discharges and from inadequate wastewater infrastructure²⁸⁵.

As visible from the Figure below, in 2007, Romania had one of the lowest rates of urban waste water treatment in the EU and it is the worst performer in terms of methods of treatment, as only primary and secondary waste water treatment is used in the country. Pollution from urban areas represents:

- 56.28% of total load of suspended particulate matter,
- 71.88% of total load of biochemical oxygen demand (BOD5),
- 87.41% of total load of nitrogen,
- 97.52% of total load of phosphorus.

Figure 17 Urban wastewater treatment in EU in 2007



Source: EUROSTAT

In terms of pollution of organic matter and nutrients (nitrogen and phosphorus), the largest impact is caused by the 22 largest urban agglomerations in Romania (of more than 150,000 population equivalent each)²⁸⁶.

The entire territory of Romania has been classified as sensitive area vulnerable to eutrophication. European legislation requires that for such areas all agglomerations of more

²⁸⁵ Sectoral Operational Programme Environment. Ministry of Environment and Sustainable Development. 2007 Final version. p. 41

²⁸⁶ Situația în România a apelor uzate urbane și a nămolului provenit din stațiile de epurare. Ministry of Environment and Sustainable Development. December 2008.

than 10,000 inhabitants should be equipped with wastewater treatment plants allowing advanced treatment level i.e. tertiary treatment with removal of nitrogen and phosphorus. However, in 2007 (see the table above) no tertiary treatment was applied in Romanian cities, only 28% of urban wastewater discharges were subject to secondary treatment²⁸⁷ and most of the urban wastewater was discharged into water bodies without any treatment. Since then the situation has improved thanks to investments supported by ISPA and Cohesion Fund grants.

Access to safe drinking water is also an important challenge to be addressed in Romania. Romania has one of the lowest rates of inhabitants connected to centralised water supply systems, in the EU. In rural areas this rate is as low as 34% and most of the rural population uses water from private wells, which is frequently contaminated with nitrates, faecal bacteria and pesticides. There is no legislation in place that would force users of private wells to monitor quality of extracted water. Low social awareness and high costs of water sampling and laboratory analysis constitute additional barriers in increasing access to safe water in rural areas.

2.2 Current investment context

Membership in the EU entails obligations to meet environmental standards resulting from EU environmental *acquis communautaire*. With regard to urban wastewater treatment and water supply key legislative acts comprise:

- Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment amended by Commission Directive 98/15/EC of 27 February 1998
- Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption.

Due to the poor state of waste water treatment and water supply infrastructure in Romania, multibillion investments are needed in order to comply with the provisions of the directives. The investment needs in urban wastewater infrastructure were estimated at approximately € 4.8 billion and in water supply infrastructure at approximately € 3.8 billion in programming period 2007 – 2013²⁸⁸. Mobilisation of such financial resources has been possible only with support from Cohesion Funds.

Given the scale of necessary investments, the process to meet the targets imposed by Directives 91/271/EEC and 98/83/EC is a process that will continue over time. The European Commission and Romania negotiated transition periods for compliance and transposition of these Directives during accession. The negotiated transition periods for the transposition of Directive 91/271/EEC on urban wastewater treatment are:

- For the collecting of urban wastewater (Article 3):
 - by 31 December 2013, compliance with the Directive will be achieved in 263 agglomerations of more than 10,000 p.e., representing 61.9 % of the total biodegradable load;
 - by 31 December 2018, compliance with the Directive will be achieved in 2346 agglomerations of less than 10,000 p.e., representing 38.1% of the total biodegradable load.

²⁸⁷ 5th Commission Summary on the Implementation of the Urban Waste Water Treatment Directive. Commission Staff Working Document SEC(2009) 1114 final, 3.8.2009.

²⁸⁸ Strategic Evaluation on Environment and Risk Prevention – Country report – Romania. ECOLAS & GHK, 2006

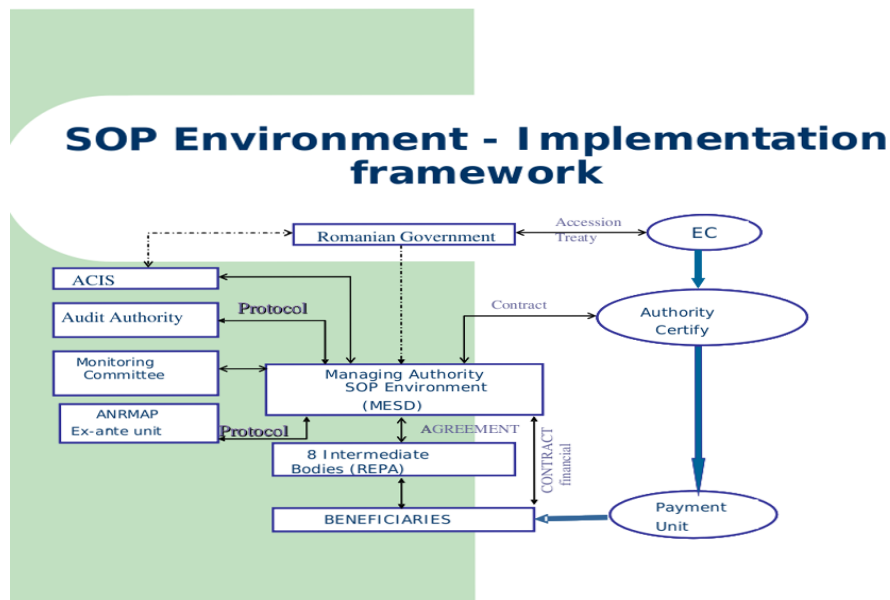
- For urban waste water treatment and discharge (Article 4, paragraph 1, letters a, b and paragraph 4 and Article 5(8):
 - by 31 December 2015, compliance with the Directive will be achieved in 263 agglomerations of more than 10,000 p.e., representing 61.9 % of the total biodegradable load;
 - by 31 December 2018, compliance with the Directive will be achieved in 2346 agglomerations of less than 10,000 p.e., representing 38.1% of the total biodegradable load²⁸⁹.

With regard to compliance with provisions of the Directive 98/83/EC on drinking water supply, a transition period until 2015 was agreed.

3.0 Governance mechanisms

The Ministry of Environment and Sustainable Development (MESD) of Romania is the managing authority for OP Environment (see figure below). In 2006 the Ministry carried ex-ante evaluation and Strategic Environmental Impact Assessment. The conclusion of the report was that OP ENV is largely oriented towards the improvement of the environmental situation in Romania. Analysis demonstrated that measures foreseen under key areas of intervention in the OP ENV are likely to bear significant positive effects, except for the construction phase of some of the activities and in the circumstances that some mitigation measures of possible negative effects are not used. The SEA recommended that MESD should strengthen the monitoring measures in order to identify at an early stage unforeseen adverse effects. As actions for improving implementation of the OP environment, the MESD developed several detailed guidelines for EU funds beneficiaries.

Figure 2 Implementation framework OP Environment



Source: Presentation of the Ministry of environment and sustainable development www.eib.org/attachments/general/events/bratislava_15102008_stoica.pdf

²⁸⁹ Implementation plan for Council Directive 91/271/EEC concerning urban waste water treatment, as amended by Directive 98/15/EC. Government of Romania. October 2004.

According to Romanian law on local public authorities (no 215/2001), local authorities are obliged to organise utility operations in an efficient and effective manner. The same law stipulates that local authorities have the right to associate, in order to provide services to the public at regional level. Encouraging local authorities to associate in order to provide joint water services requires the development of an appropriate governance mechanism. It should be noted that regionalisation reform has taken place in result of voluntary agreements between local authorities (there is no legal obligation for entering regional systems).

The governance mechanism that supports regionalisation reform comprises three major steps:

- Formation of Intercommunity Development Association (IDA)
- Setting up regional operator/regional operating company (ROC)
- Delegating water supply and wastewater services to a regional operator.

IDA is established by local authorities that are willing to organise jointly water supply and wastewater services and it is authorised to exercise specific powers, rights and obligations in the name and on the account of member administrative-territorial units to the sole purpose of water supply and wastewater services²⁹⁰. It represents shared interests of its member municipalities/towns in what concerns water supply and wastewater, and mainly regarding²⁹¹:

- Common development strategy;
- Signing of the delegation contract
- Tariff policy
- Control of ROC operations and performance.

Subsequently IDA delegates water/wastewater treatment services to an authorised Regional Operating Company (ROC). ROC is established as a Joint Stock Company by IDA members and it is usually set up on the basis of the largest company that has been operating in the service area. Allotting shares between local authorities is a crucial aspect of ROC formation. A single delegation contract is signed between IDA (on behalf of all local authorities participating in the system) and ROC. It delegates management of water/wastewater treatment services to ROC. The contract includes detailed provisions on the service delivery as well as tariff policy. The delegation contract includes also the timeline for introducing uniform tariffs within service area (within a 5-year perspective).

According to the Guide on the regionalisation of drinking water and wastewater services delegation of service management to the ROC should be preceded by organisation of a public debate on the set-up, organization, functioning and management of water supply and wastewater services, as well as on the proposed levels of service²⁹². In practice, however, involvement of public in this process is limited, primarily because inhabitants do not express much interest.

Organising water supply and wastewater treatment services is a responsibility of local authorities (that can delegate services to ROC). A national-level regulatory institution exists, overseeing the provision of those services - the National Regulating Authority for Local Public Services (NRALPS), which is responsible, *inter alia*, for:

- issuing licences to operators;

²⁹⁰ Guide on the regionalization of drinking water and wastewater services. Romanian Government. 2008. p. 12

²⁹¹ as above

²⁹² Guide on the regionalization of drinking water and wastewater services. Romanian Government. 2008. p. 11

- reviewing tariffs before they go for approval by local authorities;
- setting minimum standards of service contracts prepared by IDA or local authorities;
- monitoring performance level.

The regulator has the power to withdraw the permit previously granted to the operator, which in turn results in termination of the delegation contract²⁹³.

The respondents during the interviews indicated that progress in regionalisation reform is rather slow and behind schedule. This results from reluctance of some local authorities to join regional IDA/ROC. The respondents identified following reasons for such opposition:

- the will to preserve control over service provision (and tariff setting policy);
- fear over higher tariffs applied by ROC resulting from implementation of cost-recovery principle;
- the frequent opinion of local authority that providing services through local utility is more justified, especially when local authorities perceive that their utility is in relatively good condition (even if it is not the case);
- immaturity of regional operators that were supposed to lead the process;
- weak understanding of the process by local authorities;
- political reasons e.g. different political affiliation of the heads of particular municipalities.

Currently, there are 123 operators licensed by the National Regulating Authority for Local Public Services. Out of this number 38 are regional operators and 85 are local utilities. In addition, there are approximately 180 local operators that do not have the licence, but continue operations. The number of small local operators is expected to be significantly reduced (i.e. those operators should be taken over by ROCs) and, according to the programme, the number of regional operators should reach 45 in 2011. ROCs would be responsible for providing water and wastewater services to 90-95% of the Romanian population. According to one respondent the number of regional operators may be limited to 10-15 ROCs in the future, each with service coverage in more than one county.

Table 2 Current number of operators with the licence from National Regulating Authority for Local Public Services

	Class I (regional operators)	Class II (regional operators)	Class III (local operators)
Regional operators licensed by National Regulating Authority for Local Public Services	16	22	85

Source: Romanian Water Association

The license is issued by the National Regulating Authority for Local Public Services to the operators that meet at least minimum performance requirements set by the regulator and prove to have necessary capacity for service provision. Class I operators provide services for

293 as above.

population equivalent of at least 150,000, Class II operators have service coverage between 50,000 and 150,000 p.e. and Class III operators provide services for less than 50,000 p.e. ROC fall either into Class I or Class II.

The regionalisation reform has resulted in significant reduction of operators (from 900 in 2007 to approx. 300 currently). According to stakeholders the reform has stimulated capacity development of regional water companies to develop and implement multimillion investment programmes financed through EU funds. The reform has yielded benefits in terms of operational performance improvement (i.e. efficient management of the infrastructure, introducing cost-coverage tariffs, increasing service quality).

4.0 Overview of environmental objectives, measures and allocations

Large scale investments in extension and modernisation of water and wastewater systems in Romania are financed by Cohesion Fund. The objectives and allocations have been defined in OP Environment 2007 - 2013 (Priority Axis 1 Extension and modernisation of water and wastewater systems).

In particular, the OP Environment identifies the following objectives under Priority Axis 1:

- Providing adequate water and sewerage services, at accessible tariffs
- Providing adequate drinking water quality in all urban agglomerations
- Improving the purity of watercourses
- Improving the level of WWTP sludge management
- Creating innovative and efficient water management structures

The programme provides for the possibility to finance following activities:

- Construction/modernization of water sources intended for drinking water abstraction;
- Construction/rehabilitation of water treatment plants;
- Extension/rehabilitation of water and sewerage networks;
- Construction/upgrading of wastewater treatment plants;
- Construction/rehabilitation of sludge treatment facilities;
- Metering, laboratory equipment, leakage detection equipment, etc.;
- Technical assistance for project preparation (including tender documents), management and publicity (including public awareness), institutional governance improvement.

In order to facilitate the regionalisation reform, the Romanian government introduced a rule that only those beneficiaries that have formed IDA and ROC are eligible for Cohesion Fund. Nonetheless, whilst OP Environment provides financial support to large scale regional systems, it is still possible to finance water and wastewater treatment projects in rural areas below 10,000 population equivalent, from European Agricultural Fund for Rural Development (EAFRD).

5.0 Implementation and absorption

One of the objectives of the regionalisation reform of the water sector in Romania was improving absorption of EU funds. As stated in OP Environment only a small minority of the 276 towns in Romania (at the end of 2003) have benefited from external investment programmes. Around 230 small and medium-sized towns have not been able to attract

financing from either international financial institutions or private operators. Due to lack of funds, these towns have made very little investments over the past 15 years to maintain and develop their water and wastewater infrastructure²⁹⁴.

The regionalisation reform has been supported through a number of technical assistance programmes, such as SAMTID (Small and Medium Town Investment Development) and FOPIP (Financial and Operational Performance Implementation Programme).

The SAMTID project (Small and Medium Town Infrastructure Development) started in 2003. The project was worth € 380 million and was financed from PHARE Social and Economic Cohesion (50%), state budget (12,5%) and a loan from the EIB (37,5%). It was a programme meant to encourage municipalities to group together into associations and delegate operation and management of water services to regional operating companies.

The FOPIP (Financial and Operational Performance Improvement Programme) was implemented between 2005 and 2009. Its main objectives were:

- Supporting 21 water operators in Romania in the process of becoming operational, efficient and well performing from a commercial point of view, while ensuring the correct setting for the reorganization and restructuring processes.
- The timely identification of the institutional aspects that need to be revised, with the purpose of increasing the institutional capacity of the future beneficiaries of the EU financing process.
- Providing technical assistance for the central administration in order to disseminate the results obtained following the technical assistance provided to all the operators in Romania.

First applications for grants under priority Axis 1 of OP Environment 2007-2013 (i.e. Extension and modernisation of water and wastewater systems) have been submitted by beneficiaries in 2008. As of April 2010 there were thirteen projects approved with total value amounting to **€ 1.6 billion**.

6.0 Conclusions

In order to ensure high environmental standards of water services it is necessary to introduce charging policy that aims at full cost recovery. Ideally, the charging system should be based on the real consumption of resources and tariffs should at least cover operating and maintenance costs as well as a significant part of the assets' depreciation²⁹⁵. For many years tariffs applied in Eastern European countries did not reflect costs of service provisions. This in turn resulted in poor service quality and decaying water and wastewater infrastructure.

All beneficiaries of the Cohesion Fund (under priority Axis 1 of OP Environment) are obliged to implement cost covering tariff policy in order to ensure long term financial sustainability of water operations. Commonly, larger regional operators collect revenues from tariffs that cover operating and maintenance costs as well as part of depreciation costs. However, small size utilities appear not to be able to recover operating costs through tariff

²⁹⁴ OP Environment. p. 21.

²⁹⁵ Working document number 4. Guidance on the methodology for carrying out cost-benefit analysis. European Commission. 2006. p. 16

revenues. In 2007 average operating cost coverage ratio for Romanian water utilities amounted to 1.15²⁹⁶.

Tariff policy needs to take into account affordability constraints i.e. ability of households to pay water bills, which is a major barrier for introduction of full cost recovery tariffs in Romania. According to one of the respondents, affordability problems touch 20% of poorest households and it is particularly visible in less developed regions eg. Botosani, Vaslui and Jiu Valley.

As stated in the Guidelines developed by Romanian government in order to ensure that the affordability of tariffs for low income households is taken into account, the following steps are required in the analysis²⁹⁷:

- Estimation of the average household income for those households subject to the payment of tariffs.
- Estimation of the number and income of low income households based on the lowest decile of a distribution of income for those households subject to the payment of tariffs.
- Verification that the total water and wastewater charges including indirect taxes for the lowest income household do not exceed 4.0% of their household disposable income (when calculated on the basis of an average per capita consumption of 75 lcd).

All the respondents stated that affordability may become a serious problem in Romania as depreciation of newly built investments leads to tariff increase.

According to the respondents regionalisation is the appropriate way to increase efficiency of service provision in Romanian water sector. Unlike small utility operators, the regional operators are able to gather necessary financial, technical and institutional knowledge to ensure long term sustainability of water services. Only regional operators may receive Cohesion Policy funding; but there are still EARDF grants available for small rural projects where the approach is different (no regionalization required).

Although the number of utilities has been significantly reduced in the last few years (from 900 to 300) current progress of the reform is considered slow. Better recognition of long-term benefits from joining IDA/ROC is necessary to accelerate the reform.

OP Environment is used as a tool to support regionalisation reform - only those municipalities that enter IDA/ROC have access to EU funding. The regionalisation reform has resulted in institutional capacity building allowing better preparation of the investment programmes. Programmes such as SAMDIT, FOPIP I and II have also contributed to improvement of operating and financial performance of water utilities in Romania.

The regionalisation process brings benefits which include:

- Improved project management capacity – bigger beneficiaries can better deal with EU projects

²⁹⁶ The average operating cost-coverage ration for 27 utility companies included in the World Bank benchmarking initiative of water services. www.ib-net.org

²⁹⁷ Guidelines for cost-benefit analysis of water and wastewater projects to be supported by the Cohesion Fund and the European Regional Development Fund in 2007 – 2013. Ministry of Economy and Finance. Ministry of Environment and Sustainable Development. 2008.

- Attractiveness of investments for the market – more companies willing to tender for large projects
- Harmonization of tariffs

Higher chance of avoiding oversized investments thanks to better coordination and setting priorities

From a practical point of view it is in addition easier for the EC to play its guidance role in the investments, because due to exceeding the € 50 million threshold the water investments in Romania become **major projects** and are approved directly by DG Regio. It is not the case in some other countries (e.g. Bulgaria) where such investments are often carried out at local, municipal level, as the conditionality of regionalisation has not been implemented.

In order to ensure high environmental standards and reliability of water services, it is necessary to implement cost-recovery charging systems. Regional operators in Romania apply cost-covering tariffs that allow covering operating and maintenance costs as well as part of the depreciation. Average cost coverage ratio for a sample of 27 utility companies in Romania amounted to 1.15 in 2007. Investment programmes financed with the Cohesion Fund stimulate introduction of cost-coverage tariffs and long term financial sustainability of the operations.

It should be noted that necessary investment programmes will necessitate further tariff increases (due to depreciation of new assets), thus affordability may become a problem in the near future. According to some of the stakeholders, the major affordability problems exist in underdeveloped regions of Botosani, Vaslui and Valea Jiului. The European Commission provides guidance for tackling affordability issues. As indicated in the guidelines for EU projects in Romania water/wastewater bill shall not exceed 4% of disposable income of the lowest income households (lowest decile). According to Romanian legislation affordability must be taken into consideration in tariff setting process. The legislation, however, does not include specific provisions on this issue. In that light, instruments such as block tariffs, tariff exemptions or tariff subsidies to poorest households may serve as a solution to this problem in the future.

Frequently ROCs apply different tariffs for customers in different municipalities covered by their service area. The objective is to introduce uniform tariffs across all municipalities that are members of IDA/ROC. Such unification is part of IDA/ROC policy. The delegation contract signed between IDA and ROS include provisions on tariff unification within predefined period (maximum five years).

7.0 References

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8.0 Interviewees

Vasile Ciomos, the President of Romanian Water Association

Constantin Predoi, Director, Romanian Water Association

Doru Popa from Brasov Water Company

Claudiu Iorgovici, Director General Ecoaqua, Calarasi

Cezar Neagu, Director of IDA Ecoaqua, Calarasi

Benoit Nadler, European Commission, DG Regional Policy

Activity (Cd)	DPA	Description	Budget EU
43	E	Energy efficiency, co-generation, energy management	€91 707 458
44	B	Management of household and industrial waste	€792 840 872
45	B	Management and distribution of water (drink water)	€1 388 266 080
46	B	Water treatment (waste water)	€1 388 266 080
47	B	Air quality	€137 561 186
50	D	Rehabilitation of industrial sites and contaminated land	€141 382 207
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€171 988 693
53	C	Risk prevention	€156 110 751
54	C	Other measures to preserve the environment and prevent risks	€113 906 388
85	0	Preparation, implementation, monitoring and inspection	€104 202 190
86	0	Evaluation and studies; information and communication	€26 238 233
TOTAL			€ 4 512 470 138,0

1.22 SPAIN: BUILDING ON THE COVENANT OF MAYORS APPROACH IN BARCELONA

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1.0 Executive Summary

- This case study focuses on the Covenant of Mayors approach in the Province of Barcelona which is a complementary instrument that can support Cohesion Policy in achieving energy efficiency and in the reduction of energy consumption
- The ERDF Operational Programme of the Catalonia Region is structured around two environmental Priority Axes. While the main aim of Cohesion Policy in the region is economic development, the governance and funding structures allow the integration of environmental considerations in the regional objectives
- The Covenant of Mayors approach in the Province of Barcelona has relied on the technical assistance and on the funding of the ELENA support facility, for the mobilisation of resources and the achievement of a 20 percent reduction in CO2 emissions
- The Covenant of Mayors approach, contrary to Cohesion Policy, targets municipalities, which ensures that funds are allocated according to the priorities identified in local areas.
- In addition to the Covenant of Mayors, the Catalonia region has put in place other environmental integration instruments to support Cohesion Policy and to minimise its negative impacts on the environment; among these, the 2026 Sustainable Development Strategy, Environmental Management and Audit (EMAS) and the EU Eco-label scheme are particularly relevant

This report will look to address the following Criterion:

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	X
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	X
	Consultation	

2.0 Background and Context

On 7 December 2007, the European Commission approved the Operational Programme for the **Autonomous Community of Catalonia in Spain for the period 2007-2013**. This Operational Programme comes under the Regional Competitiveness and Employment Objective; its total budget is around **€1.4 billion**. The funding provided by the European Union under the European Regional Development Fund (ERDF) amounts to almost **€679 million**, which represents around 1.9% of Community contributions in support of Spain in the framework of Cohesion Policy for the period 2007-2013.

The Operational Programme identifies general, specific and operational objectives for the allocation of funds. These are structured along five priorities:

Priority (Axis) 1: Knowledge-based economy, innovation and business development (approximately 53% of total investment)

Priority (Axis) 2: Environment and risk prevention (approximately 8% of total investment)

Priority (Axis) 3: Energy resources and access to transport services (approximately 19% of total investment)

Priority (Axis) 4: Local and urban sustainable development (approximately 19.3% of total investment)

Priority (Axis) 5: Technical assistance and the strengthening of institutional capacity (approximately 0.7% of total investment)

According to stakeholders in the region, the development of the Operational Programme and the identification of priorities, objectives and measures is the result of a long process, with analysis of the environmental context as one of the key inputs.

2.1 Current status of the environment

Within the programming and the Strategic Environmental Assessment (SEA) (*Evaluación Ambiental Estratégica*), the Department de Medi Ambiente of the Region has developed an **Environmental Sustainability Report** (*Informe de Sostenibilidad Ambiental*), which analyses the situation of the environment and the environmental impacts of the Operational Programme. The report summarises the outcome of a process which aimed to:

- Define, analyse and quantify the general and specific effects resulting from the implementation of the various strands of the Programme.
- Conduct an environmental study of the current, or pre-operational, status of the impact of the Programme on the environment
- Define corrective and compensatory actions that could minimise the negative environmental effects of the various axis
- Develop a process of public information and consultation

Table 29 summarises the results of the contextual environmental analysis presented in the Environmental Sustainability Report, supplemented by interviews information, with particular attention to those aspects of relevance in the Province of Barcelona.

Table 62 Current status of the environment

Environmental Theme	Current status of the environment (Challenges and assets)
Quality of the air and climate change	<p>Greenhouse Gas emission has been increasing since 1990. In 2001, carbon dioxide and methane constituted more than 89 percent of the greenhouse emissions. The main sector responsible for the emissions is the industry (36 percent of the total in 2001), followed by transports (26 percent of the total in 2001). The report has registered a difference in this sense between Catalonia and the rest of Spain, where the main source of greenhouse gas emission is the energy sector. This difference is probably due to the strong presence of nuclear energy production and of industries.</p> <p>Available data on the PM₁₀ emissions in the last 5 years do not show a clear trend but confirm that the situation is not satisfactory, especially in the metropolitan area of Barcelona. For this reason, a Decree was passed to declare Barcelona one of few special area of protection of the</p>

	atmospheric environment.
Energy consumption	<p>Energy consumption has been constantly increasing at a faster pace than in the EU and in the rest of Spain, in the period 1990-2003. The largest share of this increase has been absorbed equally by natural gas and oil. Similarly, the prevalence of fossil fuels has grown from 65 percent in 1990 and 70 percent in 2003. Renewable energy sources cover a small share of overall consumption (around 3 percent, compared to 7 percent in Spain and 6 percent in the EU); 98 percent of the renewable energy sources is represented by biomass, waste and hydraulic power.</p> <p>Due to the increase in demand (44 percent increase in energy consumption between 1995 and 2003) and the limited and reducing resources, the energy dependency of Catalonia has been increasing since 1990. In 2007, 70 percent of the energy was important, compared to 61 percent in 1990.</p> <p>The most alarming factor is the evolution of energy intensity indicators: the Catalan economy needs increasingly more energy to produce one unit of GDP, i.e. its energy efficiency decreases. This translates into lower competitiveness.</p>
Water resources	Catalonia is among the European regions with the highest level of waters contamination (in particular ground-waters, due to nitrates). The SEA has stressed how there are no signs of improvement in this sense.
Land Use	The urbanised areas of Catalonia have increased at a rate six times higher than the population growth. This aspect is also related to the fragmentation of inhabited areas, due to the development of transport infrastructures, which bears also negative impacts on biodiversity.
Biodiversity	The Department of Medi Ambient has suggested that a thorough evaluation of the situation of animal and plant varieties is necessary, in order to identify instruments to protect these species.
Waste	<p>Waste generation exceeded 4 million tons in Catalonia in 2004. This means that in 2004, every citizen generated 600kg of municipal waste: a rate slightly higher than the EU average. The generation of municipal waste has not stopped growing over the past 10 years. Between 1995 and 2004, municipal waste grew at an average rate of 4 percent annually, compared to an average growth of GDP of 3 percent and an average growth of families' income of 2 percent.</p> <p>The same conclusions cannot be drawn for industrial waste. Annual generation of waste in this sector is in fact stable at 6mln tons. 10 percent of this is considered hazardous waste. An increasing amount of industrial waste is recovered or treated.</p>
Sustainable transport	Road freight transport has increased by 82 percent between 1999 and 2003, in terms of tons carried, while rail transport and shipping have increased only by 10 percent and air transport has decreased by 18 percent. The Region has recognised the problem and the limited development in the area of sustainable transport. Thus, in the 2007-2013 it has introduced a priority axis dedicated to the access to transport services, which should have a positive impact on the environment, on the quality of the air and on the population, while it probably bears limited negative impacts on the landscape.

Stakeholders have suggested that the environmental challenges and natural assets presented in the section above reflect the situation in the city of Barcelona. They have also confirmed that some of the challenges described above are even more acute in the Province of Barcelona than in the rest of the region. This is particularly the case for themes such as:

- **land use:** the population density of Barcelona is very high;
- **energy consumption:** due to the population density and intense industrial activities, energy consumption in Barcelona is higher than in the rest of the region
- **quality of the air:** due to intense industrial activities, high population density and traffic, the quality of the air in Barcelona is worse than in the rest of the region

It is thus possible to conclude that **quality of the air, climate change and energy consumption are the most urgent environmental challenges faced by Catalonia and Barcelona in particular.** According to stakeholders, these issues have been taken into consideration during the drafting of the regional OP. This is clearly the case for Priority Axes 2 and 3.

2.2 Current investment context

The table below shows the financial composition of the Catalonia regional operational programme. The OP has identified five priority axes²⁹⁸, each of which is allocated a budgetary ceiling comprised of EU and national public contributions.

Table 63 Breakdown of finances by Priority Axis, in €²⁹⁹

Priority Axis	EU funding	Public funding				Private funding	Co-financing rate
		Total	Central	Regional	Local		
Axis 1	360,628,594	360,628,594	n/a	n/a	n/a	0	50%
Axis 2	56,741,123	56,741,123	n/a	n/a	n/a	0	50%
Axis 3	113,700,993	153,784,382	n/a	n/a	n/a	0	42.51%
Axis 4	141,955,648	141,955,648	n/a	n/a	n/a	0	50%
Axis 5	6,047.870	6,047,870	n/a	n/a	n/a	0	50%
Total	679,074,228	719,157,617	132,040,124	390,425,594	196,691,899	0	48.57%

In terms of environmental implications, the authorities have decided to allocate a **relatively large component of the fund to direct investments in the environment.** Most of the measures undertaken in Axes 2, 3 and 4 exhibit a clear environmental dimension, while the

²⁹⁸ Table at the end of this document reports the allocation of EU budget to the different categories of expenditures, as presented in the regional OP

²⁹⁹ http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=ES&gv_reg=ALL&gv_PGM=1114&gv_defL=7&LAN=7

measures under Axis 1 are expected to bear only indirect effects on the environment. The table below presents a list of indirect and direct investments in the environment as part of the Catalunya OP and it emphasises measures that are particularly relevant in the Diputació de Barcelona:

<p>Indirect investments in the environment</p> <ul style="list-style-type: none"> • Interventions to promote research and innovation in research centres. Research and innovation has the potential to contribute to the decoupling of economic growth from environmental pressures. • Interventions to improve touristic services, protect and preserve the cultural heritage • Interventions for urban and rural regeneration
<p>Direct Investments in the environment</p> <ul style="list-style-type: none"> • Interventions in energy efficiency, energy control and cogeneration • Interventions in water treatment and waste water management • Interventions aimed at the rehabilitation of industrial sites and contaminated land • Interventions aimed at protecting biodiversity and nature (including Natura 2000) • Interventions for risks prevention • Interventions to improve infrastructures and services in protected areas • Interventions to build specific bus lanes in Barcelona and in the main urban areas

3.0 Overview of environmental objectives, measures and allocations

The SEA has contributed to the introduction of environmental objectives in all plans and programmes developed by region. Moreover, the Environmental Authority has been in charge of analysing and promoting direct environmental projects and monitoring the programme in order to check its environmental sustainability. These tasks have led to a thorough report on the environmental sustainability of the OP (Informe de Sostenibilidad Ambiental, ISA), which identifies the possible significant effects of the programme on the environment (in particular in terms of win-win and win-losses) together with instruments to minimise the negative impacts of the programme

As outlined in Section 2.1, energy consumption, pollution and population density are the main environmental challenges in the Catalonia region and in the city of Barcelona in particular. For this reason, the Operational Programme of Catalonia has identified specific objectives to tackle these challenges.

The region has identified four final objectives for the period 2007-2013:

- Improve the **competitiveness** of the Catalan economy and encourage information society
- Favour **sustainable development**
- Improve **accessibility and sustainable mobility**
- Boost **local and urban development and social and territorial cohesion**

Moreover, two out of four priority axes (Priority Axis 2 and 3) in the OP of Catalonia have a clear environmental objective, while a third axis (Priority Axis 4) has an indirect

environmental objective. **Priority Axis 2 (Environment and risk prevention)** has as the ultimate goal to support sustainable development.

Priority Axis 3 (Energy resources and access to transport services) favours sustainable development, improve accessibility and sustainable mobility. Measures under this axis aim at driving the exploitation of renewable energy sources and the development of new technologies. Moreover, it supports actions to reduce air pollution in relation to urban transport and public transport and to develop infrastructures that encourage inter-modality. Under this axis, the OP has identified three priorities of intervention:

- **Accessibility:** reduce the number of journeys and the complexity of mobility; support the introduction of inter-modality to introduce a more rational use of available transport capacity
- **Sustainable mobility:** improve the quality of intercity transport to make it a real alternative to private transport; in particular, in the Province of Barcelona, it is important to reduce the effects of road congestions on public transport and thus increase its exploitation
- **Energy resources:** facilitate investments in energy efficiency and in a more rational use of energy; achieve a reduction in energy consumption of 1.7 percent annually; increase knowledge and training in the field; promote the exploitation of renewable energy sources

Finally, **Priority Axis 4** ‘Sustainable local and urban development’ aims at promoting local and urban development and at achieving social and territorial cohesion. Measures under this axis aim at boosting economic development through the enhancement of natural heritage and at promoting the protection, rehabilitation and preservation of cultural heritage.

As shown in Table 63 the largest share of the funds is concentrated on Priority Axis 1, which does not outline clear environmental objectives. Nonetheless, the SEA has concluded that even this priority axis is expected to have indirect positive implications on the environment and on sustainable development (see Section 4.0).

Overall therefore, the Operational Programme of the Catalonia region has clear environmental objectives that aim at tackling existing environmental challenges (i.e. land use and high population density, energy consumption and energy efficiency, mobility and pollution).

4.0 Analysis of measures and allocations

The Catalonia OP has a clear environmental dimension and a large share of overall investments is allocated directly to tackle environmental challenges. Consequently, most of the measures and allocations in the OP are likely to lead to both positive economic outcomes and positive environmental impacts. In cases where interventions are likely to lead to negative environmental impacts, the Environmental Authority has identified measures to minimise these. Finally, the regional government and, in particular, the Province of Barcelona, has identified complementary instruments to enhance environmental capital.

4.1 Development Path Approach analysis

The analysis of financial allocations shows that **the majority of funds (70 percent) are allocated to activities that pursue environmental sustainability and in particular to eco-efficiency (Path E) and decoupling (Path F) interventions**. More precisely, the largest share of funds (41 percent) is allocated to interventions that have the potential to decouple economic activity from pressures on the environment/natural capital (relative wins) (e.g. new technologies that promote the use of renewable energy and that reduce consumption patterns). Overall, the measures financed by the Cohesion funds in the Catalonia Region aim at generating synergies between economic development and environmental sustainability and they intend to decouple economic activities from pressures on the environment/natural capital. According to the ISA, interventions under Priority Axis 2 and 4 are very likely to lead to **win-wins**. Measures under this axis in fact aim at achieving sustainable development, while at the same time improving the environmental situation of the region and of the Province of Barcelona in particular.

On the other side, the ISA has concluded that potential **win-losses** come primarily from the **establishment and the equipment of large scientific and technological centres and the development of new tools and services to attract business** under Priority Axis 1. These interventions might bear negative effects on biodiversity, waste and communication. Moreover, they might even negatively impact the main environmental issues of Catalonia, such as land use (urbanization), final energy consumption and waste generation. The creation of an **intermodal station** might also constitute a win-loss due to its impact on the landscape, even though it bears positive impacts on air emissions and climate change.

The Environmental Authority has also identified possible instruments to monitor and limit the negative impact of the above interventions on the environment in addition to the EIA required by legislation. Indeed, the EA requires the introduction of environmental clauses, during the tendering procedure. The document ‘Criteria for the selection of interventions in the OP Catalunya 2007-2013’³⁰⁰ outlines environmental criteria that need to be taken into account as horizontal principles and it identifies requirements that applicant have to comply with in order to contain or remove possible negative impacts on the environment, related to specific categories of expenditure. The document also specifies environmental criteria relevant for each priority axis and for each category of intervention within those.

4.2 Other tools to enhance environmental integration

The 2026 Sustainable Development Strategy

The Generalitat de Catalonia (regional government) has developed the **2026 Strategy for the Sustainable Development of Catalonia**. The Strategy for Sustainable Development is an inter-departmental (i.e. it involves multiple departments in the Region and not only the environmental authorities) strategy that is supposed to establish a roadmap of key objectives and lines to guarantee Catalonia’s transition towards a safe, eco-efficient low-carbon economy. The strategy is based on the minimisation of the consumption of resources (especially non-renewable resources) and of the impacts on health and the environment and its main goals are:

³⁰⁰ Criterios de Selección de operaciones del Programa Operativo Feder Catalunya 2007-2013

- Harmonise economic development and improve the wellbeing and quality of life of the citizens.
- Internalise environmental costs and the value of the services of ecosystems and of biodiversity.
- Ensure the restoration of the damage caused by environmental impacts and the recovery of natural capital and its functionality.
- Achieve true horizontal and vertical integration with regard to the various sectoral policies and the various levels of government, respectively, whilst guaranteeing coherence between the various sectoral objectives.
- Guarantee the participation of the public in decision-making processes.
- Achieve a cultured and inclusive society with equal opportunities and solidarity.

The 2026 Strategy for Sustainable Development can be considered a **voluntary instrument** (i.e. not required by national or EU legislation), which has been introduced by the Catalonia Region in order to give direction to the region and to the municipalities to tackle key environmental challenges. Thus, it is possible to see a correspondence between the objectives identified in the Strategy for Sustainable Development and those identified in the Operational Programme (Axis 3 in particular). The strategy in fact focuses on energy, renewable and climate change aspects, to reduce energy consumptions and improve energy efficiency. More precisely, the strategy aims at changing the productive model in the region, in order to reduce energy consumption and pollution. Similarly, it tackles the problem of mobility, with a particular attention to the city of Barcelona, in order to reduce peak entrance and pollution in the city.

With respect to Cohesion Policy and its objectives, the 2026 Strategy aims at providing long-term inter-departmental guidance to ensure collaboration across different departments and government agencies (**‘comprehensive approach’**) and between the government and citizens. It sets the ground for collaboration across the teams involved in the implementation of Cohesion Policy measures.

Other instruments to address environmental challenges

In addition the Catalonia Region also exploits additional instruments, alongside Cohesion Policy, in order to foster environmental sustainability. In particular, the region has been implementing voluntary instruments for **sustainable consumption and production**, such as the Environmental Management and Audit Scheme (EMAS) and the EU Eco-label Scheme.

5.0 Specific issue: the Covenant of Mayors approach as a complementary instrument

The main focus of this case study is the **Covenant of Mayors approach in the Province of Barcelona**. Under the political guidance of the Covenant of Mayors, the Province of Barcelona offers municipalities the technical and financial assistance for the development of Sustainable Energy Action Plans (SEAP), which steer municipalities towards a significant reduction of energy consumption and towards an increase in the creation and exploitation of renewable energy³⁰¹. As at August 2010, 137 municipalities in the Province had signed up to the Covenant of Mayors and developed their own SEAP. Each signatory municipality is committed, through this plan, to adopting the necessary measures to help the fight against

³⁰¹ Energy efficiency and climate change are among the key issues in the Catalonia region and in the Province of Barcelona in particular; the section on the current status of the environment will explore these themes in details

climate change. In May 2010, the Province of Barcelona was the first **supporting structure**³⁰² (in the EU) to receive the financing and the technical assistance of the **ELENA (European Local Energy Assistance) technical assistance facility**. The ELENA facility is financed by the European Commission and by the European Investment Bank (EIB). Its main aim is provide the initial resources to set up the governance mechanism for the implementation of the SEAP and to mobilise financial resources.

The Covenant of Mayors approach for the implementation of the Action Plans in Barcelona differs quite substantially from Cohesion Policy governance and financing. While Cohesion Policy directs its funding and its resources towards regional governments, the Covenant of Mayors approach exploits the **crucial role of municipalities** in achieving positive results on the environment and on energy consumption and climate change in particular. Moreover, the ELENA facility does not use European Regional Development Fund (ERDF), or any other Cohesion Fund to finance the implementation of the Plan or attract funding. However, it helps municipalities mobilise the resources necessary for the implementation of the SEAPs. While the European Commission does not exclude the **possibility of using ERDF to finance these plans**, the decision is ultimately in the hand of local municipalities. Thus, the ELENA facility and the Covenant of Mayors approach can be considered as **complementary instruments** that work alongside Cohesion Policy to tackle environmental issues and to achieve sustainable development.

5.1 Objectives of the Covenant of Mayors approach

The actions supported through the Covenant of Mayors approach aim at tackling the alarming problem of energy consumption in the Province of Barcelona. In order to do so, it relies not only on the proposed investment programme, but in particular on the exchange of best practices and the exchange of funding for the realisation of specific projects, among the different municipalities. The Structural Funds can also be used to support the implementation of these projects. The proposed investment programme aims to support the refurbishment of public buildings, street lighting and the large-scale installation of photovoltaic (PV) systems throughout the Province's built environment. The main objectives of the Plan are listed below:

- to lead to 87.5 MWp of photovoltaic (PV) installed capacity – or 1.5 million m² of PV surface – with a potential electrical capacity of 114 GWh per year;
- to yield annual energy savings of 280 GWh;
- to reduce energy consumption by 20 percent;
- to reduce greenhouse emissions by 20 percent;
- to increase the recourse to renewable energy by 75 percent;
- to reduce average CO₂ emissions by 150 000 to 200 000 tons a year

The Action Plans should include measures to reduce the GHG produced by the direct activities of a town or city council (e.g. **energy consumption for public lighting, facilities and vehicle fleets**). They should also include measures to tackle emissions on which a town or city council can take action, even indirectly (e.g. **household sectors, services, transport, waste and water**). The objective is to reduce the GHG figure by 20 percent by 2020. The estimated reduction for the municipalities of the Province of Barcelona, which have signed up

³⁰² The term 'supporting structure' refers to the fact that Province of Barcelona has been acting as the coordinating authority for the development of the SEAPs and the distribution of the funding in a bundle of municipalities; besides this, it has been implementing its own SEAP

to the Covenant would account for almost half of Catalonia’s diffuse emissions reductions. The ambitious nature of these objectives is reflected in the value of the commitment that the local community is making through the Covenant of Mayors and the leadership role that Barcelona Provincial Council’s Environmental Department is providing.

The emissions assessment process undertaken under the guidance of the Province provides the estimates shown in **Error! Reference source not found.**

Table 64 Emissions and planned reduction in emission (in tonnes of CO2)

	Total emissions	Planned reduction
44 municipalities (2009)	4,962,977	992,595
105 municipalities signed up (2009) (estimated)	19,100,902	3,820,180

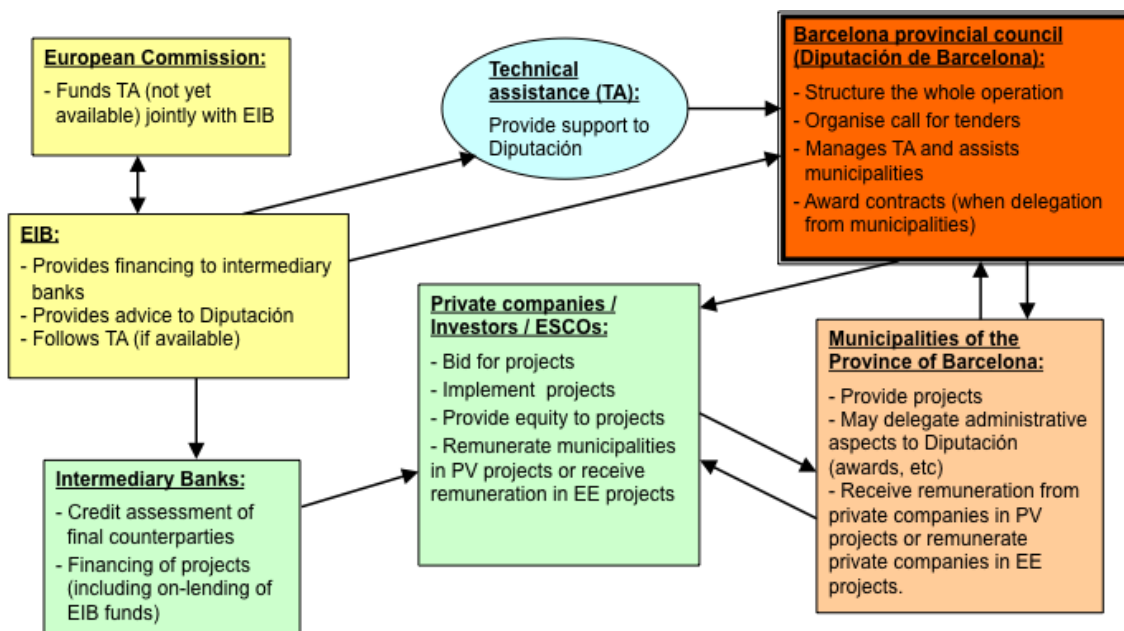
The Covenant of Mayors approach and Cohesion Policy complement each other and, in most instances, aim at achieving similar objectives. In particular, this is the case for the reduction of CO₂ emissions and energy consumption and improvements in energy efficiency, targeted through the measures under Priority Axis 2. Consequently the approaches taken under the Covenant of Mayors enables already a structure for best practices that can be supported through Cohesion Policy.

5.2 Governance mechanisms of the Covenant of Mayors approach

As mentioned above, the Covenant of Mayors approach and Cohesion Policy complement each other in the achievement of sustainable development. Each of them however relies on different governance mechanisms to pursue the same objective. In particular, while Cohesion Policy funds are directed to national or regional governments³⁰³, the Covenant of Mayors approach involves municipalities directly. The interaction between these two levels enables the two instruments (i.e. Cohesion Policy and Covenant of Mayors) to provide a more comprehensive and effective structure to achieve sustainable development and, in particular, to reduce energy consumption. The main value added of this approach, according to government bodies, private companies and European institutions that finance these activities, is that local municipalities can directly and more effectively act in the field. The governance structure of the Covenant of Mayors approach and of the ELENA facility is presented in **Error! Reference source not found.**

³⁰³ In the case of Spain, each region has its own operational programme and receives funds to implement it

Figure 18 Governance structure of ELENA support



The **Barcelona Provincial Council** plays the focal role in the Covenant of Mayors approach. The Province was the first **Supporting Structure** to join the Covenant of Mayors and in this: this role provides coordination and support to a bundle of small and medium municipalities in the region and it helps them not only drafting the SEAP but also identifying the funds. As a first step of the governance mechanism, the Barcelona Provincial Council has developed a specific methodology for producing the SEAP. The methodological protocol includes signing a support agreement between each town or city council and the Provincial Council, contracting external consultants and providing financial support to defray expenses associated with the creation and formation of monitoring committee. In order to carry out all these activities, the Provincial Council has set up a specific unit (*henceforth Unit*)³⁰⁴, within the Environment Department of the Diputacio.

Following this setting up phase, the **Unit** will be in charge of coordinating the operations undertaken by the different municipalities. In particular, it will provide assistance (together with the EIB and the EC) to the municipalities for the technical preparation of projects; for the regrouping of projects in packages and for the preparation of tenders. Moreover, the Unit will verify whether each of the projects and contracts satisfies the criteria to obtain EIB funding (eligibility criteria) and the reporting requirements. More in general, the Unit has the technical and field expertise to assist the municipalities throughout the identification and implementation of the projects.

Each **municipality** will then be in charge of the actual implementation of the SEAP, namely by identifying relevant projects, run the tendering procedure, receive remuneration from private companies and intermediary banks and distribute the funds to private companies and other agencies. In this framework, **private companies** play multiple roles:

³⁰⁴ The Unit has now 6 employees and it has been set up thanks for the funding provided by the EIB and EC

- a. They provide equity for the implementation of projects and they remunerate municipalities for the implementation of Photovoltaic projects
- b. They bid for projects and receive remuneration for the implementation of Energy Efficiency projects

As mentioned before, the funding for the setting up of this governance mechanism, for the technical assistance and for the credit line are provided by the European Commission (DG ENER) and by the EIB under the so-called ELENA support facility. The main purpose of the ELENA facility, as of many other financial engineering instruments, is to **mobilise funds for the implementation of the SEAP**. In this sense, the EC and the EIB not only invest funds in this project, but also help the Province of Barcelona identifying the best way of financing them. **The financial instruments at the disposal of the municipalities for the implementation of the SEAP include also Structural Funds, such as those allocated to the implementation of the OP**. However, ultimately it is up to the municipalities to decide how to raise the funds necessary for the implementation of the SEAP.

The **European Commission**, through the **Intelligent Energy Europe programme** has funded actions to provide technical assistance to the municipalities. The European Commission in fact recognized that the municipalities do not have the expertise to implement this type of energy efficiency projects and thus would need assistance in the early stage and throughout the implementation of the plan. The European Commission also reviews the monitoring of the SEAP that the municipalities are supposed to carry out every two years. In this respect, Commission's experts also help defining the methodological framework for the identification of the indicators necessary in the preparation of the SEAP³⁰⁵ and for the monitoring of the impacts and of the results of the SEAP.

The **European Investment Bank** was also involved in the provision of assistance to the municipalities in the implementation of the Plan. In particular, a team of energy experts in the EIB helps the municipalities understand which projects needs to be implemented to achieve the goals of the Plan and what needs to be done in practice. Moreover, the EIB has allocated €250 million to a credit line to provide financing for implementation of the projects and it plans to attract €250 million more from intermediary banks. In this sense, the EIB plays two significant roles:

- **Critical financing role:** EIB put €250 million in a credit line to finance projects in energy efficiency in public lightings, energy efficiency in buildings, photovoltaic on buildings and photovoltaic on ground; this financing was critical in order to overcome the lack of public funding, due to economic conditions
- **Catalytic role:** the EIB investment acted as a sort of guarantee to attract funding from intermediary banks and public companies; the participation of the EIB in the implementation of the Plan convinced other parts of the seriousness of the undertaking; moreover, the EIB got directly involved with intermediary banks and companies, in order to explain the approach and the large potential of these investments

³⁰⁵ These indicators, which include energy consumption and energy efficient values, are necessary to identify the main environmental challenges and the instruments to tackle them, to be included in the SEAP

5.3 Investment context

The European Local Energy Assistance (ELENA) support facility provides funding and technical assistance for the achievement of environmental objectives, similar to those identified in the Operational Programme³⁰⁶.

More precisely, the ELENA facility provides financial and technical assistance to help local and regional authorities attract funding for sustainable energy projects. It was launched by the European Commission and the European Investment Bank (EIB)³⁰⁷ in December 2009 to support more than €1 billion of energy efficiency and renewable energy projects in 2010. To do so it is providing €30 million in funding from the Intelligent Energy Europe (IEE) programme to help cities and regions implement viable investment projects in the areas of energy efficiency, renewable energy and sustainable urban transport. Through ELENA, the Province will receive €2 million to finance the necessary technical assistance for the development of a €500 million investment programme.

The European Commission provides technical assistance to support the Province and the municipalities in the setting up of the Plans and in the creation of infrastructures for the tendering procedure and the implementation of the Plan. The Province of Barcelona has received, to date, over €2 million from the Commission, through the Intelligence Energy Europe programme. At the same time, the EIB has created a **credit line** that aims at distributing **€250 million** in funding for the achievement of the following objectives in the Province of Barcelona:

- deliver CO2 reduction programmes at scale and economic benefits to the municipalities
- help small-medium municipalities to implement programme in these areas
- attract funding from banks and private companies

As described in the previous paragraph, the EIB aims at achieving these objectives in the Province of Barcelona, not only through its critical financing role, but also playing a catalytic role to attract funds from intermediary banks and companies. In particular, the team of energy experts in the EIB has helped and cooperated closely with the Province of Barcelona to attract funds from other sources.

Hence, the main role of the funding received by the Commission and the EIB is to put in place a robust governance structure and implementation system that will be able to attract funding from private companies and intermediary banks, which will compensate for the lack of public resources. According to stakeholders both within the Province, at the EC and at the EIB, without the investment of these European institutions, the Province of Barcelona would not have had the funds or, alternatively, would not have been able to attract the funds to implement the Sustainable Energy Plan and achieve ambitious objectives of energy efficiency and sustainability³⁰⁸.

³⁰⁶ . However, the ELENA facility differs substantially from any other Cohesion Policy instrument because the funding is allocated directly to municipalities in the Province of Barcelona, rather than to regional authorities. The governance approach will be explored in more details in Section 5.2. This section instead explores the financial allocations of the ELENA facility.

³⁰⁷ The European Investment Bank offers a range of upstream technical assistance in addition to financial means to support sustainable development in the EU; ELENA is one of the facility used in this sense, together with JASPERS and JESSICA

³⁰⁸ This is particularly the case if we consider the economic situation and limited public resources available in Spain as a consequence of the financial crisis

5.4 Preliminary outcomes of the Covenant of Mayors approach

As of September 2009, nearly half of the SEAPs initiated in the Province of Barcelona are being completed or have sufficient results to do an initial assessment of the state of affairs. These are the SEAPs of municipalities ranging in population size from 300 to 200,000 inhabitants.

Most of the proposed actions (44 per cent) that have taken place so far correspond to those affecting municipal buildings and energy generation, mainly through photovoltaic electricity. The following actions also weigh fairly heavily: public lighting (9 per cent of investments), the household sector (9 per cent) and transport and mobility (9 per cent). Other areas of action include waste and water management, urban planning, building and maintenance, public procurement of goods and services, civic participation and environmental awareness and education activities. Generally speaking, 75 per cent of the actions correspond to issues falling within a municipality's direct mandate. Of the remaining 25 per cent, 18 per cent correspond to actions associated with mobility and notably with the household sector.

One of the main conclusions that can be drawn from the initial results of the SEAPs is that there is a need to define two specific areas of action:

- Municipalities with fewer than 25,000 inhabitants where, due to social, financial and town-planning aspects, a special approach is required in each instance. The main feature of these municipalities is that the levels of emissions per inhabitant attributable to town and city council activities are very high. One of the reasons for this is the fact that municipal energy consumption in large town or cities is spread among a higher number of inhabitants. A high proportion of this consumption corresponds to services associated with the municipal services, like public lighting, sports facilities and schools.
- Medium and large towns and cities, which have more uniform total emissions levels and characteristics environmental situations and problems

A first analysis suggests that, while the approach followed by Cohesion Policy through the Operational Programme appreciates and tackles the environmental challenges in medium and large municipalities (like the City of Barcelona), it fails to detect and undertake problems which are specific to small municipalities. One of the advantages of the Covenant of Mayors approach is precisely the capacity to empower municipalities with specific needs.

6.0 Conclusions

The key environmental issues in the Province of Barcelona are quality of the air, climate change and energy consumption. These issues have been taken into consideration in the development of the Operational programme, in particular under Priority Axes 2, 3 and 4. The SEA has contributed to the introduction of environmental objectives in all plans and programmes developed by region. Moreover, the Environmental Authority requires the introduction of environmental clauses, during the tendering procedure, it outlines environmental criteria that need to be taken into account as horizontal principles and it identifies requirements that applicant have to comply with in order to contain or remove possible negative impacts on the environment, related to specific categories of expenditure. The emphasis put, in the Catalunya region, on environmental sustainability is also reflected by the fact that the majority of funds (70 per cent) are allocated to activities that pursue

environmental sustainability and in particular to eco-efficiency (Path E) and decoupling (Path F) interventions.

In order to complement Cohesion Policy efforts and in order to tackle specifically the issue of energy consumption and energy efficiency, the Province of Barcelona provides political and technical guidance for those municipalities that agree to the development of a Sustainable Energy Action Plan (SEAP), through the Covenant of Mayors approach. The voluntary participation of municipalities in the Covenant of Mayors facilitates the exchange of best practices towards the reduction of GHG and energy consumption and it allows the exchange of funding among the different municipalities for the realisation of specific projects.

In support of this goal and in order to reduce energy consumption by 20 per cent, the Province of Barcelona has sought the support of the ELENA facility. The Province of Barcelona was the first supporting structure to be granted ELENA funding and it acts as a coordination unit between European institutions and the municipalities and across the municipalities. Through this instrument, the European Commission (DG ENER)³⁰⁹ and the European Investment Bank (EIB) provide funds and technical assistance to mobilise the resources necessary for the implementation of the SEAPs in the different municipalities. Stakeholders in the EIB and in the EC suggested that municipalities might be able to use Structural Funds, in order to implement the SEAPs, especially in consideration of the fact that the objectives of the Covenant of Mayors approach and of the OP are quite similar. However, the decision to use these funds is ultimately in the hands of the local municipalities.

In this sense, the Province of Barcelona represents an interesting case in which different EU funds complement each other to achieve common objectives, namely environmental sustainability, energy efficiency and reduction of energy consumption. The ERDF, the IEE and the EIB credit line target different stakeholders, in the sense that their resources are directed to different actors (i.e. regions or municipalities). This seems to ensure a more comprehensive and effective structure to achieve sustainable development and reduce energy consumption, while avoiding double financing.

7.0 References

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³⁰⁹ EC funds come from the Intelligent Energy Europe programme (IEE)

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Informe de Sostenibilidad Ambiental, del Programa Operativo FEDER de competitividad regional y empleo de Cataluña 2007 -2013

Programa Operativo FEDER de Cataluña 2007-2013, November 2007

8.0 Interviews

- Alario Juan, European Investment Bank
- Frederic Ximeno, General Director of Environmental Policies and Sustainability, Department de Medi Ambient i Habitatge, Generalitat de Catalunya
- Mireia Cañellas, Head of the Sustainable Development Unit, Department de Medi Ambient i Habitatge, Generalitat de Catalunya
- Marta Batllell, Tècnica de la Unitat de Desenvolupament Sostenible, Department de Medi Ambient i Habitatge, Generalitat de Catalunya
- Domènec Cucurull i Descàrrega, Gerència de Serveis de Medi Ambient, Deputacio Barcelona
- Joan Antoni Baron Espinar, Member of Barcelona Provincial Council and Mayor of Mataro, Pioneer in the ELENA
- Roman Doubrava, DG Energy

Table 65 Allocation of EU budget to the different categories of expenditures

Activity (Codes)	Description	Budget EU (€ million)
1	R&TD activities in research centres	€ 42,004,763
2	R&TD infrastructure and centres of competence in a specific technology	€ 37,935,165
3	Technology transfer and improvement of cooperation networks	€ 55,981,879
4	Assistance to R&TD, particularly in SMEs (including access to R&TD services in research centres)	€ 2,500,000
5	Advanced support services for firms and groups of firms	€ 20,000,000
6	Assistance to SMEs for the promotion of environmentally-friendly products and production processes	€ 1,500,000
7	Investment in firms directly linked to research and innovation	€ 32,159,334
8	Other investment in firms	€ 40,654,949
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 5,500,000
11	Information and communication technologies (...)	€ 15,468,947
13	Services and applications for citizens (e-health, e-government, e-learning, e-inclusion, etc.)	€ 4,923,557
14	Services and applications for SMEs (e-commerce, education and training, networking, etc.)	€ 2,000,000
25	Urban transport	€ 32,066,709
26	Multimodal transport	€ 48,100,063
42	Renewable energy: hydroelectric, geothermal and other	€ 7,866,261
43	Energy efficiency, co-generation, energy management	€ 25,667,960
50	Rehabilitation of industrial sites and contaminated land	€ 14,235,634
51	Promotion of biodiversity and nature protection (including Natura 2000)	€ 31,530,798
53	Risk prevention	€ 10,974,691
56	Protection and development of natural heritage	€ 18,970,081
57	Other assistance to improve tourist services	€ 21,288,646
58	Protection and preservation of the cultural heritage	€ 17,916,188
61	Integrated projects for urban and rural regeneration	€ 83,780,733

85	Preparation, implementation, monitoring and inspection	€ 4,616,613
86	Evaluation and studies; information and communication	€ 1,431,257
TOTAL		€679,074,228

1.23 SPAIN: THE GREEN PUBLIC PROCUREMENT ACTION PLAN OF THE BASQUE COUNTRY

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1.0 Executive Summary

- The Autonomous Community of the Basque Country is one of the most industrialised regions in Europe and has benefited from dynamic economic growth during the last decade. The region’s involvement in sustainable development policies, through its investments in eco-innovation and its strategy on green public procurement, is long-standing.
- The major share (around 75%) of regional funding through the Operational Programme (OP) has been allocated to Axis 1 of the OP, entitled “Knowledge and innovation economy and trade development”. Axis 3 concerning “Energy resources and access to transportation services” comes second, with 17% of the funding. Among the five axes of the OP, funding is equally split among EU and national contributors, with the exception of Axis 3.
- The OP has been developed in consultation with the public and the stakeholders. Environment and sustainable development is a very important concern for the region and has framed the entirety of the OP investments.
- The Basque Country has developed a set of regional monitoring indicators to complete the European ones in order to more precisely measure the impacts of investments and the progress regarding sustainable development, in general, and green public procurement, in particular.
- Around two thirds of EU funding is related to DPA F, concerning investments in research, development, and innovation, illustrating the focus of the region on eco-innovation and the knowledge economy.
- Given the orientation of the OP, the general strategy of the region on sustainable development and environmental protection, as well as the assets of the region — especially in terms of infrastructure — win-win situations are prominent in the Basque Country.

Processes of Integration	Criterion	Case study coverage
Strategic	Inclusion	
	Consistency	
	Weighting	x
	Financial resources	x
Procedural	Assessments	
	Reporting and evaluation	
	Proofing tools	x
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and context

After the integration of environmental factors in public policies by the first EU sustainable development strategy discussed in June 2001 at Goteborg, the importance of

public procurement with environmental criteria and the need to implement action plans in this field was recognised. These action plans appeared for the first time in the Commission's Integrated Policy of Products in June 2003. The European regulation framework was specified with the Directive on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts³¹⁰, which introduced environmental and social criteria. The European Commission, through DG Environment, and various actors in Member States worked together with the aim of facilitating the development of national green public procurement (GPP) plans.

The importance of public procurement was assessed in 2005 when the European Commission required that the 25 Member States carry out a study which was ultimately published in October 2005³¹¹. Then, the 2006 review of the European Union Sustainable Development Strategy incorporated concrete objectives about public procurement. A general objective has been fixed to improve and promote models of sustainable production and consumption.

In this context, and in the framework of environmental policy strategies, the Spanish Council of Ministers created the Inter-Ministerial Commission for the Incorporation of Environmental Criteria in Public Procurement on 22 May 2006. This Commission was required to elaborate a GPP action plan, so as to articulate the connection between public procurement and the implementation of practices in favour of the environment. This plan is intended to be a complementary measure to other national environmental protection policies such as the Economic and energy efficiency plan 2004-2012, the integrated national waste plan 2007-2015³¹² or the Spanish strategy for climate change and clean energy 2007-2012-2020³¹³.

Moreover, in January 2008, the Spanish Council of Ministers adopted a proposition from the Minister of the Environment and the Minister of Finance concerning the approval of a GPP plan (*Plan de Contratación Pública Verde*) for the General Administration of the Spanish State, its public organisms and the managing entities of social security³¹⁴.

Operational Programme 2007-2013

On 28 November 2007, the European Commission approved an Operational Programme (OP) for the Autonomous Community of Basque Country covering the period 2007-

310 Directive 2004/18/EC of the European Parliament and of the Council of 31 March 2004 on the coordination of procedures for the award of public works contracts, public supply contracts and public services contracts, OJ L 134, 30.04.2004, p. 114-240, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:134:0114:0240:EN:PDF>

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312 Ministerio de medio ambiente, y medio rural y marino, Plan nacional integrado de residuos (PNIR) 2007-2015, BOE n° 49, Jueves 26 de febrero de 2009, Sec. I, p. 19 893, <http://www.boe.es/boe/dias/2009/02/26/pdfs/BOE-A-2009-3243.pdf>

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2013³¹⁵. This OP comes under the 'Regional competitiveness and employment' objective and has a total budget of around €500 million. The assistance provided by the European Union via the ERDF amounts to some €241 million, which represents about 0.7% of Community contributions in Spain under the 2007-2013 cohesion policy. The planned national contribution amounts to €260 million and may be made up partly of Community loans granted by the European Investment Bank (EIB) and other loan instruments.

The OP identifies general, specific and operational objectives for the allocation of funds. These are structured along five priorities:

- Priority (Axis) 1: Knowledge economy, innovation and business development (approximately 71.5% of total funding)
- Priority (Axis) 2: Environment and risk prevention (approximately 3% of total funding)
- Priority (Axis) 3: Energy resources and access to transport services (approximately 20% of total funding)
- Priority (Axis) 4: Local and urban sustainable development (approximately 4.5% of total funding)
- Priority (Axis) 5: Technical assistance (approximately 1% of total funding)

2.1 Current state of the environment

On top of European environmental indicators, the Basque Country developed its own indicators, adapted to the specific regional environmental and economic context, its natural assets and its previous environmental objectives. These indicators relate to the following environmental themes:

- water quality and water use;
- air quality;
- soil quality, biodiversity and landscape;
- soil artificialisation;
- waste treatment and production;
- energy consumption and GHG emissions.

These identify the region's strengths and weaknesses with regard to essential environmental variables such as GHG emissions, the production of waste and the consumption of energy and space. They also help to assess the progress and achievements made by the region and identifying the remaining steps towards achieving better environmental quality.

The selection of projects depends on their ex-ante environmental impacts, as measured by these indicators. In this sense, these can be perceived as tools enabling eco-

315 Programa Operativo del País Vasco (2007-2013) – FEDER-España, http://www.ogasun.ejgv.euskadi.net/r51-19239/es/contenidos/informacion/politica_regional/es_2340/adjuntos/071108_PROGRAMA_OPERATIVO_OCTUBRE_2007.pdf

conditionality of Cohesion Policy funding. These indicators are of the similar nature as the indicators used at EU level, but they have been adapted to take into account regional as well as national specificities. This is an example of good-practice that could be followed by other MS and regions and that would enable a better integration of sustainable development in Cohesion Policy.

Table 29 summarises the environmental assets and challenges of the Basque Country, as identified in the Operational Program and in the environmental and ex-ante assessments.

Table 66: Current status of environmental, economic and social assets of the region relevant for the case-study

Environmental Theme	Current status of the environment (Challenges and assets)
Quality of the air	Emissions of acidifying substances as well as emissions affecting the ozone layer decreased between 1990 and 2003, respectively by 14% and 11%. The reduction of SO ₂ emissions is on track to reach the objectives fixed by the EU (24% decrease between 1990 and 2003). This is not the case of NO _x emissions, which have increased by 18% between 1990 and 2004.
Water resources	In the early 2000's, the quality of river waters was clearly improving (the rate of stations with high levels of water quality increased from 18% in 2000 to 38% in 2004). The consumption of water remained stable between 2001 and 2004 in the large Basque cities due to the stabilisation of the population and other water services. However, since 2004, a regular deterioration of water quality has been observed. Concerning the estuarine water, the quality is stable but is below the quality of coastal waters (46% of stations were uncontaminated in 2004, against 11% for estuarine stations). A decrease in pollutants has been observed between 1998 and 2004 due to the construction of sanitation infrastructures. These improvements include reduced concentrations of copper (-59%), zinc (-85%), phosphorus and concentrates (-81%) and nitrogen (-56%).
Urban development and waste	The total area transformed by human development increased by 5.2% between 1994 and 2005. Nevertheless, the transformed areas represent only 6.5% of the total regional surface. The production of municipal waste per capita increased by 14% between 1998 and 2004. During the same period, the rate of municipal waste disposal decreased by 20%.
Energy consumption and climate change	The final consumption of energy increased by 38% between 1990 and 2004, with a spectacular raise of 4.6% from 2003 to 2004. Still, thanks to significant improvements in energy efficiency during the same period, the energy intensity of the Basque economy decreased by 13%. Finally, in 2004, renewable energies supplied 4.9% of the Basque energy demand and have increased by 77% since 1990.

Environmental Theme	Current status of the environment (Challenges and assets)
	Between 1990 and 2004, direct GHG emissions have increased by 35% and the total emissions by 2% (by taking account of direct and indirect emissions). In 2004, GHG emissions per capita were around 11.6 tonnes CO ₂ eq, which is superior to the European average (11% more, compared to the EU-15) and the national level (9.7% more) in 2003.
Biodiversity and landscapes	Thirty-four vertebrate species are endangered. Additionally, 11% of the total territorial area is included in natural protected areas and 14% of the territory is concerned by projects of ecologic corridors.
Human capital and employment	Up to 2006, the GDP growth rate accelerated year after year and reached a peak in 2006, with an annual growth rate of 4.2%. The pace of economic growth in the region has been higher than the national average. The region has a very strong industrial sector, which represents around one quarter of the total regional GDP, while the national average is 15%. The tertiary sector represents 53.8%, construction 8.1% and the primary sector only 0.9% (figures from 2006). The number of companies increased by 17.7% between 1997 and 2005. The labour market was very dynamic until the global economic downturn struck in 2008 and 2009. Unemployment in the Basque Country has declined by 28% between 2000 and 2006. Productivity gains during the 90's and 2000's were also significant (30.8% higher than the EU-25 average and the second region after Luxembourg in terms of work productivity per capita). Finally, the share of youth who do not continue their education after the end of obligatory education (12.4%) was the country's lowest (30.4% nationally) in 2006.

2.2 Current investment context

Table 67 shows the financial composition of the Basque Country OP. Five priority axes have been identified and allocated EU as well as national funds.

Table 67 Breakdown of finances by Priority Axis, in €³¹⁶

Contributions in €		EU Contribution	National Public Contribution	Total Public Contribution
Axis 1	Knowledge and innovation economy and trade development	179 754 959	179 754 959	359 509 918
Axis 2	Environment and risks	6 652 377	6 652 377	13 304 754

³¹⁶ Source: Programa Operativo de Pais Vasco 2007-2013, p. 108

	prevention			
Axis 3	Energy resources and access to transportation services	40 177 390	59 370 142	99 547 532
Axis 4	Local and urban sustainable development	11 626 671	11 626 760	23 253 342
Axis 5	Technical Assistance	2 370 760	2 370 760	4 741 520
Total		240 582 157	259 774 909	500 357 066

With 74.72% of the total OP budget, Axis 1 is by far the largest beneficiary of OP funds: Axis 2, Axis 3 and Axis 4 represent respectively 2.77%, 16.70% and 4.83% of the OP funds.

Considering that Axis 2 and Axis 3 directly concern the environment, direct investments in the environment amount to 19.47% of the OP funds.

Nevertheless, investments under Axis 1 and Axis 4 can have indirect benefits for the environment as well (see Table 68). This is especially true for Axis 4 which is explicitly framed by the desire to “not only foster the increase of employment but also pursue social and environmental objectives”³¹⁷.

Table 68 Environment-related interventions of the OP

Direct investments in the environment
<ul style="list-style-type: none"> • Interventions to rehabilitate industrial areas and contaminated sites (Axis 2) • Actions to prevent risks; notably the restoration of the forest and of the hydraulic public domain (Axis 2) • Promotion of information, awareness raising and education at “green ways” (Axis 2) • Development of cycle lanes (Axis 3) • Incentives for sustainable mobility projects and for clean transport (Axis 3) • Promotion of renewable energies and actions for energy efficiency (Axis 3)
Indirect investments in the environment
<ul style="list-style-type: none"> • Promotion of research centres – among which eco-innovation research centres (Axis 1) • Incentives to create cooperation networks and technology transfers between SMEs (Axis 1) • Promote the ICT³¹⁸ (by the reduction of transport and associated emissions) in the public administration for citizenship services (Axis 1) • Support to integrated projects of regeneration of urban and rural areas with a sustainable and long-term perspective. This objective is included in the European urban system (Axis 4)

317 Basque Country OP, p. 77.

318 Information and Communication Technology

3.0 Governance mechanisms

The OP was developed in consultation with stakeholders and the public. Notably, the process has been inter-administrative in the sense that all interested administrative bodies were consulted: ministries (Ministry of Economy, Ministry of the Environment, etc.) as well as independent institutes (Spanish Institute of Oceanography, National Institute of Meteorology, etc.).

During OP development, three options were presented:

- To concentrate the majority of the funds on Axis 2 (Environment and risks prevention)
- To concentrate the majority of the funds on Axis 3 (Access to networks and transport services)
- To realise none of the two first alternatives

The OP does not explain which one of these options was chosen privileged, but this original idea illustrated the possibility to exploit all the potential positive externalities arising from investments in transport and networks, for example, and the possibility to go beyond direct investments in the environment in order to achieve environmental goals. Either way, this has led to more environmental criteria being included in the OP objectives.

4.0 Overview of environmental objectives, measures and allocations

Axes 2, 3 and 4 are the three axes with clear positive impact on the environment, since they aim to incorporate the environment into the regional strategy on economic growth, especially concerning industry, agriculture, energy and transport. The major share of green investments concerns Axis 3 — Energy resources and access to transport services — relating to the field of climate change mitigation, through projects in the field of renewable and clean energy, energy efficiency and more sustainable transportation modes.

The specific objectives set for the 2013 horizon regarding risk prevention and GHG emissions are specified below:

- Stabilizing GHG emissions: taking 1990 levels as a reference (100) the objective is to stay below the level of 132 in 2013, only slightly increasing from 130 in 2006³¹⁹ (consistent with the national target, but slightly less stringent).
- Reach 33.88 hectares of rehabilitated priority areas. This will be achieved through the implementation of:
 - o 9 action plans for the restoration and the protection of the environment
 - o 2 data centres for the promotion of knowledge on the environment

³¹⁹ According to the OP, the index was 131.06 in 2010.

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

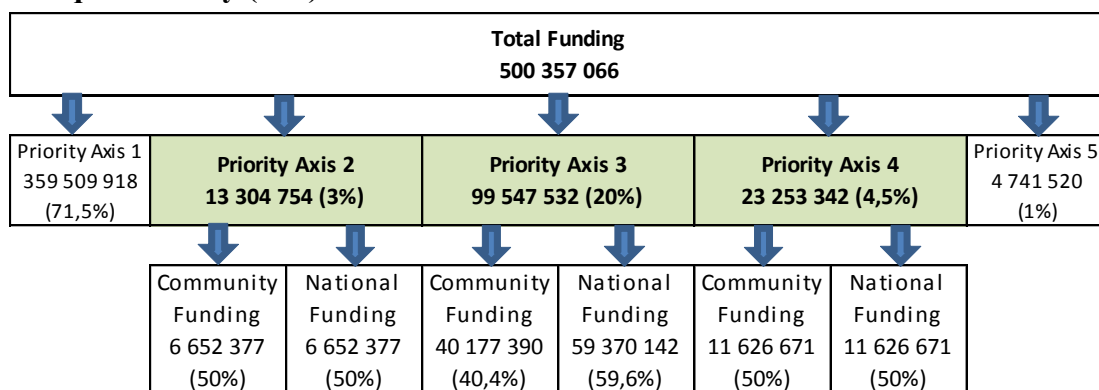
- 185 240 travellers per year regularly using urban transport. This will be achieved through the implementation of:
 - o the implementation of 1 action plan to promote the use of public transport
 - o the construction of 6.44 kilometres of cycle lane
 - o the promotion of 10 green public transport vehicles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

The specific objectives set for the 2013 horizon regarding local and urban sustainable development are:

- The limitation of population density, with an objective of 244.66 residents/km² (236.29 residents/km² in 2006). This will be achieved through the implementation of:
 - o 36 action plans to restore of urban and rural areas
 - o 10 projects with the aim to promote new technologies in business
 - o 8 awareness raising projects on equal opportunities and social inclusion
 - o 1 integrated urban development project
 - o 50 buildings with measures incorporated to improve accessibility
 - o 10 projects with environmental aims
 - o 14 projects to improve the attractiveness of urban areas in the context of sustainable development
- 1.8% of landscapes and historic sites have to be classified as protected sites.

Note that there is no funding coming from private sources (whether national or European) among the national contribution, for any axis of the OP.

Figure 1: Breakdown of total OP funding for the Autonomous Community of Basque Country (in €)



5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

Analysis of investment through the Development Path Approach (DPA)

63% of the EU investments in the Basque Country falls within DPA F (decoupling economic growth from environmental pressures), the most sustainable development path. This DPA mainly includes investments in research and development and activities related to innovation, which meet the regional strategy in terms of sustainable production and consumption, and eco-innovation.

DPA E (eco-efficiency) covers 28% of total OP investments in the Basque Country, reflecting the fact that a significant share of the investments relate to renewable energy, energy efficiency and clean transport.

DPA D (clean up, restoration and conservation) represents about 7% of EU funding. The environmental objectives of the Basque Country seem to be less focused on urban development and the protection of cultural heritage than on eco-innovation.

Investments classified in DPA C (risk management)³²⁰ only amount to about 1% of total OP funding.

Special attention must be paid to the fact that there are no investments classified in the least sustainable paths such as DPA A (declining sustainability) and DPA B (environmental compliance and infrastructure). These types of investments are likely to be the ones that generate negative impacts on the environment and positive economic impacts (on jobs, for example) at least in the short-term. The DPA suggests that potential trade-offs between environmental aspects and economic concerns in the context of the Basque Country regional OP will most likely remain limited.

There is clearly a link between DPAs and environmental priority axis:

- Priority axis 2 relates to DPA C;
- Priority axis 3 relates to DPA E;
- Priority axis 4 relates to DPA D
- Priority axis 1 relates to DPA F: the majority of the potential positive environmental impacts from cohesion Policy investments are expected to come from a priority axis which does not have explicit environmental aims.

Table 4: Investments in relation to green public procurement challenges

Investments	
Biodiversity	Investments to promote natural activities. These investments fall into the category of DPA D. They concern the promotion of natural data centres, the creation of information infrastructures and networks to

³²⁰ The 1% remaining recoups no DPA (preparation, assessment, communication, etc.)

Investments	
	collect data on natural heritage and to make them available for visitors. Part of these investments relates to the integral or partial rehabilitation of touristic sites with particular cultural or environmental interest, with the potential to foster ecotourism.
Climate change and energy	<p>Investments to prevent risks. Regarding climate change adaptation, certain actions and measures are planned: the promotion of wood restoration, especially in areas with high risk of erosion and the promotion of the protection and the environmental restoration of the hydraulic public domain. These investments fall under DPA C.</p> <p>Investments to improve the use of energy resources. They aim at improving energy efficiency and energy savings. These investments contribute to the fulfilment the region's commitments to reduce its carbon footprint. They fall into DPA E. There are no investments planned concerning the creation of renewable energy infrastructure³²¹.</p>
Transport	Investments to promote clean public transport. According to the regional OP, they will be focused on areas submitted to high atmospheric pollution, such as dynamic and growing metropolitan areas and urban centres. The region also envisages to create subway and tram lines as a solution to traffic and mobility issues (in many cities, the construction is well underway, or completed, such as in Bilbao and Vitoria-Gasteiz). These investments fall into the largest part of DPA E.
Sustainable consumption and production	Investments to increase the regional innovation potential, to boost the implication of companies in innovation, research and development and to extend new information and communication technologies. These investments are expected to improve the productivity and the competitiveness of the regional economy and induce significant positive spill-over effects on the environment (energy efficiency, eco-innovation, etc.). These investments fall into DPA E and F. The projects and measures consist in promoting cooperation between business and research centres, the creation of a technology centre with training and information activities, with a global objective to increase business competitiveness and regional economic growth through eco-innovation.

Box 1 provides examples of possible win-win between economic and environmental considerations.

³²¹ Private investments are prominent in this field.

Box 1 – Examples of possible win-wins

Research and Innovation: Investments could have positive impacts on the environment, particularly on water discharges and atmospheric emissions, due to the promotion of alternative production processes and eco-innovation, which is at the centre of the Basque Country's strategy on sustainable development and GPP.

Protection of the population and economic activities from natural risks: Financial support will allow improving the protection and restoration of risky areas, especially those exposed to high erosion risks. These investments will contribute to reduce the long-term costs endured by natural and human systems.

Modernisation of transport infrastructure: It is a clear win-win situation as investments in clean public transport and alternatives to passenger car transport would help to reduce energy consumption and GHG emissions. Reductions in energy consumption will directly translate into lower spending on fossil fuels and reduced exposure to fossil energy price shocks. These will yield both microeconomic benefits (reduced energy bill for households and companies) and macroeconomic gains (increase in the terms-of-trade, improvement of the trade balance³²²). In addition, more efficient transport modes will also have positive spill-overs with business competitiveness and productivity.

322 Everything else being held equal

Table 5: Analysis of Intervention trade-offs

Non-Environmental programmes	Priority Axis	Environmental themes					
		Water Resources	Air quality and climate factors	Biodiversity and Landscape	Waste	Energy	Climate
Research and Innovation	I.	Possible indirect Win-win	Clear indirect Win-win		Clear indirect Win-win	Clear Indirect Win-win	Clear indirect Win-win
Eco-Innovation and environmental technologies	I.	Possible indirect Win-win	Clear Direct Win-win		Possible Direct Win-win	Clear Direct Win-win	Clear Direct Win-win
Business support	I.		Clear indirect Win-win			Clear Direct Win-win	Clear Indirect Win-win
Natural risk prevention	II.	Clear Direct Win-win		Clear Direct Win-win			
Tourism	II.			Possible Direct Win-win			Possible Indirect Win-win
Renewable energy and efficiency	III.		Clear Direct Win-win				
Transport	III.		Clear Direct Win-win				Possible Indirect Win-win
Urban development	IV.		Possible Direct Win-win				
Protection and development of cultural and natural assets	IV.			Clear Direct Win-win			
Requalification of abandoned areas	IV.			Clear Direct Win-win			

Perception of decision-makers on the potential contribution of green investment to growth, jobs and competitiveness, and the trade-offs between environment, economic and social considerations

According to Ihobe³²³, environment policies and concerns are one of the main drivers of innovation, economic growth and social transformation. In order to reach a leading position in the field of eco-conception, eco-innovation and eco-design, the Autonomous Community of Basque Country has put into place a comprehensive and unique strategy for sustainable development, in which GPP has the central role. This approach gives the Basque Country a definite edge on the solutions to tackle environmental challenges.

As green investments focus on eco-conception, eco-innovation and eco-design, the autonomous community is helping the development and diffusion of new market applications with high added value thanks to the significant role of innovation. Moreover, eco-conception allows the promotion and creation of a new goods and services, responding to new individual needs, which include the necessity to preserve the environment and limit the impacts of human activities on natural assets.

5.2 Other tools to enhance environmental integration

The Autonomous Community of the Basque Country developed 22 monitoring indicators relating to the main environmental themes, such as air quality, GHG emissions, waste, energy and material consumption (see 2.1 for a short description). These indicators have been designed to take into account regional and national specificities and could be easily transposed to other MS/regions and used to assess the overall impacts of a set of investments and to help adapt and fine-tune investment programs.

Similarly, the Basque government has developed a methodology based on 10 indicators, to monitor the progress in the deployment of GPP in public administrations. These indicators are the following.

- Commitment to Sustainability;
- Organisation of procurement and contracting;
- Purchasing Policy and GPP;
- Action plan / strategy;
- Training of personnel responsible for purchasing and contracting;
- Personal information (lifestyle changes);
- Environmental criteria for products or services;
- Measurement of outcomes, indicators and review;
- Managing the supply chain in the organisation;

³²³ Ihobe is a public organization that provides support to the Department of the Environment, Spatial Planning, Agriculture and Fisheries of the Basque Government regarding the elaboration of environmental policies and measures. Ihobe also contributes actively to awareness raising on environmental sustainability in the Autonomous Community of the Basque Country through the organization of communication campaigns, events and trainings.

- Cooperation and networking with other organizations for the promotion of GPP.

For each of these indicators a grading between 0 and 4 has been defined to measure the level of implementation of GPP (0 refers to absence of GPP and 4 to a complete integration and implementation).

Assessments are carried out on a regular basis so that correcting actions can be put into place early enough for sub-performing municipalities in order to improve and speed-up the process of implementation of the strategy.

Areas that have the greatest improvement potential and the corresponding actions are defined (e.g. training of personnel) within each municipality. In order to implement those actions and ensure that improvements will be effectively achieved, the processes as well as the means that will be allocated to those actions (budget, personnel, etc.) have to be clearly set out. In particular, municipalities have to define:

- The interrelations with the agenda 21 action plan,
- The operational objective,
- The responsible entities (units, departments, etc.) for executing the actions,
- The budget,
- The time period,
- The monitoring indicators.

Perception of decision-makers on how different policy instruments facilitate/harm integration

These indicators are one of the main criteria against which the environmental impacts of projects are assessed and selected. This analytic grid is adapted to the regional context and clearly adapts the funding of projects to their respect of environmental targets, as measured by quantitative indicators. The systematic use of these monitoring indicators is clearly a good practice that could facilitate the integration of sustainable development in cohesion policy.

In relation to GPP, the quantitative indicators that are used to measure the integration of GPP, include percentages of GPP of total public procurement in terms of monetary value, percentage of GPP of total public procurement in terms of number of contracts and CO2 impact of GPP.

These indicators are applied in 15 product groups which are defined according to the methodology of the European Commission, but are also adapted to the market specificities of the Basque country. Specifically, modifications were carried out by adding more general elements to gain a broader view on the resources and reasons used to implement GPP and cost data was included to enable the use of real values. In addition, in contrast to the European Commission methodology, product groups refer to

specific products and not the type of products to enable the collection of more focused information.

The Basque Country's environmental authorities consider that this kind of instruments is very handy because they are totally adapted to the regional context and are clearly a dynamic and effective support to decision-making.

6.0 Implementation and absorption

In terms of absorption of ERDF funds, we focus on transportation infrastructure projects in the Basque Country. Through its Master Plan for Sustainable Transport 2002-2012 (PDTS 02-12)³²⁴, the Basque government clearly took position in favour of environmentally-friendly transport infrastructure. The creation of tramways as well as the expansion of the metro of Bilbao (line 3) has been included by the Basque government in the measure "Promotion of clean urban transport" of Axis 3 of the OP.

The development of a network of tramways in Bilbao, Vitoria, Deba, Leioa, San Sebastian and Txingudi has been promoted in the Basque Programme "Tranviario" which belongs to the broader 2007-2012 EuskoTren XXI Plan aiming at developing a functional and operational rail network.

Tranviario notably puts a specific focus on three projects: the construction of the tramways of Vitoria-Gasteiz and of Urbinaga-Leioa-UPV (University of the Basque Country) and the enlargement of the tramway of Bilbao. The investments amount to € 85.24 million, € 22.17 million and € 14.88 million, respectively. Those investments will be used for infrastructure as well as for the purchase of new tramways and additional construction.

6.1 Preliminary outcomes

Perception of decision-makers on the environmental impact of investments under Cohesion Policy

Examples of good practice, success factors and obstacles to integration

Environmental assessments carried out by the Basque Country followed the guidelines provided by the European Commission, but went beyond the existing recommendations and included additional indicators and measures in order to improve the accuracy of the results.

Ihobe insists on the fact that the overall interpretation and comparability of the results of these assessments remain very complex for environmental authorities. In relation to GPP and the evaluation of the relevant contracts, the questionnaire used is considered extensive and time consuming for the administrations to complete. As these

324 Departamento de Transporte y Obras públicas (2002) Plan director del transporte sostenible – La política común de transportes en Euskadi 2002-2012, http://www.garraioak.ejgv.euskadi.net/r41-430/es/contenidos/informacion/2905/es_4076/adjuntos/plan_transporte_c.pdf

questionnaires also include some qualitative questions, these might not be representative of the whole administration but only of the unit that fills it in. Difficulties might also arise in cases when procurement is not centralised and information must be collected and compiled from different departments. The complexity also affects the Commission, because there is no unified system to measure of the results.

In order to improve the interpretability, comparison and usefulness of the results, the Basque Country is working on the elaboration of a user-friendly unified system of performance measurement. For example, to overcome the issue of the decentralised procurement, Ihobe is considering as a solution to develop a template for each product group that will be filled in by each department, during or shortly after the awarding phase.

7.0 Green Public Procurement in the Basque country

The way GPP is understood by the Basque Country is illustrated by the Basque Agency for the Environment (Ihobe) in its Practical Manual for GPP³²⁵. GPP is defined as the “purchase or procurement of goods and services taking into account not only the economic or technical criteria of the products, services or works to be contracted, but also their environmental impact”³²⁶. This definition is presented as being inspired by and in line with the definition given by the European Union.

In the Basque Country, GPP is considered as a field of utmost importance and is implemented through the 4th Programme of the 2006-2010 Basque Plan for GPP³²⁷, which is entitled “Exemplary administration: Programme to integrate environmentally sustainable consumption in all sectoral policies”.

The objectives of the Basque Plan for GPP follow the guidelines determined by the European Commission for 2010³²⁸:

- 20 actions aiming at promoting an environmentally sustainable consumption of resources in public buildings
- 25 exemplary actions from the administration
- 40% GPP in total public procurement

In the same way, the 2007-2010 Environmental Framework Programme recognises the importance of GPP through its Necessity 3: “Use the market in favour of the environment”.

325 Ihobe (2009) Manual práctico de Compra y Contratación pública verde – Modelos y ejemplos para su implantación por la administración pública vasca.

326 « La Compra y Contratación Pública Verde (CCPV) es la compra o contratación de bienes y servicios considerando no solo los criterios económicos o técnicos de los productos, servicios u obras a contratar, sino también el comportamiento ambiental de los mismos. »

327 Plan Vasco de Consumo y Contratación Ambientalmente Sostenible 2006-2010.

328 Manual práctico de Compra y Contratación pública verde – Modelos y ejemplos para su implantación por la administración pública vasca, p. 4.

During 2007, there was a push to reach the determined objectives. In particular, measures were taken to give the Basque administrations sufficient resources to implement GPP as well as create specific contracts for the Basque companies in order for them to be able to offer products and services with added environmental value. Specifically, the Basque government has created forums with the participation of companies to ensure that the demand related to GPP is met and to boost the competitiveness in this field. The creation of a dialogue between the public and private sector enables a faster adaptation of the local economy to the requirements of GPP. The forums, which have been developed in different sectors, also act as a communication platform that validates the clarity and feasibility of the environmental objectives and criteria.

The application of the indicators, which were briefly described in section **Error! eference source not found.**, provides an overall assessment of the GPP in public administration. Once the situation is described and understood, the next step is to set short-term targets and define means to meet these targets. When the resources are limited, priority is given to areas with the most gaps and opportunities for improvement. The actions which are defined must be in accordance with several factors, such as the priorities that are set from other policies and the cost of implementation.

In the context of GPP, a series of products and services have been prioritised: paper, computer equipments, office furniture, vehicles, gardening products and services, events organisation, food and drink, mail services, printing, textile products, travel services, building cleaning.

Although all these fields concern only products and services and not buildings, GPP on the construction sector is also taken into consideration. For example, the tramway lines in Bilbao and Vitoria have been created and developed in part due to environmental considerations; in the same way, an emphasis is put on the use of materials coming from recycled Construction and Demolition waste in buildings and works.

Integration of Green Public Procurement into European funding

The Autonomous Community of Basque Country developed a regional eco-innovation strategy that addresses issues that go beyond the policy framework of the European Commission. The Community's strategy has the general view that regional industry requires radical technological changes, with new ways of generating and using energy, new production schemes with less production of waste, less consumption of natural resources, less pollution, and new means of transport in order to fulfil its environmental targets, secure a leading position on environment-driven innovation and improve the well-being of its population.

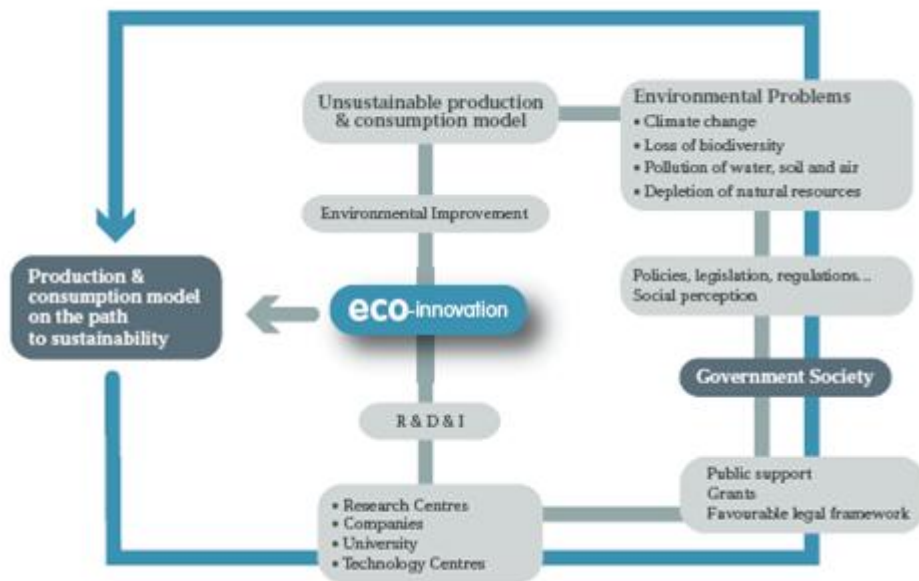
The OP planned large investments in eco-innovation research for regional companies (more than € 350 million. Even if there is no established link between OP objectives and GPP in the regional publications, Community funding will clearly complement and be consistent with the strategy of the Basque Country with regards to eco-design. This is demonstrated by the allocated funding on the priority axes 2, 3 and 4, which address the

environment and risk prevention, energy resources and local and urban sustainable development themes (see figure 1).

The ECOMmunity: eco-innovation initiatives in the Basque Country

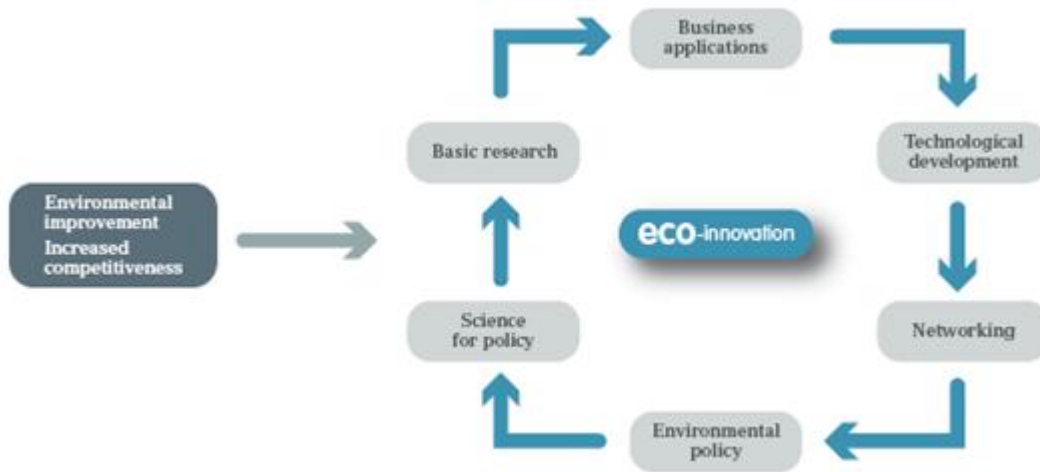
The Basque Country developed measures aiming to consolidate different thematic communities of innovation, called ECOMmunities. It is a concept similar to the “Knowledge and Innovation Communities” that the European Commission has designed through the European Institute of Innovation and Technology. ECOMmunities are formed by the collaboration between research centres and the institutional and social stakeholders. The objective of these communities is to guide regional economic and social systems and help them exploit new opportunities and synergies through innovation in order to improve sustainability and secure long-term economic and social benefits.

Figure 1: Relationship between the environment and innovation



The relationship between the government, institutional and social actors and the private sector that enables the diffusion of eco-innovation and the general innovation process through the market is the basis of the ECOMmunities (see figure 2). Moreover, according to Ihobe, knowledge and information externalities and spill-overs made possible by these ECOMmunities can be expanded to national and international levels and to other agents involved in the eco-innovative process.

Figure 2: Innovation ECommunity



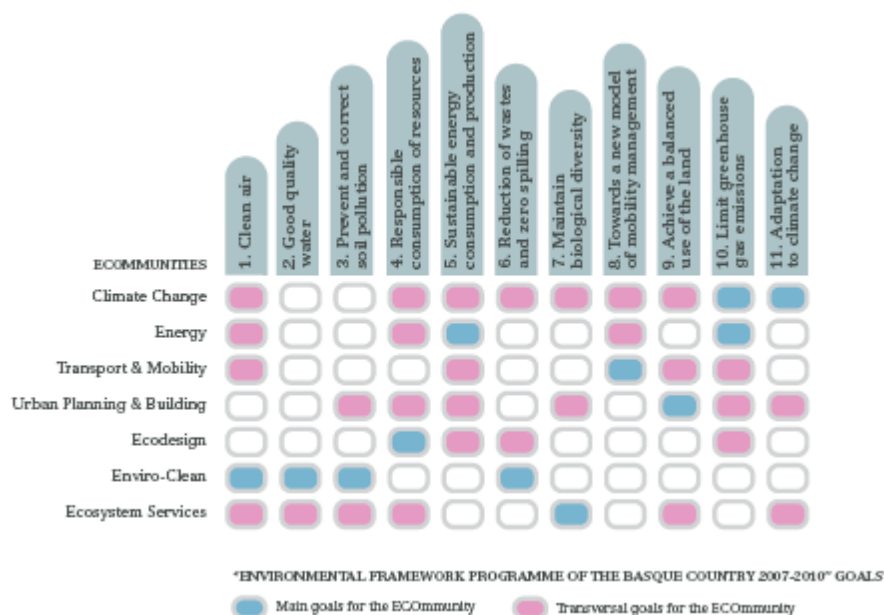
For each environmental theme, an ECommunity has been created, and amongst each one of them, a series of alliances for action has been provided by the region:

- The **Climate Change ECommunity** aims at finding solutions to reduce the expected impacts of climate change by finding efficient ways to reduce GHG emissions and by adapting to climate change impacts. This is done through the promotion of scientific technical research, education and awareness rising. The goal of reducing GHG emission notably requires that this ECommunity works in close collaboration with the Energy, Transport and Mobility, and the Eco-design ECommunities.
- The **Energy ECommunity** is transversal by nature and is the most mature of the ECommunities, thanks to the intense efforts of the Basque Energy Board (EVE) and its long and close cooperation with the business sector. The basic lines of action of this ECommunity are to help to move towards a safe, efficient and low-emissions energy system. For this reason, a broad network of both public and private actors as well as scientific, technological and business organisations, are involved. The Energy ECommunity is closely linked not only to the Climate Change Ecommunity but with the other Ecommunities as well. The main theme which is not overlapping is the adaptation to climate change.
- The **Transport & Mobility ECommunity** has the largest development potential in the short term and is also one of the most strategic ECommunities, for transport which is presented as “essential for the economic competitiveness” and for jobs creation. It steers the capacities of scientific, technological and business stakeholders towards achieving a new balance between various transportation modes, with the overall aim to create a competitive but sustainable transport and communication system.

- The **Urban Planning & Building ECommunity** offers the market new solutions in terms of urban planning and the construction of sustainable housing. It contains seven sustainable building groups and one land management group. As it is an emerging field, the numerous and innovative initiatives stemming from it have yet to be incorporated into a coherent and structured strategy.
- The **Eco-design ECommunity**, the Basque Country and, and scientific, technological and business organisations work together to increase the efficiency of production processes and reduce the use of resources per unit produced, while simultaneously improving the competitiveness of the Basque industry. Furthermore, activities are also being conducted by this ECommunity to promote responsible and sustainable consumption. **The Basque government is acting as a driving force in this respect by incorporating and boosting green public procurement at the various government levels.**
- The **Enviro-Clean ECommunity** aims to minimise the risks for human health and ecosystems arising from emissions into the air, water and soil, largely as a result of human activity. It is a mature ECommunity with public leadership being assumed by Ihobe and benefiting from significant private involvement but still needs to reinforce public-private partnerships in order to send the correct signals to the market, thereby reducing the perceived business risk.
- The **Ecosystem Services ECommunity** is still young, but it boasts considerable scientific capacity, notably an emerging business sector.

The ECommunities are clearly aligned with the main objectives of the Basque government’s environmental policy. Every one of them is responsible for one or more of the environmental goals contained in the Environmental Framework Programme of the Basque Country 2007-2011.

Figure 4: Links between ECommunities and the Environmental Framework Programme of the Basque Country 2007-2011



8.0 Conclusions

The Autonomous Community of the Basque Country is a dynamic region which benefits from a strong industrial sector and high spending in research and innovation. However, the environmental diagnostic was not considered entirely satisfying, as environmental assessments of the OP highlighted the lack of significant investments in biodiversity and ecosystems preservation or actions to improve the quality of water. This can be said for OPs across Europe in general, linked to the fact that green infrastructure investments have lower short-term economic returns (mainly because calculations omit to include all possible benefits). Imposing requirements in EU funding at regional level for example (in terms of types of projects to be funded), could help ensuring that at least a minimal share of the investments is spent to support projects in areas such as green infrastructure. If requirements are not imposed, the funding will be spent in traditional investment categories. The Community investments focus overwhelmingly on objectives that were already the concentration of previous investment programs, such as eco-innovation.

Environmental indicators were created in order to complete the European ones. They are more adapted to the environmental context and to the regional specificities and objectives. The projects selected by the regional authorities must comply with the environmental objectives, as the contracts are evaluated with the use of extensive questionnaires that require both quantitative and qualitative information (see section 6.1).

The strategy adopted by the region in favour of GPP is declined among seven ECommunities relating to environment and sustainable development themes. This strategy can complement the regional OP and ensure a more systematic integration of sustainable development through the investment period.

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10.0 Interviewees

- Gorane Ibarra, Ihobe
- Jose Maria Fernandez, Ihobe

Table 7: Allocation of EU budget to the different categories of expenditures in the Autonomous Community of Basque Country

Activity (Codes)	Description	Budget EU
1	R&TD activities in research centres	€ 88.589.616
2	R&TD infrastructure and centres of competence in a specific technology	€ 34.922.998
3	Technology transfer and improvement of cooperation networks	€ 1.027.671
7	Investment in firms directly linked to research and innovation	€ 14.557.419
8	Other investment in firms	€ 20.364.724
9	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 7.919.865
24	Cycle tracks	€ 472.622
25	Urban transport	€ 250.001
43	Energy efficiency, co-generation, energy management	€ 1.791.898
50	Rehabilitation of industrial sites and contaminated land	€ 5.265.859
52	Promotion of clean urban transport	€ 37.662.869
53	Risk prevention	€ 1.254.061
55	Promotion of natural assets	€ 132.457
57	Other assistance to improve tourist services	€ 223.902
58	Protection and preservation of the cultural heritage	€ 3.607.475
61	Integrated projects for urban and rural regeneration	€ 7.795.294
85	Preparation, implementation, monitoring and inspection	€ 1.013.721
86	Evaluation and studies; information and communication	€ 1.357.039
TOTAL		€ 181,354,410

1.24 NORTH SEA INTERREG PROGRAMME: SUSTAINABLE URBAN FRINGES (SURF) IN THE NORTH SEA REGION

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1.0 Executive summary

- Sustainability is a guiding principle of the North Sea Regional Programme, which also has an environmental priority. This priority has already reached its indicative target spending, whereas other priorities are not yet near their indicative funding levels. However, SURF and other projects that have a strong environmental element are funded under other priorities, which indicates that having sustainability as an underlying principle of the Programme is positively affecting the projects that are funded.
- Most of the projects within the Programme contribute to development paths C (interventions to reduce hazards and manage risks) or E (eco-efficiency).
- The focus of the case study is the SURF project, which is part of the North Sea Regional Interreg Programme. It is led by the city of Aberdeen (UK) and involves city or regional authorities in all of the Member States surrounding the North Sea, as well as two academic partners.
- Interreg brings added value by enabling projects such as SURF by enabling partners to come together to share knowledge and learn from each other in order to identify solutions to common problems. Without Interreg, such learning would not otherwise happen. The fact that learning is facilitated and solutions to common problems are found enables cost savings, as the partners do not all have to work on their own to overcome the barriers, which would take longer and involve more resources.
- SURF focuses on the urban fringes – land at the interface between urban and rural areas. The environmental issues of concern are the risk to economic activity posed by climate change and the role and value of green space in the urban fringes.
- SURF has a rolling SWOT, which is being used to promote mutual understanding between the project partners, to engage with stakeholders and to check progress towards meeting the project’s objectives.

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	X
	Weighting	
	Financial resources	
Procedural	Assessments	X
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	X
	Partnerships	
	Consultation	

2.0 Background and Context

The SURF (Sustainable Urban Fringes)³²⁹ project is part of the Interreg IVB North Sea Region (NSR) Programme³³⁰. Consequently, this case study, while focusing on the SURF project, also assesses relevant elements of the NSR Programme of which SURF is a part. This is due to the fact that some of the issues that had to be assessed, e.g. the overview of

³²⁹ <http://www.sustainablefringes.eu/home/home.asp>

³³⁰ <http://www.northsearegion.eu/ivb/content/show/&tid=75>

environmental objectives and allocation (Section 4.0) and the absorption of funds (Section 6.0), were only meaningful in the context of the Programme.

The NSR Programme has four strategic objectives:

- Increase the overall level of innovation taking place across the NSR
- Enhance the quality of the environment in the NSR
- Improve the accessibility of places in the NSR
- Deliver sustainable and competitive communities across the NSR

Additionally, it is guided by six principles for assistance “that should be central to any [NSR] project activity”³³¹, i.e.:

- Sustainable development;
- Innovation;
- Territorial cohesion;
- Equal opportunities;
- Transnational co-operation and the partnership principle; and
- Additionality.³³²

The SURF project is led by Aberdeen City Council (UK) and has at least one city or regional authority partner in each of the other EU Member States in the NSR, i.e. Belgium, Netherlands, Germany and Sweden. There are also two university partners (Leeds Metropolitan in the UK and Saxion in the Netherlands). Within the project, each SURF city or regional partner has a project (referred to below as “partner projects”), which are being undertaken within the context of SURF and are the practical means by which learning takes place within SURF.

The SURF project has its origins in an earlier Interreg project URBAL that involved the region of Twente, which is where one of SURF partners Enschede can be found. One of the projects within URBAL looked at the quality of space in the urban fringes and it was decided to develop these ideas further as part of another Interreg project. The first two attempts at funding SURF, led by Enschede, were unsuccessful as the proposal involved too many material investments. The third application, which was ultimately successful, was led by Aberdeen. It reflected the emphasis in Interreg IV on ideas and was drafted with the support of the academic partners. Neither Aberdeen, the overall lead and lead of two of the four Work Packages, nor Leeds Metropolitan University, the lead of Work Package 3, were involved in the previous URBAL project, but both were invited into SURF and had had experience of other Interreg projects.

The Interreg IVB NSR Programme was considered to be a relevant source of funding for the SURF project, as it focuses on transnational cooperation, which is an important element of SURF. Additionally, many of the SURF partners had previous experience of Interreg projects, which meant that they were already familiar with the Programme and the way of working that it requires. The transnational element is important to SURF, as it enables partners to share knowledge and learn from each other’s experiences. Additionally, SURF partners act as advisors and peer reviewers on their mutual projects. In this respect, SURF

³³¹ OP, page 37

³³² Section 3.4 of OP

enables learning, thus helping partners to overcome barriers and identify solutions more quickly than would otherwise have been the case without the space to do so that Interreg provides. This is one of the important ways in which Interreg projects bring added value to local authorities in addressing their environmental problems by uncovering and disseminating this hidden knowledge. However, it was noted that tracking down the results of previous Interreg projects is not easy, which undermines to some extent the added value of the Programme.

The fact that learning is facilitated and solutions to common problems are found enables cost savings within the SURF project, as the partners do not all have to work on their own to overcome the barriers, which would take longer and involve more resources. Instead, project partners pool their respective knowledge and experience to arrive at new joint solutions that deliver cost savings, particularly over the long term. Given the scale of the issues and the urgency of some of the environmental challenges, this is an important benefit of Interreg-funded projects. Interreg also enables academic institutions to engage with local and regional authorities and thus share knowledge and experience, and also provide the academic institutions space to assist the authorities in solving their environmental problems. Matched funding tends to come in the form of in-kind contributions by the partner organisations. However, as a result of the work in the SURF project, wider sources of investment have already been attracted, e.g. national government and other universities have asked to be involved.

SURF focuses on urban fringes, i.e. those areas on the urban periphery that act as the interface between the urban and rural environments, where a broad variety of land use and activities occur. The aim of SURF is to “unlock the potential” of the urban fringe by:

- Recognising their value to local communities.
- Protecting their environmental quality for future generations.
- Identifying opportunities to increase the competitiveness of these areas.³³³

In this context, SURF aims to deliver:

- A governance model for urban fringes.
- Recommendations to support and strengthen enterprise and make more competitive places.
- Comparison of urban fringe policies, recommendations for future policy and development of a set of policy guidelines for urban fringes.
- A toolkit for green space management.
- A SURF accessible learning legacy.
- A knowledge network on urban fringes³³⁴

In order to provide the partners with a clear structure for the SURF project, a Conceptual and Analytical Framework was developed, which led to the identification of five themes for SURF, which act as the focus for the work and a framework for the analysis. The themes are:

- Economy, competitiveness and enterprise
- Governance and stakeholders

³³³ From SURF leaflet

³³⁴ SURF leaflet

- Role and value of green spaces
- Access and services
- Spatial planning³³⁵

Each of the themes is led by one of the two academic partners and also involves at least three of the other partners. Each of the partner projects has a primary and a secondary theme on which they are focused.

2.1 Current status of the environment

The SEA accompanying the NSR Operational Programme (OP) identified a number of environmental issues facing the region, including:

- High levels of natural resource use;
- Impact of energy use on the climate;
- Various environmental impacts associated with transport,
- Environmental impacts associated with tourism;
- The need to maintain a competitive industrial base and protect the environment;
- The adverse environmental impacts of agriculture;
- The worsening condition of forests; and
- Unsustainably low levels of many marine fish stocks³³⁶.

The OP highlights the “rich” natural environment of the NSR, focusing on the coastlines, but also including estuaries, woodland, wetlands, hills and mountains, all of which contain a large number of Natura 2000 sites. The natural environment in the region is also highlighted as a valuable resource due to its role in attracting tourism and providing resources for various industries. On the other hand, marine pollution, resulting from land- and sea-based transport and other economic activity, is a particular problem. One of the greatest challenges for the region in this respect is balancing economic interests with the objectives of nature protection by taking an integrated approach to the management of the coastal areas. There is also a need to improve energy efficiency and to make the transport sector more sustainable, as improvements in the environmental performance of vehicles have been negated by increased use. The whole NSR also faces transnational challenges from potential climate change and the anticipated increase in extreme weather events, including flooding and droughts. In this respect water management and quality will be important issues, particularly related to the increased demand for water and rising sea levels.

The urban fringes on which SURF focuses are often neglected due to “complex issues of ownership and administration”³³⁷ that causes them to suffer from:

- Declining biodiversity;
- Deteriorating water quality;
- Low green space value;
- Poor accessibility and wide social inequalities;
- Lack of identity; and
- Threat from changing demographics.³³⁸

³³⁵ SURF Information sheet

³³⁶ SEA – Non-technical summary

³³⁷ SURF information sheet

These areas are also threatened by urban growth and expansion and suffer from inconsistent spatial planning policy³³⁹. These are the issues that the SURF project is aiming to address. In particular, the SURF project anticipates delivering economic and environmental benefits by developing a governance model for urban fringes, a toolkit for greenspace management and recommendations to make urban fringes more competitive. The aim is to improve the competitiveness of urban fringes, while at the same time recognising the value of, and maintaining and developing green spaces in urban fringes.

2.2 Current investment context

The OP notes that the NSR had a high and growing GDP, and low unemployment, although there were differences between the respective parts of the region. However, the economic structure of the region is changing, as significant areas have a high dependency on agriculture or fishing, while others have declining industries. Particularly in urban areas, there is a move toward knowledge-based activities in both services and manufacturing, which is creating more and better paid employment. However, in many areas the problem is low paid employment, e.g. in tourism, rather than unemployment. One of the strengths of the region is its capacity for research and innovation, although again this is not distributed uniformly across the region. Hence, there is the potential to further build research and innovation capacity in the region through, for example, strengthening the exchange of knowledge, encouraging SMEs to adapt to enable them to compete better in global markets and to make better use of the opportunities for transnational cooperation.

The region has a well developed and integrated transport system. While there are some large ports and airports, generally access to the region is through smaller regional hubs. While regional airports have benefited from low cost airlines, smaller ports have been closing their commercial operations in the face of increased competition. Short-sea shipping plays an important role in the region, while air and inland waterways are only important in parts of the region. The region has a relatively well developed rail and road network. While the NSR is one of the busiest sea areas in the world, it is considered that there is a need to develop secondary connections in the region to connect regional ports and railways to international transport networks.

3.0 Governance mechanisms

Sustainable development principles were integrated into the NSR OP from an early stage. The initial programming group was aware of the principles and their application and they brought this expertise to the Programme. As noted in Section 2.0, sustainable development is an underlying principle of the Programme, which should be central to all of the NSR projects. The OP was subject to an ex ante assessment and an SEA and included a SWOT for each of the priorities (see Section 2.0). The Programme's indicators, which are also to be used for the NSR-funded projects, are linked to the SEA. The Programme's Monitoring Committee monitors the SEA, thus making a direct link to the NSR-funded projects.

As part of the selection criteria, NSR projects have to demonstrate that they contribute to the delivery either of the Gothenburg Strategy or of the Lisbon Agenda. In this respect they are asked to contribute towards the achievement of the EU's strategy for sustainable

³³⁸ SURF leaflet

³³⁹ SURF information sheet

development. Another selection criterion is that NSR projects have to comply with EU and national law, including SEA and EIA where appropriate, and be consistent with EU policies, including those on the environment.

When considering project applications, the NSR Steering Committee takes account of sustainable development principles to ensure that NSR projects are in line with these principles from a practical perspective. Projects are also required to prioritise the use of pre-defined indicators, which were derived from the SEA. Guidance on the development and use of indicators is provided to potential applicants in each call for projects. In the course of the decision-making process, there is always a lot of discussion about which organisations should be involved in NSR projects, including social organisations, which are sometimes overlooked.

In their application to the NSR, applicants have to demonstrate that their project would have a positive, or at least a neutral, impact on the environmental indicators. If the project relates to a particular environmental issue, or is likely to have certain environmental impacts, it is mandatory for the project to have a relevant indicator, which could be additional to the pre-defined indicators. Once approved, projects have to report on these indicators every six months. The Monitoring Committee reviews the reported indicators and has the power to request changes in the approach taken by the project if adverse environmental impacts are occurring and even stop funding in extreme cases, although this has not yet happened.

Within the SURF project, there are clear objectives into which all partners have bought. Additionally, the outcomes of the project are clear and have been from the start. Between the partners, there are monthly teleconferences on progress, as well as monthly bulletins to disseminate information on results and other developments. A particularly interesting tool used within SURF is the rolling SWOT (see Section 7.1).

4.0 Overview of environmental objectives, measures and allocations

In order to deliver the objectives of the NSR Programme (see Section 2.0), four priorities were developed, as follows:

1. Building on our capacity for innovation.
2. Promoting the sustainable management of our environment.
3. Improving the accessibility of places in the NSR.
4. Promoting sustainable and competitive communities.³⁴⁰

Additionally, the Programme has a fifth, which is *Technical Assistance*. The indicative financial allocations by priority and intervention category are presented in Figure 19³⁴¹. As can be seen, priorities 2 and 3 have been allocated just over one quarter of the Community's contribution of €138.5 million, while Priority 1 is expected to receive less than one quarter of the total. Within the first four priorities, the indicative funding is anticipated to be split equally between three, four or five categories of interventions.

The second priority, i.e. the one that focuses on managing the environment, was developed to address the environmental problems outlined in Section 2.3. Additionally, environment is reflected as a cross-cutting theme in all of the priorities due to the fact that sustainable

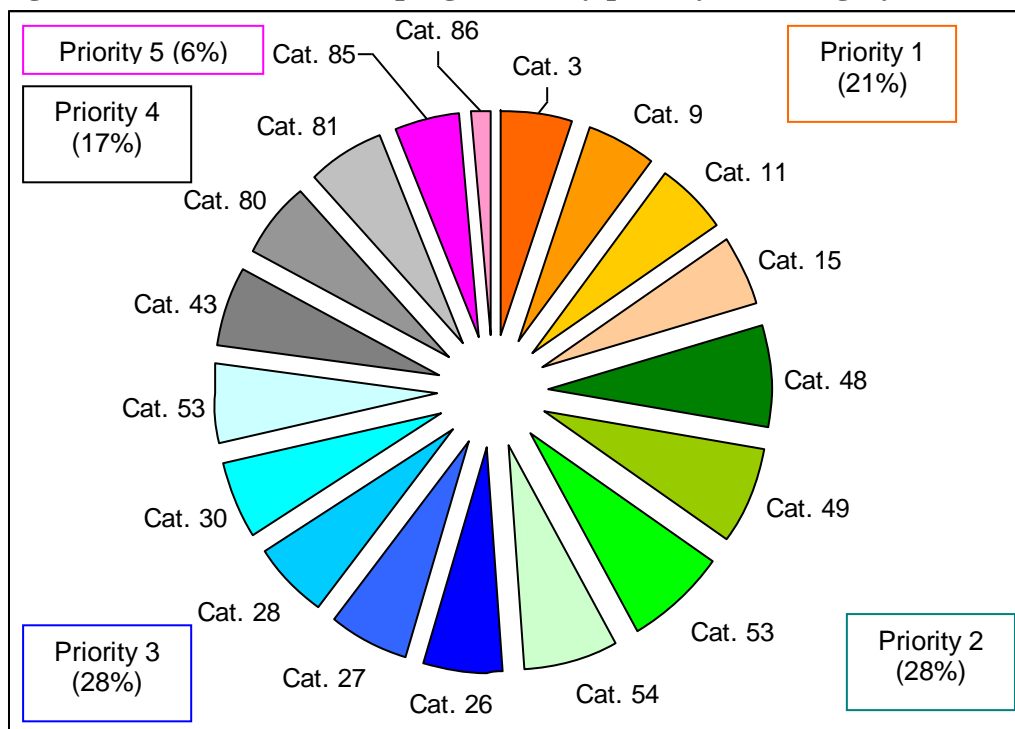
³⁴⁰ See NSR Programme Leaflet

³⁴¹ From Section 6.3 of the OP

development is a guiding principle of the Programme. The objectives of the Programme’s environmental priority are:

- Sustainable development of the coastal land and sea areas through integrated coastal zone management.
- Developing preventative and responsive measures to address acute and chronic marine pollution.
- Adapting to and reducing risks posed to society and nature by a changing climate.
- Promoting environmentally responsible energy production practices.³⁴²

Figure 19: Allocations in the programme by priority and category of intervention



Key:

- Priority 1 categories are coloured in shades of orange
- Priority 2 categories are coloured in shades of green
- Priority 3 categories are coloured in shades of blue
- Priority 4 categories are coloured in shades of grey
- Priority 5 categories are coloured in shades of pink

SURF is funded under the fourth priority of the NSR Programme, i.e. promoting sustainable and competitive communities. As noted in Section 2.0, one of SURF’s themes is the role and value of green space. Within this theme, the SURF project is:

- Looking at the benefits quality urban fringe green spaces bring to adjacent communities.
- Examining the pressures from urban development.³⁴³

³⁴² The logic of the Programme, Section 3.6 of OP

³⁴³ SURF information sheet

Additionally, the SURF project's *Economy, competitiveness and enterprise* theme, is investigating opportunities for the urban fringe to contribute to the sustainability of an area by reducing the potential impacts of climate change.

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

As noted above sustainability is an underlying principle of the NSR Programme. Projects are designed to ensure that they contribute to the Community's sustainable development agenda, and hence the assessment of potential trade-offs between economic and environmental objectives is undertaken at this level. Hence, the trade-offs are explicit within the Programme and are an element of the reporting as NSR projects have to report on their contribution to sustainability. However, there are also synergies as within the Programme, there is an emphasis on innovation, which is often linked to green investment.

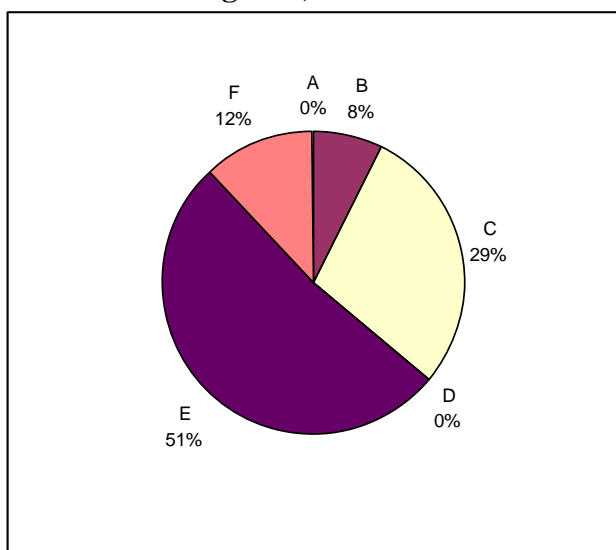
With respect to the development paths, compliance (Development Path B) with EU and national legislation is a condition of funding, so NSR projects generally tend to be consistent with the more sustainable development paths. As noted above, one of the environmental concerns in the region is the potential impact on the region of climate change, hence Development Path C (interventions to reduce hazards and manage risks) is important in this respect. Many of the other NSR projects are more relevant to Development Path E (eco-efficiency) as they focus on improving efficiency, including the use of natural resources, but also in stimulating the use of less environmentally damaging modes of transport.

The share of the indicative allocations of funding in the NSR OP by development path reflects these priorities. Figure 20 presents the share of funding by Development Path, if the funding is allocated to the respective paths in the way in which the respective categories of CP intervention have been, as presented in the Task 7 report.

The fact that SURF, which was funded within the most economic orientated of the Programme's priorities, has a strong environmental element is indicative of the way in which economic and environmental issues are addressed within the projects that are funded by the NSR Programme. Within SURF, the respective partner projects demonstrate a consideration of economic, environmental and social considerations. For example, the partner project in Aberdeen focuses on improving the environment along the River Don, which runs through the north of the city. The project aims to investigate opportunities for green tourism and to improve access for the local people, by empowering local communities. Similarly the partner project in Bradford aims to engage local communities in the Worth Valley with the aim of developing the competitiveness of the region.

The aim to some extent is to overcome talk about conflicts and trade-offs between the economy and the environment and move towards a situation where there is a common perception of the problems that takes account of the range of relevant environmental and economic benefits and impacts. In this respect, tools that assist with the economic quantification of ecosystem services, for example, are potentially important, as the lack of quantification of ecosystem services has been a barrier to the inclusion of such services in the decision-making process. Additionally, engaging with stakeholders, which is an important element of SURF, to reach a common understanding of the problems also helps to overcome perceived conflicts.

Figure 20: Share of EU NSR Programme funding by development path (excluding unclassified categories)



5.2 Other tools to enhance environmental integration

As it is an Interreg project, SURF is more about learning and working with local communities rather than investing in infrastructure. It is not clear how any of the instruments that were considered in Task 5 could have improved the environmental performance of the project. It is possible that the application of EMAS and requirements to commit to GPP would have improved the environmental performance, but it is not known whether these are already applied in the respective organisations.

6.0 Implementation and absorption

6.1 Absorption

The absorption of funds by the four main priorities in the NSR Programme is shown in Table 69. With 17% of the funds left to allocate, the environmental management priority, i.e. priority 2, has already surpassed its indicative funding level, whereas the funds allocated so far to the accessibility priority (number 3) are still 40% lower than the indicative level of funds originally allocated to this priority.

Table 69: Absorption of funds

Priority	Total Budget	Budget allocated to date	Budget remaining

		Amount (€)	%	Amount (€)	%
1 - Building on capacity for innovation.	28,649,856	25,349,784	88.5%	3,300,072	11.5%
2 - Promoting sustainable management of environment	39,067,986	39,603,062	101.4%	-535,076	-1.4%
3 - Improving accessibility of places in the NSR	39,067,986	23,672,825	60.6%	15,395,161	39.4%
4 - Promoting sustainable and competitive communities	23,440,792	19,353,244	82.6%	4,087,548	17.4%
TOTAL	130,226,620	107,978,915	82.9%	22,247,705	17.1%

Source: NSR Secretariat

Examples of projects that have been funded by the NSR Programme that illustrate good practice in terms of integrating the environmental dimension of sustainability (in addition to SURF), include:

1. Dryport, which is looking at hinterland connections for ports and the subsequent potential for modal shift towards less environmentally-damaging modes. The project is developing dry ports, which are effectively port infrastructure in the hinterland. Hence, there is a spatial element as often ports have difficulties in growing along coasts. This was funded under Priority 3 (accessibility).
2. MP4, which is focusing on how to use Public-Private-Partnerships to maintain public spaces. This was funded under Priority 4, i.e. the same as SURF.
3. Cradle to Cradle is a network of islands, which is looking into ways of becoming self-sufficient from the perspective of energy and water. The project is showcasing investments and also has the potential to be of use to other regions and is funded under the environmental priority (i.e. Priority 2).
4. Ballast water opportunity, which is looking at ballast water management in ships, which is a problem for the NSR. This was also funded under Priority 2 (environment).

7.0 Specific issue for the case study

7.1 The rolling SWOT

Within the SURF project, there will be three SWOTs. The first undertaken early on in the project and was “quick and very dirty”³⁴⁴. The second will be undertaken in 2011 and will be a more in-depth analysis, while the final SWOT will be undertaken towards the end of the project in 2012. The SWOTs are seen as an important element of the SURF project and will be used to gather opinions and responses from all of the partners at important stages within the project. Additionally, some of the partners are using the SWOT to engage stakeholders in the SURF partner projects.

The first SWOT was used to build a picture of the issues and priorities of SURF’s partners and identify where the analytical work should be focused. The second SWOT will be informed by the work on the various partner projects that will have been undertaken since the first SWOT and will be used to identify the extent to which the understanding of the issues

³⁴⁴ <http://www.sustainablefringes.eu/nmsruntime/saveasdialog.asp?IID=97&SID=27>

has developed. By the time of the third SWOT, the partners will have established strong links with the stakeholders in their respective regions and will have had more time to consider the SURF themes.

It was decided to use SWOT as it is a relatively simple and straightforward tool that can be used to provide an insight into problems and potential solutions. The SWOT complements the work on themes, as it is an external facing mechanism rather than internal in the way the work on the themes is. Whereas the work on the themes aims to identify how the themes can be realised in practice, the SWOT is a way of engaging stakeholders and checking progress that ensures that the SURF project takes on board wider opinion and meets its overall objectives. In this respect, the SWOT has a corrective function, which could lead to changes in emphasis within the project.

One of the findings from the first SWOT was that language is important, as it was realised that terminology was being used differently by different partners. While there was a common understanding of the issues from the beginning, it was realised that different partners were approaching problems from different perspectives. In this respect, undertaking the SWOT helped to develop a mutual understanding, which it is hoped will develop in the course of the SURF project. This was not just an understanding about language, but also of different cultures, as the cultural context is also important when considering issues such as governance. Hence, a glossary of terminology has been developed in order to clarify the meaning of the key words that are used. This is important as the language of sustainable development can appear to be technical and exclusive, particularly when engaging with stakeholders.

While each SWOT will follow the standard SWOT methodology, the fact that three SWOTs will be undertaken at different stages of the project will allow each successive SWOT to become richer and to improve the understanding of the partners as to the nature of the shared problems. In this respect, the SWOT is a learning tool, as well as having a monitoring and corrective function.

7.2 Spatial planning and green spaces in the urban fringe: The territorial dimension

Reflecting the aims of SURF (see Section 2.0), the urban fringes are important to a city as they have the potential to bring benefits to the city, both in terms of its environment, including improving access to and recreational use of urban green spaces, and its economy both by developing economic opportunities, e.g. in terms of green tourism, and attracting the right type of economic companies to set up in these areas.

From an environmental perspective, the spatial planning element of SURF is important, as nature does not stop at the boundaries of a municipality or at the edge of a rural area. Hence, in order to deliver sustainable solutions, wider cooperation is needed. However, spatial or development plans often focus either on an urban area, or on a rural area, and thus fail to address the problems of urban fringes. Consequently, the specific nature of urban fringes, and their role in separating rural areas from the encroachment of urban areas, as well as their role in protecting the water resources and green space that is important to urban areas, are often not recognised. With respect to green spaces in particular, there is often lack of awareness of such spaces in local planning, as they are often not sufficiently large to play an important role in spatial policy and, so, are neglected. This neglect undermines the environmental and

potential economic and social benefits that urban fringes and the green spaces that they contain can bring to urban areas, if urban fringes were managed appropriately³⁴⁵.

Additionally, many of the largest territorial planning conflicts, particularly that between the pressure for development and the need to protect the natural environment, are played out in the urban fringes. In urban and rural areas, spatial plans and coherent governance structures provide mechanisms in which disputes can be resolved in the wider interest. In urban fringes, the absence of similar plans and governance structures inhibit the resolution of conflicts in the wider interest³⁴⁶.

Consequently, the tools and recommendations being developed within the SURF project are focusing on improving cohesion locally, i.e. of the urban fringes with the cities and neighbouring rural areas. This is also important in order to improve the economic competitiveness of urban fringes by attracting appropriate companies to the urban fringe, as a good quality environment can be used to attract investment. The ultimate aim is to ensure that urban fringes are planned and managed in ways that reflect their unique character and role, and thus enable these areas to maximise their contribution to the environmental, economic and social well-being of both urban and rural areas.

Given the importance of managing urban fringes better, the concept of the city-region, of which the urban fringe is a key component, is important. The fact that EU funding mechanisms recognise this spatial concept is crucial to ensure cohesion at a local level. At the moment, there are funding programmes focused on urban regeneration, e.g. URBACT, and other funds that focus on the wider region, but there is no equivalent for the city region. Protecting biodiversity and maintaining ecosystems is important to protecting cities and in preserving natural, economic and cultural assets. Given these interactions, support for the city-regions would be beneficial.

The work in SURF with respect to green spaces will be qualitative and build on what other Interreg projects are doing, e.g. MP4 (see Section 6.1), to see whether these ideas can be applied in practice. However, with respect to green spaces, it is important to think about the economic effects and benefits of these areas. In this context, both biodiversity and quality of life issues are becoming more important. Attempts to put economic values on such ecosystem services will be important in overcoming the perceived conflicts in economic development and environmental sustainability.

8.0 Conclusions

Sustainability in general, and environmental sustainability in particular, are drivers of the NSR Programme and hence are important in the projects that are subsequently funded. Even though the SURF project was not funded under the environmental priority of the NSR Programme, it has a strong environmental element.

The OP has “sustainability” as an underlying principle and contains an environmental priority. NSR projects have to demonstrate that they contribute to the European Union’s

³⁴⁵ SURF SWOT 1

³⁴⁶ SURF Conceptual and analytical framework

sustainability agenda, and have to report against a set of environmental indicators that are derived from the SEA of the Programme. In considering project proposals and in monitoring the implementation of NSR projects, the respective Programme Committees use indicators to monitor projects' contribution to sustainable development. The SURF project has clear objectives into which all of the partners have bought.

From the perspective of the development path analysis, the main paths to which funding contributes are paths C (interventions to reduce hazards and manage risks) and E (eco-efficiency), which reflects the environmental challenges faced by the region (see Section 2.3).

Within the NSR Programme, the resources allocated to the environmental priority have already exceeded their indicative target, which suggests that environmental projects are popular within the region, notwithstanding that projects funded under other priorities can also have environmental benefits, as can be seen from some indicative projects that were described in Section 6.1.

The SURF project anticipates delivering economic and environmental benefits by developing a range of tools and recommendations to improve the competitiveness of urban fringes, while at the same time recognising the value of, and maintaining and developing green spaces.

Important elements of the SURF project are spatial planning, which is seen to be important due to the nature of urban fringes, which are on the periphery of urban areas and in this sense require a different approach to either urban or rural areas. Urban fringes are currently neglected in existing approaches to spatial planning, which means that their unique character and role in providing economic, environmental and social benefits are often not appreciated and even neglected, to the point of undermining the benefits that these areas potentially bring. Additionally, many of the most pressing planning conflicts, particularly that between the pressure for development and the need to protect the natural environment, are played out in urban fringes, thus underlining the need for dedicated plans and governance mechanisms for urban fringes. The SURF project aims to develop tools and recommendations to improve the way in which urban fringes are governed.

Additionally, the problems associated with nature protection and the preservation of green space do not stop at the boundaries of a municipality, so the planning of urban fringes, particularly their governance mechanisms, is of particular importance. In this respect, methods and tools to evaluate eco-system services, such as the amenity value and environmental benefits provided by green space, as well as the role of urban fringes in protecting cities from sprawl and in preserving natural, economic and cultural assets, are potentially important to urban fringes. However, there are no specific attempts to evaluate ecosystem services within the SURF project.

A particularly interesting element of SURF is the rolling SWOT, which is being used as a tool to promote mutual understanding between the project partners, to engage with stakeholders and as a way of checking progress towards meeting objectives and potentially acting as a corrective mechanism, if appropriate. To date only the first SWOT has been undertaken, but that has already led to an improved mutual understanding. In the course of undertaking this SWOT it was realised that the cultural context was of particular importance when trying to develop a model for governing urban fringes, which is one of the aims of SURF. It was also realised that different partners used terms differently, and so a glossary of

relevant terms has been developed. It can be anticipated that the learning after the second SWOT will be greater, as more work will have been undertaken by that point.

9.0 References

North Sea Regional Programme (www.northsearegion.eu):

- Ecorys and COWI *Ex ante Evaluation and SEA of INTERREG IVB North Sea Region Programme 2007-2013*
- Interreg IVB North Sea Region Programme *Annual Report 2008*
- Interreg IVB North Sea Region Programme *Application Pack 2010 (5th call for proposals)*
- Interreg IVB North Sea Region Programme *Operational Programme – North Sea Region Programme 2007-2013*
- Interreg IVB North Sea Region Programme *Programme leaflet*
- Interreg IVB North Sea Region Programme *SEA Non-Technical Summary*

SURF project (www.sustainablefringes.eu):

- SURF Conceptual and analytical framework
- SURF Information leaflet
- SURF Newsletter 1 (2010)
- SURF SWOT 1

10.0 Interviewees

Name	Role	Organisation	Status
Emma Watt and Alison Leslie	Overall SURF project manager and lead on WP2 (Communications)	Aberdeen City Council	Completed
Carsten Westerholt	Unit Manager, Project Development and Communications Unit	Secretariat of the North Sea Region	Completed
Rolf Oldejans	Lead of SURF Work Package 4 “Testing & Implementation”	City of Enschede	Completed
Kevin Thomas	Lead of SURF Work Package 3 “Review and Analysis”	School of the Built Environment, Leeds Metropolitan University	Completed

Activity (Cd)	DPA	Description	Budget EU
3	E	Technology transfer and improvement of cooperation networks	€ 7,162,464
9	E	Other measures to stimulate research and innovation and entrepreneurship in SMEs	€ 7,162,464
11	E	Information and communication technologies (...)	€ 7,162,464
15	E	Other measures for improving access to and efficient use of ICT by SMEs	€ 7,162,464
26	F	Multimodal transport	€ 7,813,597
27	F	Multimodal transport (TEN-T)	€ 7,813,597
28	F	Intelligent transport systems	€ 7,813,597
30	E	Ports	€ 7,813,597
43	E	Energy efficiency, co-generation, energy management	€ 7,813,598
48	B	Integrated prevention and pollution control	€ 9,766,997
49	C	Mitigation and adaption to climate change	€ 9,766,997
53	C	Risk prevention	€ 17,580,594
54	C	Other measures to preserve the environment and prevent risks	€ 9,766,997
80	0	Promoting partnerships, pacts and initiatives through the networking of relevant stakeholders	€ 7,813,597
81	F	Mechanisms for improving good policy and programme design, monitoring and evaluation ...	€ 7,813,597
85	0	Preparation, implementation, monitoring and inspection	€ 6,234,253
86	0	Evaluation and studies; information and communication	€ 2,078,084
TOTAL			€ 138,538,957.0

1.25 NORTH SEA INTERREG PROGRAMME:TIDAL RIVER DEVELOPMENT

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1.0 Executive Summary

- TIDE (Tidal River Development) is an Interreg project which covers the estuaries of the Rivers Elbe (DE), Humber (UK), Scheldt (BE/NL) and Weser (DE) and brings together experts, scientists, policy-makers and managers representing economic, social and environmental interests in the four estuaries. The project covers the key themes of nature, transport and water.
- These estuaries are home to the ports of Hamburg (Elbe), Antwerpen (Schelde), Bremen/Bremerhaven (Weser) and Immingham, Grimsby, Goole and Hull (Humber), which have significant economic importance, with traffic turnover per year collectively adding up to 500 million tons³⁴⁷
- The ecosystem services approach and the successful use of an integrated management system are key lessons drawn from this case study.
- Importantly, TIDE seeks to integrate the physical needs for economic development with ecological and environmental needs based on the definition of ecosystem services. In this case study the ecosystem service approach is thought of as: defining benefits that estuary ecosystems can provide, defining services required to realise these benefits and assessing what management techniques are needed to provide for these services.
- The project is based on four work packages, one assigned to each partner. Work package integration is designed to share experiences and promote knowledge transfer between sites and partners.
- Transnational Exchange and Capacity Building are key aims of TIDE which hopes to disseminate its results and exchange experience on available expertise in estuary management among the North Sea region. Partners have also been involved in other European projects such as HARBASINS and have tried to integrate lessons learnt from these projects into TIDE (e.g. optimised sediment management strategies and revitalisation schemes of side river arms).
- The project can be considered innovative as it delivers a new type of integrated management which builds on the expert knowledge generated in previous projects. Territorial cohesion focuses on good governance and this example of institutional learning without a formal institution is in line with territorial cohesion literature.

Processes of Integration	Criterion	Case Study coverage
Strategic	Inclusion	x
	Consistency	x
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	
	Proofing tools	
Institutional / organisational	Governance structures	x
	Partnerships	x
	Consultation	x

³⁴⁷ TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

2.0 Background and Context

TIDE focuses on four estuary areas and brings together a range of partners involved in the estuary management.

Estuary	Port	Partners
Elbe Germany	Port of Hamburg	Hamburg Port Authority (Project Lead Partner) Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency
Scheldt Belgium/Netherlands	Port of Antwerpen	Rijkswaterstaat Flemish Authorities, Department of Mobility and Public Works Maritime Access Division Antwerp Port Authority University of Antwerp,
Weser Germany	Ports of Bremen/Bremerhaven	Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency, Free Hanseatic City of Bremen University of Bremen
Humber United Kingdom	Ports of Immingham, Grimsby, Goole and Hull	Institute of Estuarine & Coastal Studies, Hull Environment Agency

The estuaries were chosen for the TIDE project as they show similar characteristics:

- They are used as shipping channels leading to large ports
- Increased maintenance, dredging and improved sediment management is necessary in order to keep the ports operating
- They are subject to a strong tidal influence which is accompanied by large sediment transport, which is increasing
- Estuarine ecosystem functions are endangered - threatening delivery of important ecosystem services like flood regulation, coastal protection and water purification, and plant and animal habitats
- As with most estuarine areas, they are designated NATURA 2000 sites.

The ecosystem services of intertidal and shallow estuarine habitats are threatened by continuing use and development pressures on the estuary and need to be considered in estuarine management to ensure the maintenance of ecologically important areas and economic benefits. These management choices are framed by challenging legal requirements and global economic trends. In particular management has to respond to:

- EU Directives such as the Birds and Habitats Directive or the Water Framework Directive

- The need to maintain their competitive position and thus ensure the economic prosperity of the region through port development, which requires capacity for larger ships that need deeper fairways and land reclamation. This exacerbates the effects of tides and leads to greater disturbance of ecosystems.

Stakeholders emphasise that TIDE will attempt to apply, for the first time, a unified ecosystem approach to guide the process of integrated and participatory management planning. More widely, stakeholders hope that TIDE will improve the effectiveness of European, national and regional policy and contribute towards a more sustainable and effective use of investment in North Sea estuaries by sharing the knowledge and experience gained through the TIDE project.

The economic significance of the ports

The Port of Hamburg is one of the top three EU ports in terms of amount of traffic handled (126 million tons of traffic handled in 2005)³⁴⁸. It is therefore of significant regional importance in terms of industry and employment. The Tidal Elbe River is the main route for Northern Germany and for the Hamburg metropolitan region and the port of Hamburg is the largest German seaport and one of the busiest fairways. Recently upstream sediment transport had increased siltation rates in the Port of Hamburg and the fairway and therefore dredging and maintenance costs were necessary to ensure the Port's accessibility. Integrated sediment management is therefore important for a sustainable development of the region.

The Weser estuary is, after the Elbe, the second largest in Germany with a length of approximately 90 km. The ports of Bremen/Bremerhaven are situated along it, and are the second largest in Germany with a turnover of 74.5 million tons in 2008.³⁴⁹ Since the ports developed shipping this activity has remained one of the main uses and continues to develop, however this has required the Weser to be deepened several times.

The Port of Antwerp in Belgium is a port in the heart of Europe and its inland location means that the port has a more central location in Europe than most North Sea ports. Antwerp's docks are also connected to the hinterland by rail, waterway and road. Consequently the port of Antwerp has become one of Europe's largest seaports, ranking second behind Rotterdam by total freight shipped.³⁵⁰

The Humber estuary supports the UK's largest port complex (the ports of Hull, Immingham, Grimsby, Goole) and also feeds into smaller ports and along the Rivers Trent and Ouse. The Humber handles around 14% of the UK's trade which translates into 40,000 ship movements each year.³⁵¹ These sites have been developed through the Environmental Impact Assessment (EIA) and Appropriate Assessment (AA) processes, in conjunction with ABP's operational strategy for fairway management, which has been developed with the importance of nature conservation in the estuary in mind.

The economic importance of these ports and the continued development that is required to maintain competitiveness and yield economic advantages means that it is vital that

³⁴⁸ GHK Consulting (May 2008) *Preparatory Study for an Impact Assessment of the Future Guidelines on State Aid of Port Infrastructure* European Policy Evaluation Consortium (EPEC).

³⁴⁹ TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

³⁵⁰ [Focus on the port](#) (September 2009) Port of Antwerp

³⁵¹ TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

management plans are in place to allow this, while at the same time protecting the environmental ecosystems and habitats which are supported by the different estuaries.

However, it has been argued that the Strategic Environmental Assessment (SEA) of port development in the UK, in particular, is inadequate and does not fully integrate environmental issues into its port development. Stakeholders hope that a project like TIDE can help fill these gaps and produce a win-win situation in port development alongside environmental protection (see Annex for background and context on the SEA process).

2.1 Current status of the environment

Estuaries in general are ecologically valuable, as they are unique sea-river corridors providing migration routes for many species. Inter-tidal habitats serve to provide shelter, nursery, spawning, and feeding grounds, resting sites or permanent living habitat, for many species. However, estuarine habitats have witnessed degradation including land winning, fairway deepening and increasing emissions which have all had their impact on habitat quantity and quality.³⁵²

The four estuaries are of ecological significance, as they contain many important habitats and species. For example more than 90% of the water surface and foreshore areas of the tidal Elbe river is designated a NATURA 2000 site, at the same time the river is one of the busiest shipping channels in the world. Biodiversity is extremely important for the Elbe estuary and impacts on the fishing and tourism industries. The Elbe estuary is also very important in terms of habitats including the mudflats and shallow water areas where some species unique to this particular geographical location can be found. Representatives from the port of Hamburg stated that significant changes have taken place at the river Elbe over the last decades, in particular anthropogenic changes such as the construction of dykes and the siltation of river branches and side banks, which are major drivers of the increase in tidal range and the massive loss of shallow water areas. As a consequence of these changes, dredging in the port of Hamburg has become a necessity.

In order to fulfil both ecological and economic services, an integrated management strategy which encompasses the **ecosystem services approach** is necessary for estuaries. The formation of TIDE was influenced by these trends and competing/complementary sites were subsequently chosen for the project.

2.2 Overview of environmental objectives

The basic idea of the project originated from the lead partner in Hamburg. The project deals with integrated estuary management and the inclusion of the ecosystem services approach and the lead partners saw an opportunity to exchange experiences as they noted similar challenges in estuaries and different solutions applied with different knowledge developed. TIDE was considered a good opportunity to share knowledge and best practices.

The aims of TIDE are to identify knowledge gaps in hydrology, morphology and ecology, and integrate planning in local policy whilst ensuring that NATURA 2000 and Water Framework Directive requirements are met.³⁵³ Stakeholders state that TIDE estuaries have a variety of development and management plans and sectoral strategies that in part seek to

³⁵² TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

³⁵³ TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

ensure compliance with EU Directives and other regional and national policies. However, none of the estuaries have properly integrated plans and the institutional structures do not support holistic management solutions.

Specific objectives as listed in the project application constitute the following:³⁵⁴

- Turn piecemeal estuary management into holistic management;
- learn from existing good practices and use combined knowledge across EU integrated planning;
- improve the information basis in tidally influenced estuaries in order to facilitate conflict-resolution and decision-making;
- develop a joint vision and understanding of estuary management among all relevant stakeholders;
- find ways to preserve the dynamic estuaries and meet the future changes by developing mitigation and compensation measures;
- build capacities within partner estuaries as well as other estuaries on integrated management, tools and possible measures.

2.3 Current investment context

The TIDE project will be implemented between January 2010 and December 2012. A budget of €3.7 million is available, 50% of which is derived from the European Regional Development Fund, financed through the Interreg IV B North Sea Programme, and 50% is paid by the partners.³⁵⁵

Some partners in TIDE have received co-funding from national government (UK). Others are financing contributions from their own budgets or securing funds from other partners e.g. the University of Antwerp is receiving funding from the Port of Antwerp Authority.

3.0 Governance mechanisms

3.1 The Ecosystem Services Approach

Ecosystem services are the processes by which the environment produces resources utilised by humans such as clean air, water, food and materials. The Millennium Ecosystem Assessment and the UK Parliament Office of Science and Technology distinguish between four types of ecosystem services supporting human well-being:

- **Supporting services** - such as nutrient cycling, oxygen production and soil formation. These underpin the provision of the other 'service' categories.
- **Provisioning services** - such as food, fibre, fuel and water.
- **Regulating services** - such as climate regulation, water purification and flood protection.

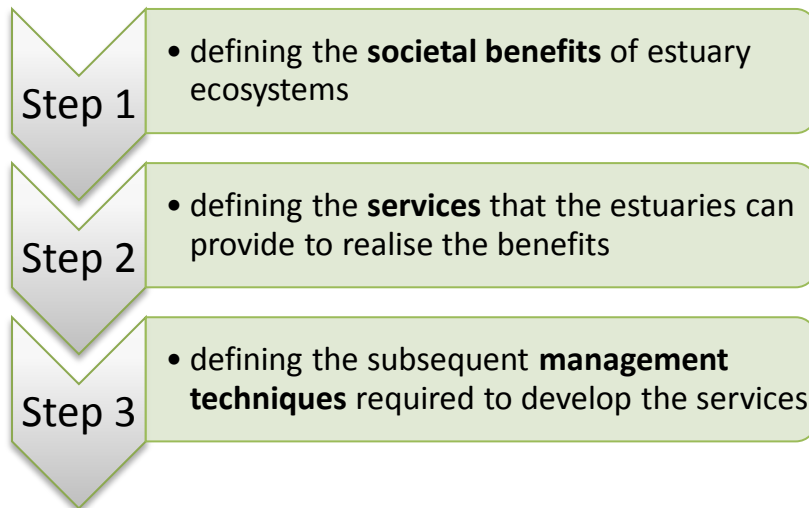
³⁵⁴ The Interreg IVB North Sea Region programme – Application Form 4th Call

³⁵⁵ TIDE times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

- **Cultural services** - such as education, recreation, and aesthetic value.

TIDE stakeholders suggest that they view the ecosystem services approach as defining the societal benefits of estuary ecosystems. This approach allows them to define those services that the estuaries can provide and the subsequent management techniques required for these services – see figure 1. The use of ecosystem services concept is closely linked to territorial capital/assets and the TIDE project embodies the main principles of territorial cohesion; connectivity, concentration and cooperation.

Figure 1: The TIDE application of ecosystem services approach:



3.2 Applying the ecosystem services approach to TIDE

Two partners within TIDE have been closely following the ecosystem services approach by assessing other projects that apply this approach and engaging in scientific discussion on how to develop the thematic approach further. Within TIDE other partners are responsible for practically applying the ecosystem services. This is a difficult task and stakeholders emphasise that as a theory it is an excellent idea, however understanding what this approach really means for the port authorities (often the main partners in TIDE) and how they can realise benefits from it is a much more complex issue.

Since the inception of the project, stakeholders have been working to define the specific benefits of the estuaries and how they can lead to a provision of services. The final step is to think about what type of management is beneficial and useful in providing these services. An example provided by an interviewee was that the estuary can provide the benefit of drinking water, and in order to obtain drinking water you need clean water, which in turn requires nutrient renewal, which necessitates willows and flowering plants. This ‘service’ therefore requires the management of specific plant areas in the estuary. Another example is the property protection that can occur against sediment transport. To provide this service dykes can be used to protect against inundation and mud flats can be used to dissipate energy. By linking benefits to ecological functions partners can compare the effects of different methods in different estuaries which will result in an understanding of what measure are most effective and which tools should be employed to achieve results. This in turn links to the management function of estuaries.

The TIDE project is not looking to provide an economic valuation of services (however this was suggested as a potential area for a follow-up project). Instead, it is looking to define the management techniques that are necessary to provide services which result in identified societal benefits. It is very much focused on the application of the ecosystem services approach and how this can be translated into a concrete estuary situation. All of the work packages were therefore developed with the ecosystem services approach in mind. For example:

- The work package to *Improve Knowledge on Estuary Functioning* looks at processes which lead to various benefits and what is needed to translate these benefits to services. Stakeholders hope that the ecosystem services approach will also enable better comparisons to be made between estuaries, since it will become possible to compare services provided even if the estuary operates in different ways.
- The work package to *Realise Integrated Management Planning / Governance* looks at what kind of management measures have been undertaken in each of the estuaries and which of the services are in conflict with each other and which are creating synergy/complementarity.

Stakeholders emphasise that the main challenges that exist in implementing the ecosystem services approach include convincing all partners to realise the bigger picture and the subsequent range of potential benefits and services that this approach can generate. In addition direct comparison between services can be difficult to make as services are not always easy to compare; in different places estuary functions can link to differing services (e.g. services associated with safety, fishing, nutrients etc). In attempting to overcome this issue, partners have divided each estuary into cell compartments in order to more clearly identify 'hot spots' of opportunity.

As stated, the ecosystem services approach has framed the thinking of TIDE partners. Significantly, the process represented in figure 1 has never before been applied to an estuary. Partners decided to employ the ecosystem services approach as it seemed to enable inter-estuary comparison in more economic terms. In addition, partners thought that national governments and the European Commission were placing increased importance on this approach and felt that it was a concept likely to become more greatly integrated with other policies and the implementation of directives. Therefore gaining experience and realising benefits from this approach could prove extremely useful for all partners.

3.3 Governance Structures

TIDE has a designated Advisory Board whose members represent different types of expert knowledge and bring outside perspectives in from other estuaries. They will advise TIDE in its various activities and promote the project within their own networks. In addition, project partners were involved in the project design through work package development and also in assessing how they could contribute to other work packages.

Regional working groups will also be set up for each estuary to identify issues and the most effective way forward. This has occurred in previous projects but previously stakeholders continued to retain compartmentalised interests. TIDE stakeholders emphasise that this project is about bringing people together to achieve set aims rather than individual interests. In this sense it can be cited as a governance tool for creating better integration between partners and again this is an important territorial cohesion aspect. Furthermore additional contacts such as the Seine estuary in France, which is not an official partner, but will be

invited to all workshops and serve as a study visit location, thereby drawing on outside expertise.

3.4 Integrated Work Packages

Developing work packages, each co-ordinated by a lead partner, helps in generating and sharing knowledge. All partners contribute to the different work packages although one partner initiates each package by producing a guidance document and a central team co-ordinates the different partners. There are work packages on Project management and Publicity and Communication and four thematic work packages, each led by one of the partners. These are:

- Improve Knowledge on Estuary Functioning (includes inter-estuary comparison and eco-system services approach)
- Realise Integrated Management Planning / Governance
- Mitigation and Compensation Measures (includes pilot measure)
- Transnational Exchange & Capacity Building

Table 1.1: Work package activity and the delivery of outcomes:

Work Package Title	Partner responsible for leading on work package	Specific Activities	Results
Project Management	Hamburg Port Authority (HPA)	The Lead partner and the joint external project coordinating office (EPCO) will be in charge of overall EU financial management, content reporting and project organisation Set up and running of project steering group consisting of one representative of each estuary and EPCO Set up and organisation of project advisory body	Joint half year activity and financial reporting Clear management structures within each partner organisation established Clear project steering assured. Guidance on technical issues from the advisory body
Publicity and Communication	Hamburg Port Authority	Communication Plan for overall project with clear indication of communication products, target groups, dissemination structure EPCO will prepares general TIDE project	Clear planning and budget for communication activities and project content disseminated. Increase audience and reach of TIDE website to stakeholders in

		<p>material (flyer, poster, etc.), develop the existing TIDE website, linking to other estuaries, produce a TIDE partner newsletter to be used for distribution among regional working groups and prepare conference documentation such as a TIDE video. In addition articles and scientific papers will be written for expert newsletters of other networks.</p>	<p>partner estuaries as well as external stakeholders.</p> <p>Inform all partners continuously about project progress, early findings and activities</p> <p>Compile findings generated in Conferences for future steps and disseminate and increase knowledge on estuaries among expert groups</p>
<p>Improve Knowledge on Estuary Functioning</p>	<p>University of Antwerp</p>	<p>This work package will aim to define ecosystem services & ecological needs for estuary development and quantify ecosystem goods and services.</p> <p>It will look at the historical development of estuaries including development of estuarine processes and cause effect relations. It will Identify gaps of knowledge in estuaries on individual and joint basis.</p> <p>A joint study on interrelation between man made and natural changes considering ecology, hydrology and morphology and there will be a definition of conservation objectives & habitat needs for birds.</p> <p>Measure carrying capacity of selected areas & component and assess sand balance.</p> <p>Compilation & evaluation of assessment tools from other estuaries & projects,</p>	<p>This will result in a complete quantification for the Humber estuary and will create the same level of understanding among regional & international partners</p> <p>Strategy for filling knowledge gaps in selected estuaries will be developed.</p> <p>A compiled hierarchy of tools for implementation including tools that consider ecological functioning & hydromorphological aspects</p>

		<p>advantages / short falls and jointly adapt and develop tools & methods.</p> <p>Compose a road map on how to obtain quantified resilience objectives, apply tools to demonstration areas, develop a monitoring scheme and prepare inter-estuarine TIDE Assessment Tool Box</p>	
Realise Integrated Management Planning / Governance	Institute of Estuarine and Coastal Studies, University of Hull	<p>This work package is based on a comparative analysis of the management structures, governance principles and communication methods applied in the demo/pilot areas.</p> <p>It will assess good practices from other estuaries & comparable management planning schemes.</p>	<p>The aim is to develop a holistic management planning framework for estuaries and to “unblock” regional working groups by bringing in experts/examples from other estuaries.</p> <p>A joint TIDE ‘GOVERNANCE BOX’ will be produced.</p>
Mitigation and Compensation Measures	Lower Saxony Water Management, Coastal Defence and Nature Conservation Agency	<p>Collection & assessment of existing and planned measures among partner estuaries, other estuaries as well as other areas so that lessons can be used elsewhere.</p> <p>Assessment of measures with regard to the existing legal framework, impacts, cost-effectiveness.</p> <p>Pilot measures established with help of international experts to help develop a strategy for morphological management.</p> <p>Studies focused on particular aspects in each estuary to find solutions to a range of problems e.g.</p>	<p>There will be adaptation of existing solutions from elsewhere and joint development of new solutions.</p> <p>Compilation of proven measures - basis for future in measures in demonstration areas</p> <p>Improve knowledge on morphological and ecological interrelation</p> <p>An evaluation of the pros and cons of solutions</p> <p>TIDE Measure Box available to other estuary managers,</p>

		<p>this will include:</p> <ul style="list-style-type: none"> - Assessment of sediment traps as part of a sediment management scheme at Elbe. - Assessment of benefits of dredgings trial, nourishment of intertidal / low energy areas in the Humber - Development of natural sublittoral hard substrate ecotopes in the outer estuary of Weser <p>Compilation of assessed measures to prepare input to TIDE guidelines.</p>	experts and decision-makers
Transnational Exchange & Capacity Building	Hamburg Port Authority	<p>This work package will collect and exchange experience on available expertise in estuary management among the North Sea region partners and external partners from other related projects</p> <p>TIDE will invite speakers and participants to its own transnational workshops, but will also disseminate on other occasions.</p> <p>A joint working exchange will be established among partners through benchmarking exercises, peer review, expert input and joint developments.</p>	Through these activities TIDE will disseminate its results and continued exchange of ideas will allow partners to learn from other examples.

The integrated partnership model is achieved primarily through the work package integration and also through general cooperation and sharing of knowledge and solutions by partners. The benefits of this method include:

- Integrated work packages provide each partner with the responsibility for one of the four main work packages. A meeting between all partners to discuss integration

packages occurs twice a year, and regular e-mail/telephone conversations occur as well. This communication is driven by s.pro, the project coordinators.

- The governance and management structures mean that TIDE provides a forum for issues to be discussed between both ports and conservation bodies.
- Lessons have been drawn from previous projects such as Harbasens which did not achieve effective inter-package integration.
- Having a central management team combats most of the communication and logistical problems such as coordinating availability of partners.
- Knowledge sharing between different sites - TIDE has witnessed a convergence of two polarised actors, the ports and nature conservationists.
- Crosscutting themes for estuaries can be assessed alongside estuary specific themes.

3.5 Monitoring and indicators

TIDE applies a SWOT analysis as a self-evaluation tool. However stakeholders suggested that the Interreg programme could usefully provide guidance on how this should best be carried out. Indicators are provided to projects and the quality comes from the self-checking against these indicators. There is no independent monitoring and therefore no objective check on the contents of reports.

4.0 Analysis of measures and allocations

4.1 Development Path Approach analysis

The TIDE approach will link ecosystem services to economic values by aiming to achieve a win-win situation through developing solution-oriented initiatives. The ecosystem services approach has been cited by stakeholders as particularly important in gaining win-win outcomes. In practice the ecosystem services approach works by defining the most important ecosystem services in each estuary and then relating this to benefits. By this method you are able to compare measures and enhance ecosystem services.

TIDE was initiated in February 2010 and the project is therefore very much in the conceptual stage with project partners translating concepts identified in the proposal into concrete research and measures. The project stakeholders are hoping for a win-win-win outcome: the effective provision of ecological goods and services, alongside better environmental management whilst allowing for economic development. The project originated from the potential friction between economic and environmental development. As the port industry develops, the issues will expand and evolve alongside nature conservation. The partners identified that it was vital that estuaries with important natural assets do not lose out economically.

One of the UK Stakeholders emphasised that the environmental focus is paramount to the project itself and will reduce the trade-off between environment and economic development. The project will also reduce trade-offs through enhancing the management framework and governance structures and implementing communication lines between partners to share ideas and techniques.

It is hoped that economic competitiveness will be increased as a result of the project, enhancing the win-win outcome. If the conditions are met to develop port infrastructure whilst conserving natural assets, the port development could create jobs and investment, whilst maintaining natural assets leading to economic benefits in the form of, for example, tourism. It is important for the partners to have ports that can compete internationally as well

as with ports in the EU. For example there is planned investment for an offshore wind industry on the east coast of the UK linked to a port and the Humber is a potential site, therefore involvement in TIDE to boost competitiveness could help in winning such a contract.

It is interesting that the major ports in Northwest Europe are participating in TIDE, except for the largest port in the area: Rotterdam which presents itself as an obvious drawback. However on speaking to stakeholders they emphasised that TIDE was more about engaging with partners in different countries and the Dutch partners were involved with the Scheldt estuary which spans two countries and was thought to provide a good example of transnational management. In addition it was felt that lessons learnt could be easily transferred to the port of Rotterdam and associated estuaries.

4.2 Other tools to enhance environmental integration

The Water Framework Directive (WFD) provides the overarching regulatory framework for estuaries. TIDE aims to look at the operational constraints posed by the regulatory framework, and investigates how a port can follow all the environmental regulations and at the same time be a successful port. The most important operational regulations relate to the Habitats & Species Directive, Natura 2000 site protection and the EIA Directive.

The WFD defines port activity as a pressure which potentially contributes to the failure to achieve a good Ecological Status and may cause estuaries to be defined as a Heavily Modified Water Body - this has strong implications for the port authorities and port management. In addition River Basin Management Plans, which include estuaries, are used to deliver the WFD. Member states must produce river basin management plans (RBMPs) for all River Basin Districts (RBDs) in the EU by 2009 (WFD Articles 11 and 13). The planning process should include an economic analysis of all water uses in each RBD, as well as determining the pressures and impacts on the water environment.³⁵⁶ The RBMPs set out environmental objectives for all groundwater and surface water bodies and Protected Areas within a RBD. The plans should include a programme of measures to meet these objectives³⁵⁷ and as such could be seen as an additional policy instrument that aims to facilitate integration.

Stakeholders emphasised that the TIDE project aims to look beyond just fulfilling the Directives to determine how to achieve wins for the ecological system and wins for the economy, i.e. a sustainable development of all estuarine users and uses. Hence port activity will be assessed together with all the activities in the estuary. Stakeholders suggested that the most significant idea being examined is whether it is possible to determine the carrying capacity of an estuary for a port and also the same for the ecology.

TIDE aims to look at the functioning of the estuaries whereas the WFD is very structural in its approach, meaning that it focuses on what the estuary consists of rather than what it does and how it works. In the application, although partners indicated the value of TIDE for the implementation and fulfilling of the directive, the idea was to take a more strategic and holistic approach to estuary management.

There is a range of existing requirements constraining the different actors, some of which are in conflict and have different incentive effects. For example, a port authority may have a legal role to keep fairways and channels open but at the same time it has to make sure it does not infringe on EU directives as a consequence. If it fails to keep channels, clear the Port

³⁵⁶ Morris, J (2007). In Pretty, J et al. (ed) *The Sage Handbook of Environment and Society*, 13, p191-205. Sage Publications, London

³⁵⁷ Parliamentary Office of Science and Technology (December 2008) *River Basin Management Plan*, Number 320

Authority is at fault, but if the Port Authority breaches agreements regarding a directive then it is the country that is held responsible and reported to the European Court. Stakeholders therefore have highlighted that a project such as TIDE, which encourages integrated management and aims to bring all relevant stakeholders and experts together, is essential for ensuring effective compliance with the WFD and other regulatory instruments.

5.0 Implementation and absorption

5.1 Absorption

As the project is in early development stages it is not possible to determine whether the project will absorb all allocated funds. However stakeholders suggested that this should not be an issue and they expect planned spend to go ahead as budgeted, if anything partners are likely to contribute increased funds from their own budgets to gain additional added value from the project.

5.2 Preliminary outcomes

Partners hope that the combination of work packages provides a better overview of which measures are most appropriate to each zone or estuary. They hope to gain a better understanding of which measures are serving their purpose and apply a more integrated overall perspective to estuary management. Formulating a consistent integrated set of goals for an estuary becomes a challenging task, however TIDE will seek to translate the different goals into ecosystem services.

Stakeholders emphasise that knowledge transfer and learning from management techniques will be important impacts. TIDE has already been helpful for allowing partners to see that other management bodies are facing similar problems. In addition the transfer of solutions has been useful in addressing common problems.

Where measures are implemented in several locations, inter-estuary comparison becomes possible, for example by using the ecosystem services approach. For this measure, data and experiences are collected from all four estuaries and by having a more complete dataset a better understanding of how estuaries function can be gained. Data is collected from all estuaries on various subjects including hydrology, morphology, ecology, specific habitats and species and the physical and chemical properties of site. This enables models to be conducted to further enhance knowledge and generate solutions, which can then be used by other decision-makers. Pilot projects are also being carried out and these are effective at identifying best practices through testing and enabling lessons to be transferred. It is thought that if all stakeholders agree on what constitutes best practice, specific measures will become easier to implement. TIDE experiences will be synthesized in a joint toolbox documenting tools for assessment, governance and measures. This TIDE Toolbox will be presented to the planners, managers, scientists and decision-makers of other estuaries and related contacts.

The ultimate aim of TIDE is to undertake a process of ‘joined-up environmental thinking’ for estuarine management, whereby integration occurs across a range of sectors and scales. Stakeholders hope to develop a strategy to move away from the traditional sectoral management approach to an integration of use and user in estuaries. In doing so, the project aims to ensure the provision of both economic and ecological services. It also aims to deliver a framework for the sustainable management of environmental processes, areas and species whilst allowing for ongoing economic activity.

Win-wins could be further enhanced by a greater knowledge exchange as estuaries are both complex and dynamic and it is difficult to predict changes. A sharing of knowledge at a greater scale could improve win-wins. Furthermore the legal basis could be improved to be more flexible and dynamic in terms of planning (temporary nature). Gaps in scientific knowledge can be an issue but TIDE hopes to reduce these gaps through the cooperation of partners and the sharing of knowledge. In addition, cross-border conditions can become an issue as one estuary system may have many people responsible including surrounding states/federal administrative bodies. This explains the collaborative model of TIDE which aims to bring all relevant stakeholders together to resolve issues in a collaborative way.

6.0 Conclusions

Stakeholders emphasised that TIDE takes into account the ecological, economic and societal needs of the sites involved, and inter-links the multiple processes and large-scale efforts taking place in the estuaries. In this way, it will influence the development strategies for these areas and regions. Interreg funding has provided the means to take this project forward and stakeholders believe this will result in an exchange of knowledge which will help solutions be found to problems experienced, thereby enhancing environmental protection.

The integrated management approach also allows environmental issues to be connected to economic services by using the approach of ecosystem services which looks at safety, accessibility and ecology. Overall the project is expected to be a **win-win, increasing environmental sustainability and competitiveness at the same time.**

Stakeholders hope that TIDE also fosters cross-border cooperation and will lead to the availability of quantified goals, long-term monitoring and the incorporation of research in management plans all acting to further enhance scientific knowledge as well as resulting in greater sustainable development.

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TIDE, Tidal River development
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TIDE Times, Issue 01 2010, Hamburg Port Authority & s.Pro sustainable projects GmbH
http://tide-project.eu/downloads/TIDE_Times_Issue_01.pdf

8.0 Interviewees

Name	Role	Organisation
Mike Elliot	Chair in Estuarine & Coastal Sciences, Department of Biological Sciences, Director of the Institute of Estuarine & Coastal Studies (IECS) (TIDE partner)	Institute of Estuarine & Coastal Studies – UK partner The University of Hull
Nick Cutts	Deputy Director (TIDE partner)	Institute of Estuarine & Coastal Studies – UK partner The University of Hull
Annedore Seifert	TIDE Project Co-ordinator	Hamburg Port Authority
Dr. Boris Hochfeld	TIDE Project contributor	Hamburg Port Authority
Angela Schultz-Zehden	Managing Director (project management for TIDE)	s.Pro sustainable projects GmbH
Stefan Van Damme	Department of Biology (TIDE partner)	University of Antwerp

9.0 Annex – Inadequate SEA of Port Development in the UK

In 2010 Collingwood Environmental Planning reviewed the current state of play of Strategic Environmental Assessment (SEA) in the UK and the EU on behalf of RSPB and WWF. The focus was directed on the Appraisals of Sustainability (AoSs) being undertaken for the recent draft National Policy Statements (NPSs) for their effectiveness in delivering the requirements and objectives of the SEA Directive. With regards to Ports the report concluded that the baseline information provided about the current state of the environment in the AoS was inadequate, and the way in which the assessment against the appraisal objectives has been undertaken in the Ports AoS failed to assess the real impact of an NPS on the environment. This has implications for port development and it is questionable whether many of the AoSs are actually assessing the true consequences of the NPSs and therefore meeting the requirements of the SEA Directive.

Concrete examples of governance structures that facilitate policy coordination and environmental integration in the UK include the National Policy Statements and Infrastructure Planning Commission. The publication by Government in 2009 of a number of draft National Policy Statements (NPSs) provided the opportunity to reflect on how Strategic Environmental Assessment (SEA) was being implemented in the UK, particularly with respect to strategic plans and strategies. The NPSs give reasons for the policy set out in the statement, and integrate environmental, social and economic objectives. The Ports NPS was produced by the Department for Transport (DfT), supported by consultants and aims to ‘*cater for long-term forecast growth in volumes of imports and exports by sea for all commodities.*’ The ports NPS is largely devoid of any real spatial considerations and it is not possible to find the locations of the ports the NPS might be relating to in the draft NPS and AoS documents.³⁵⁸

The environmental assessment phase of the Ports National Policy Statement found that a number of recommendations made during the previous environmental assessments had been incorporated in the NPS draft and that the draft NPS made minor to moderate positive contributions towards the achievement of environmental objectives and sustainability, with only a small number of ‘slightly negative impacts’ identified.³⁵⁹ Recommendations of how to further improve the environmental sustainability performance of the Ports draft NPS have been made.

The Infrastructure Planning Commission is the independent body that examines applications for nationally significant infrastructure projects relating to energy, transport, waste, and water sectors and is therefore an additional governance structure in ensuring projects consider climate change, carbon emissions and environmental impacts in the examination process.

The Interreg IVB North Sea Region Programme

Activity (Cd)	DPA	Description	Budget EU
7	F	Investment in firms directly linked to research and innovation	€ 28.649.856
26	F	Multimodal transport	€ 39.067.986
51	D	Promotion of biodiversity and nature protection (including Natura 2000)	€ 39.067.986
54	C	Other measures to preserve the environment and prevent risks	€ 23.440.792
86	B	Evaluation and studies; information and communication	€ 8.312.337
TOTAL			€138538957

³⁵⁸ RSPB & WWF (January 2010) *Appraisals of Sustainability and the New National Policy Statements: Opportunities Missed and Challenges to Come?* London, Collingwood Environmental Planning.

³⁵⁹ Department for Transport, *Ports: National Policy Statement for England & Wales – Appraisal of Sustainability (AoS) Report November*, November 2009

**1.26 SOUTH WEST ENGLAND: SUSTAINABILITY APPRAISAL OF
PROGRAMME AND COMPREHENSIVE INCLUSION OF
ENVIRONMENTAL IMPACTS, INCLUDING BRISTOL**

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1.0 Executive Summary

- This case study focuses on a Member State Region – the South West region of the UK.
- The main environmental challenges in the South West Region are related to the rising population and subsequent pressure on biodiversity and natural resources such as air quality, water and waste disposal. Meeting climate change targets is also a challenge for the region although renewable energy technologies are being developed.
- The majority of Cohesion Policy funds are allocated to activities that pursue environmental sustainability and in particular to eco-efficiency as well as economic development.
- The majority of funds (European, National and Regional) are allocated to Priority Axis 1 (Innovation and Knowledge) and Priority Axis 2 (Enterprise and Growth). Environmental measures under this Axis include developing renewable technologies, raising awareness and encouraging renewable energy consumption amongst businesses. Preliminary outcomes have confirmed positive implications for the environment.
- The integration of the low carbon theme as an overarching objective and the creation of the environmental sustainability manager role has ensured integration of environmental aspects in programming and individual projects.
- The use of the environmental steering group imposed on the Newquay Airport Development project is a good example of mitigating risk for large infrastructure projects that bring economic development but are likely to adversely affect the environment.
- The SEA and ex-ante governance mechanisms are not deemed to have a great influence on programming as they are conducted at a time when the investment possibilities are extremely broad. Representatives in the South-West have suggested that an ongoing evaluation or monitoring system may be useful in terms of updating progress and targets.

This report will look to address the following Criterion:

Processes of Integration	Criterion	Key question
Strategic	Inclusion	
	Consistency	
	Weighting	
	Financial resources	
Procedural	Assessments	x
	Reporting and evaluation	x
	Proofing tools	x
Institutional / organisational	Governance structures	x
	Partnerships	
	Consultation	

2.0 Background and Context

The South West region of the UK has been chosen as a case study as it stands out above other regions in terms of its ability to integrate sustainable development alongside economic

development within the Operational Programme. In order to address environmental issues in the South West region of the UK, the Operational Programme has been designed with the environment as a cross-cutting theme. The South West employs additional governance tools and mechanisms alongside this cross-cutting theme which include:

- An Environmental Advisory Group and Programme Monitoring Committee to advise on environmental issues at a Programme level
- An Environmental Steering groups to advise on environmental issues at a project level.
- A project level environmental appraisal requesting a detailed description from potential beneficiaries on the likely environmental impact of projects
- The creation of a specific environmental role - an Environmental Sustainability Manager

The case study looks at the different tools and mechanisms and assesses their effectiveness as well as highlighting likely win-win and win-loss investments occurring as a result of the planning and governance framework. This includes offsetting the carbon emissions of Newquay airport as a tool for better integration of environmental concerns. The case study concludes that the combination of different tools and mechanisms and a rigorous project environmental appraisal leads to an overarching awareness of environmental issues which subsequently results in a ‘greening of investment’. This environmental integration creates complementarities and synergies across different social and economic programming areas.

The South West region has a number of environmental assets and the high quality of life and high quality environment contributes to high tourism levels, inward investment and business retention rates. However, development targets set at an EU and national level as well as increasing pressure on the environment through population growth and economic activities mean that the South West must maintain a clear focus on environmental issues in order to continue to have the environment as an economic driver.

An awareness of the environment as an economic driver has led to its integration as a key theme in the Competitiveness and Employment Programme for the South West and aims to address several of the pressures and issues evident in the region today.

Table 70: Current status of the environment and environmental pressures

Topic	Trends and key issues
Population	Rising population is increasing demand for housing, use of transport infrastructure, and environmental resources.
Human Health	Life expectancy in the SW is among the highest in England. Local environmental improvements can also be linked to health improvements.
Biodiversity	Pressures on biodiversity are associated with agricultural practices although climate change is also likely to have effects in the future. The proportion of SSIs in target condition is continuing to increase but a significant minority remain in poor condition. Agri-environment schemes which have nature conservation as a central aim have been introduced and expanded in recent years and take up of schemes in the SW is proportionately highest in England.
Landscape and	Rural forms and countryside, the built heritage, urban form and

cultural heritage	distinctive buildings are all key elements to the landscape. The natural and historic landscape of the SW forms a significant part of the attraction for tourists.
Soil/changes in land use	The re-use of Brownfield land within the SW is at lower levels than in England as a whole.
Water	Water quality has been improving in biological and chemical terms. Increasing pressure on water use and water availability may be a constraint on development in some areas in the future.
Transport/ Air quality	Local air quality has improved in recent years in line with technological advances in road transport engines and emissions. However rising volumes of road transport and congestion is an issue. Regionally, transport is responsible for 28% of CO2 emissions (based on recent research by DEFRA which allocated indirect emissions to the region), with road transport dominating that total. A further 33% of the region's emissions come from homes.
Climate Change	The region's average air temperature has increased by about 1°C since the 1960s. Latest estimates using the UK Climate Impacts Programme scenarios (UKCIP02) suggest that net sea level rise in the South West could be between 20 and 80 cm by the 2080s, depending on the future rate of greenhouse gas emissions. This could have major impacts for the region's coastline, low lying areas, infrastructure and major coastal towns and cities.
Energy	Energy costs have risen consistently in recent years and demand from business for energy efficiency services has also increased correspondingly. The (RSS) states that the renewable energy industry in South West England accounts for more than 300 organisations working across the sector, employing more than 2,900 people and contributing an estimated £215 million to the economy annually. Employment in this sector has grown at 37 per cent per annum over the last three years. With high levels of wave, tidal, wind and solar energy and a good climate for growing biomass crops, the South West RDA states that the region has the potential for renewable energy to deliver substantial economic benefits.
Waste	Every year South West England produces around 2.5 million tonnes of domestic waste, 5.5 million tonnes of commercial and industrial waste, and 12.5 million tonnes of construction and demolition waste. Landfill remains the major method of waste disposal in the region. There is increasing pressure on landfill availability however volumes of recycled waste are rising.

Source³⁶⁰

Using the 4 capitals model the South West has several assets which have an implication for sustainable development.

³⁶⁰ Adapted various sources - Strategic Environmental Assessment of the EU Structural Funds Competitiveness and Employment programme for South west England 2007-2013, South West Regional Spatial Strategy & Ex-ante Evaluation of the South west England Regional Competitiveness and employment ERDF Programme

Natural capital

- The South West Regional Spatial Strategy (RSS) emphasises that the region is rich in natural resources, with some nationally important mineral reserves and a relatively untapped potential for renewable energy.
- Extraction of minerals also creates opportunities for biodiversity, geo-diversity and amenity gains through appropriate restoration and aftercare. The region has significant non-renewable resources that call for good management for future generations.
- World Heritage Sites, National Parks and Areas of Outstanding Natural Beauty cover over a third of the region and the coastline, over 1,130 kilometres in length, is extensive and internationally renowned with more than three million people (62% of the population) living within 10 kilometres of the coastline. The coast continues to play a pivotal role in the region's economy and tourism.

Human capital

- There are real skills and sector strengths within the South West economy. Aerospace, marine, creative industries, environmental technologies, tourism and the food and drink sectors are identified in the Regional Economic Strategy (RES) as key areas for growth.
- The RSS states that the high environmental qualities of the region should be seen as a major contributor to quality of life and a direct or indirect source of employment for many people.
- The South West Operational Programme (OP) indicates that investment in Research and Development within the region's business base is stronger than nationally. However the region performs below average in the number of high technology patent applications submitted to the European Patent Office and R&D investment among the region's HEIs is weak.
- The OP highlights that the region's working age population is relatively well qualified, however the existing skills base is not being fully utilised by the region's businesses.
- A large number of working age individuals do not hold qualifications at level 2 and many of these are among the 59% with poor numeracy skills and the 13% with poor literacy skills.

Social capital

- Social changes have occurred affecting economic development and environmental sustainability. The RSS emphasises that there are more single people living alone and a rising number of smaller family households as a result of family breakdown and divorce.
- Increasing population affects the demand for housing and use of resources, as does household growth and the continuing strong demand in the region for second home ownership, particularly in coastal and some rural areas; with implications for the supply of affordable housing for the local population.

Manufactured capital

- Regional connections with Europe are through the Port of Bristol and the ferry ports at Plymouth and Poole. Bristol, Exeter and Bournemouth airports also provide a wide range of links to European and wider global destinations. Maintaining reliability and resilience of transport links to the capital is reflected in transport policies as a regional development priority
- The RSS identifies a major opportunity, through an increased uptake of sustainable construction principles and standards, to make a major contribution to

achieving Policy SD1. ‘Future proofing’ of buildings will further increase the whole-life value of the built environment in the region, and enable the region to adapt to climate change.

2.1 Current investment context

On 10 December 2007, the European Commission approved a Regional Operational Programme for the South West of England for 2007-13. The Operational Programme falls within the framework laid out for the Regional Competitiveness and Employment Objective and has a total budget of about €250 million. **Community investment through the European Regional Development Fund (ERDF) amounts to about €125 million** (approximately 1.2% of the total EU investment earmarked for the United Kingdom under the Cohesion Policy 2007-13)³⁶¹.

The table below shows the financial composition of the South West Operational Programme. The OP has identified four priority axes, each of which is allocated a budgetary ceiling comprised of EU and national public contributions.

Table 71 Breakdown of finances by Priority Axis, in €³⁶²

		EU Contribution	National Public Contribution	Total Public Contribution
Priority Axis 1	Innovation and Knowledge	45,000,000	45,000,000	90,000,000
Priority Axis 2	Enterprise and Growth	45,000,000	45,000,000	90,000,000
Priority Axis 3	Urban Enterprise	30,000,000	30,000,000	60,000,000
Priority Axis 4	Technical Assistance	4,658,086	4,658,086	9,316,172
	Total	124,658,086	124,658,086	249,316,172

OP investments cover the South West Region and involve direct and indirect investments in the environment. Although the environment is a cross-cutting theme, meaning that all projects must take account of their environmental impacts, the Programme has funded many direct environmental projects. This focus on direct environmental projects can be achieved at the commissioning stage where specific types of actions are requested.

Box 1: Examples of direct and indirect investments in the environment

Direct investments in the environment
<ul style="list-style-type: none"> • Energy efficiency, co-generation, energy management • Assistance to SMEs for the promotion of environmentally-friendly products and production processes • Other measures to preserve the environment and prevent risks
Indirect investments in the environment

³⁶¹ http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=UK&gv_reg=ALL&gv_PGM=1051&LAN=7&gv_PER=2&gv_defL=7

³⁶² http://ec.europa.eu/regional_policy/country/prordn/details_new.cfm?gv_PAY=UK&gv_reg=ALL&gv_PGM=1051&LAN=7&gv_PER=2&gv_defL=7

- R&TD infrastructure and centres of competence in a specific technology
- Developing human potential in the field of research and innovation, in particular through post-graduate studies
- Advanced support services for firms and groups of firms.
- Other investment in firms
- Other measures to stimulate research and innovation and entrepreneurship in SMEs
- Design and dissemination of innovative and more productive ways of organising work
- Support for self-employment and business start-up.
- Energy efficiency, co-generation, energy management
- Assistance to SMEs for the promotion of environmentally-friendly products and production processes
- Other measures to preserve the environment and prevent risks

3.0 Governance mechanisms

Stakeholders interviewed suggested that in general The South West region in the UK has effectively integrated sustainable development into cohesion policy and research suggests that this is primarily due to innovative and well-structured governance mechanisms.

First, environmental considerations are taken into account in the programming phase. **An ex-ante evaluation** was carried out to raise any issues and mitigate risks and the evaluator made comments at a number of stages of the development of the Operational Programme. In relation to the environment the issue raised was the capacity in technology institutions and the business base to realise opportunities from growth in environmental technology and renewable energy markets. The response from the partnership as detailed in the ex-ante evaluation, was that the Operational Programme allocates between 10% and 25% of resources in Priorities 1 and 2 to focus on environmental technology and renewable energy. This equates to ERDF support of €2m per annum. The Partnership foresaw no difficulties in investing this level of ERDF funding each year. Whilst recognising the opportunities associated with developing new products for environmental change, there is a need to ensure that new products and services supported by the priorities are assessed and if necessary assisted to improve their likely environmental impacts.³⁶³

A Strategic Environmental Assessment was also conducted for the programme examining to what extent activities proposed under the programme would affect environmental issues. In addition a Sustainable Communities Task and Finish Group met three times leading to a regional consultation event that was held to inform the direction of the Programme and considered issues of environmental sustainability. This was instrumental in helping to give the programme a set of environmental objectives.

During implementation phases the **Programme Monitoring Committee (PMC)** retains a strategic steer over the programme and becomes involved in investment decisions if a project in question is particularly novel or contentious. A stakeholder who sits on the PMC noted an

³⁶³ Government Office for the South West, Ex-ante Evaluation of the South West England Regional Competitiveness and Employment ERDF Programme, 2007-2013

increased acknowledgement of environmental issues in recent years across this PMC, partly as a result of the changes in thinking across all levels of government with respect to the climate change agenda and recognition of green jobs and environmental technologies as a potential growth area. This prioritisation of environmental objectives by the PMC has steered the programme and helped to 'green' investment. Furthermore there are also joint Programme Monitoring Committees with ESF Programmes which helps to align policies and ensure an environmental focus across structural funds. There is also a **Cross Programme Environmental Advisory** group consisting of membership from environmental partners across the region including the environment agency, GOSW, energy saving trust, Universities and Natural England. The Group meets on an ongoing basis and advises the Programme board as to whether its environmental priorities and focus are fulfilling the objectives of the Operational Programme.

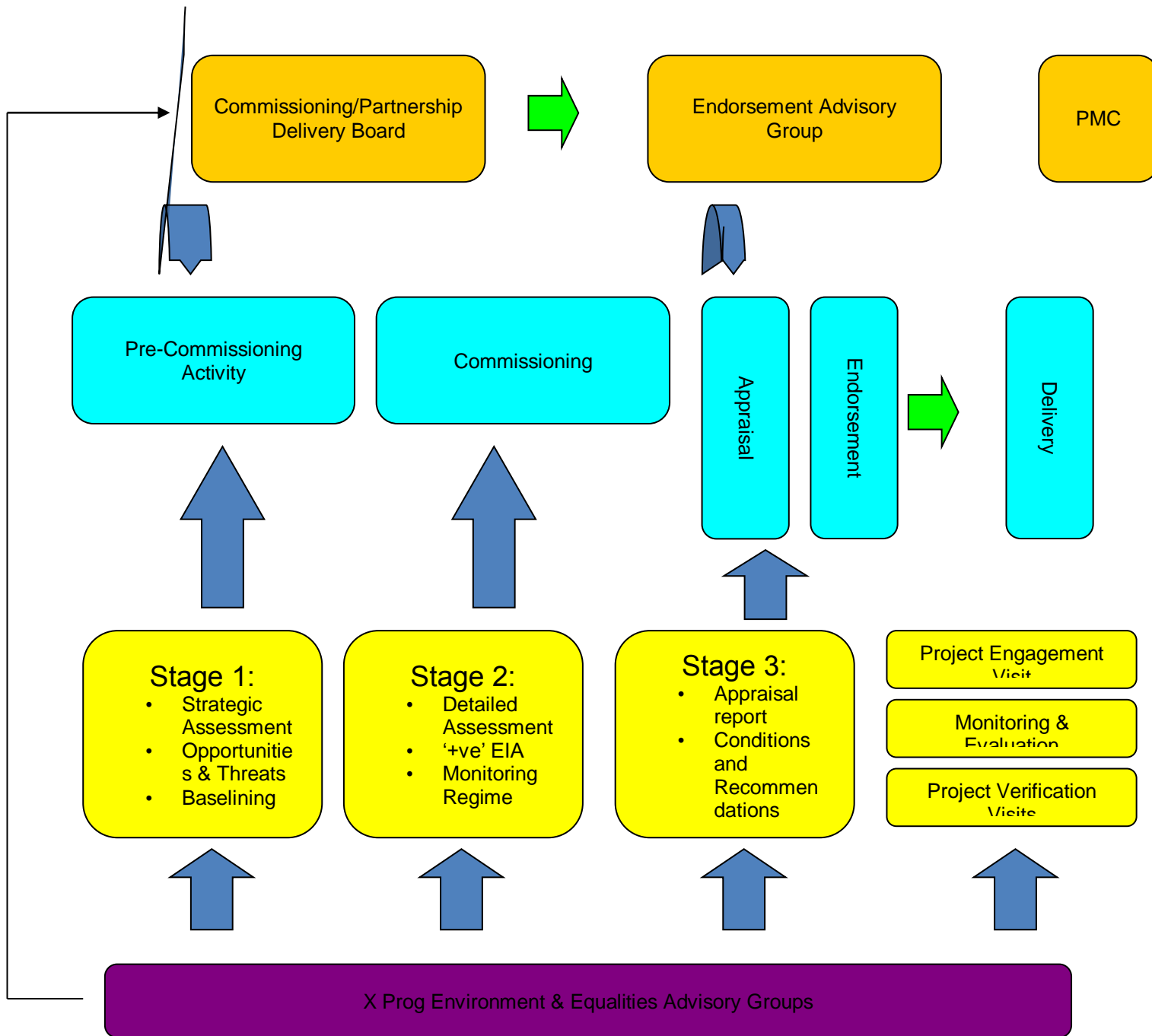


Figure 2: Governance Structure to facilitate integration of sustainable development
 Source: The South West RDA

Programming in the South West region is based on a thematically integrated approach with the environment acting as a key overarching objective. Stakeholders suggest that the integrated approach more effectively encourages environmentally sound projects and creates complementarities and synergies across different programming aspects. However stakeholders emphasise that environmental sustainability could be better enhanced through an ongoing evaluation system with a biannual update to the SEA and an enhanced monitoring system. The RDA representative suggested that ongoing monitoring was a weaker area of the programme, mainly because projects are not monitored regularly over their lifetime. The RDA therefore took measures to develop an SEA monitoring strategy which sets out some ideas for monitoring and acknowledges what can be done at programme and project level. It was suggested that the current role held by the Environmental Sustainability Manager is

evolving from a current focus on project development to a monitoring/evaluation role focused on carbon accounting as an indicator to measure progress and success.

The effective environmental integration is a result of specific mechanisms and tools to support the process (such as the ex-ante appraisal, the SEA and EIA), but perhaps more importantly **the network of dedicated personnel and the environmental network** that has been created in the South West, in particular the **specific role of the Environmental Sustainability Manager** has been considered critical by stakeholders in ensuring environmental integration and this individual has worked to champion environmental issues:

Box 2: Role of the Environmental Sustainability Manager

The Environmental Sustainability Manager for the EU Programmes and Policy Team has critical responsibilities in integrating environmental concerns including:

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

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

The environmental challenges we face are immense and we are not yet addressing them sufficiently enough, therefore the position of environmental sustainability manager remains vital'

Environmental Sustainability Manager, EU Programmes and Policy Team, SWRDA

Prominence given to impact assessment

The Environmental Sustainability Manager emphasised that the SEA, ex-ante programme evaluation, and SWOT, as well as project level EIAs, were conducted and subsequent concerns were raised. The benefits of this process were that it allowed those developing the programme to rethink certain aspects and ensure that the environment was considered at all stages of development. In addition stakeholders suggested that such tools provided a useful baseline to work from. However the RDA has emphasised that the SEA process and the ex-ante process is difficult to conduct when there is little definition of objectives and priority investment opportunities. By necessity, these assessments are extremely broad and fairly limited in terms of their practical use. In addition the Sustainability Advisor from Cornwall's Urban Regeneration Company emphasised that impact assessment such as SEA can be useful

if the process is iterative and takes account of policy that is being written and options that are being developed Stakeholders have emphasised the benefits of a robust and continuing monitoring system which include:

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

Use of financial engineering

Financial engineering is not used presently as it had not been fully researched by the RDA. However there is consideration of employing the Jessica loan programme in the future. The RDA suggested that an example of where it could be used is in the domestic energy efficiency project where beneficiaries use ERDF money to install energy saving infrastructure and money gets paid back to the EIB through the energy agency. Using this system will provide added benefit as money will be used for projects which outlast the programme lifetime leading to a greater degree of sustainability.

4.0 Overview of environmental objectives, measures and allocations

The Operational Programme identifies general, specific and operational objectives for the allocation of funds. These are structured along four priorities:

- Priority (Axis) 1: Innovation and Knowledge (approximately 36.1% of the total budget)
- Priority (Axis) 2: Enterprise and Growth (approximately 36.1% of the total budget)
- Priority (Axis) 3: Urban Enterprise (approximately 24.1% of the total budget)
- Priority (Axis) 4: Technical Assistance (approximately 3.7% of the total budget)

The specific environmental objectives under the three main priority axes are detailed below:

Box 3: Environmental Objectives under each Priority Axis

Priority Axis	Environmental Objective	Specific Aim
Priority Axis 1: Innovation and Knowledge	Improve the environmental performance of businesses	To identify where existing and emerging technologies may be adapted to deliver environmental benefits. The focus of this priority is to develop an emerging sector which has long term growth prospects and where competitiveness is based on innovation and a highly skilled workforce. Activities will focus on sub-sectors where the South West has a competitive advantage and to develop actions to accelerate growth. ³⁶⁴
Priority Axis	Improve the	The aim is to provide advice and support to

³⁶⁴ Adapted from South West Competitiveness and Employment Programme, Operational Programme 2007-2013

2: Enterprise and Growth	environmental performance of businesses Improve the Environmental Goods and Service sectors	companies to save costs and improve competitiveness through real increased environmental performance. Enhancing the Environmental Goods and Service sectors is an additional objective under priority Axis 2 which is linked to Priority Axis 1. The aim is to focus on activities to support new and existing businesses in the environmental technologies sector through developing markets, providing access to finance, new markets and specialist business support.
Priority Axis 3: Urban Enterprise	Improve enterprise opportunities through environmental improvements	The aim is to stimulate local people, businesses and social enterprises to develop commercial opportunities with regard to environmental opportunities such as energy efficiency, waste minimisation and renewable energy.

5.0 Analysis of measures and allocations

5.1 Development Path Approach analysis

The Development Path Approach

The DPA categorises investment by intervention type and the key economic, social and environmental benefits under each intervention type are set out below. Analysis shows that the majority of funds are allocated to activities that pursue eco-efficiency (Path E) and to decoupling (Path F) interventions. Overall, it is possible to conclude that the measures financed by the Cohesion funds in the South West of England aim at generating synergies between economic development and environmental sustainability and they intend to pursue eco-efficiency in the main as well as introduce specific interventions designed to decouple economic activities from pressures on the environment/natural capital. The RDA Environmental Sustainability Manager suggests that the distribution fits with the strategy and direction of the RDA who is the major match-funder of projects and has been a leading player in identifying the environment as an economic driver.

Win-Win Investments;

The Programme is seeking to increase the number of investments that deliver actual rather than relative environmental improvements (and economic impacts)³⁶⁵, and therefore move towards development path F, decoupling economic activity from the use of natural capital. A sustainability advisor from the Camborne, Pool, Redruth Urban Regeneration Company in Cornwall has been appointed through ERDF funding to provide a low carbon environmental focus and work across programmes and strategies for the area. In the context of the South West and the development of the OP this stakeholder understands sustainable development as ensuring that investments are low carbon intensive and infrastructure is in place to ensure the long term sustainability of investments. They emphasises the importance of decoupling. The box below outlines some of the possible win-wins identified by the South West Operational Programme

³⁶⁵ A. Huke, 2010 *Delivering environmental sustainability through EU Structural Funds*, SW ERDF Competitiveness and Employment programme, SWRDA

Box 4: Examples of possible win-wins:**Business support**

Interventions will include working with the business community and wider population to both raise awareness of and develop responses which reduce greenhouse gases and demonstrate how low carbon economic development might be achieved. The OP initiatives aim to protect and enhance the region's environmental assets and aims for a reduction in waste produced by businesses. Economic and social benefits include the creation of jobs, the promotion of social capital, an increase in the proportion of businesses and employment in high value added business activities as well as the provision of high quality business support and business enterprise initiatives in deprived areas which will raise the productivity of the local economy.

Employment and education

Training initiatives will be supported to help address specific skills gaps in relation to environmental management skills to help businesses achieve relevant environmental standards. The environmental technology and renewables sectors will also be a priority, including training that enables businesses to diversify into this sector. Economic and social benefits under employment and education include an increase in new enterprises and new jobs, improved adaptability of workers and flexibility of the labour market.

Environment and climate change

Local people and businesses will be encouraged to develop commercial opportunities for environmental opportunities, such as energy efficiency and renewable energy. Initiatives will aim to protect and enhance the region's environmental assets and work towards developing a low carbon economy as well as managing natural resources more responsibly. Economic and social benefits will occur via the development of the environmental technologies and renewable energy sectors as a market within the region. The OP estimates that 700 enterprises will be assisted and over 855 net additional jobs will be created in these areas. Furthermore there will be an increase in the number of high value added, innovative new start businesses.

Research & Innovation

The Competitiveness Programme will make a major commitment to reducing carbon emissions through new technologies and research and innovation. Innovation may also contribute to more efficient production processes which minimise environmental impact and reduce the costs of production. Social and economic benefits include the improved sales and productivity of companies through increasing the rate of innovation and the economic benefits from the pull through and exploitation of knowledge. In addition the OP envisages cost savings through increased environmental performance of technologies. New jobs will be created (4,870 net additional new jobs) and £192m of net additional value added.

An environment sustainability institute has been created alongside an innovation centre for enhanced environmental research. An incubation facility at Tremough also exists to fertilise some of these ideas leading to enhance R&D which aims at emerging markets and hopes to result in commercially viable environmental technologies, thereby enhancing regional GVA.

Examples of Win-Losses:

Stakeholders interviewed during the case study confirmed that in general activities that could lead to a trade-off (win-losses) between economic growth and natural capital are not pursued and the majority of actions financed through the Operational Programme contribute to the achievement of environmental sustainability. However an obvious exception to this is the development of Newquay airport which has environmental consequences. In response certain conditions have been imposed on this project to ensure it takes greater consideration of the environment into account (see box 5).

Box 5: The successful use of ex-ante evaluation:

Newquay Cornwall Airport (NCA) Development:

In the case of the 10 year project to develop Newquay Airport (£7m ERDF), the original plan of activity did not acknowledge environmental concerns. Therefore an environmental steering group was imposed on the project through the



enforcement of the contract which was to monitor and advise on environmental impacts. The condition for endorsement decision stated the following :

'The applicant undertakes to establish an Environment Steering Group, for which the Terms of Reference should be agreed with the RDA. Also, the Environment Management Plan should provide for on-going monitoring of environmental outcomes and performance, which will include carbon monitoring and assessment'.

The membership and representation of the Environmental Steering Group was aimed to ensure a clear accountability and provide feedback on environmental issues.

Responsibilities:

The steering group meet quarterly to discuss the delivery of environmental elements of the airport masterplan. There are a number of ERDF investment proposals put forward by the airport and the group is responsible for 'signing-off' the environmental elements of the business plans before they are submitted for ERDF appraisal.

Key Activities of the group include:³⁶⁶

- Forward Developments of the Airport Master Plan
 - Area Action Plan development
 - Planning Application processes
 - Environmental Impact assessments
 - Supporting Sustainability and Environmental Management Strategy

³⁶⁶ NCA Infra & Bus Dev Package (IBD) Condition for EAG 9th March 2009 T. Roche 03/03/09

- Options and opportunities for the use of renewable energy sources
 - Highlighting best/worst practice elsewhere
- Airport Surface Access Strategy
 - Public Transport links for passengers and employees
 - Travel Plan development
- Construction practices
 - Procurement standards
 - Service provider standards
 - Design standards and accreditations
- Creating the opportunities and facilities for new environmental technologies and skills
 - Devising and implementing a Corporate And Social Responsibility Strategy
 - Ensuring good practice in terms of meeting commitments to diversity

Was Co-operation easily achieved?

Most stakeholders involved considered this a good idea, including the airport delivery team. It was largely agreed by all that it was a missed opportunity not to more coherently engage with the environmental sector in the development of the airport at initial stages due to the inevitable environmental scrutiny but also the airport's significant environmental aspirations.

Is the steering group effective?

RDA representatives and additional stakeholders suggest that the steering group is effective in ensuring that the environmental sector are engaged with airport developments and have the potential to influence activities in a proactive way, rather than critically assessing developments retrospectively. It also shares responsibilities for delivering environmental outcomes across partners. The group ensures that sustainable development principles are embedded within project development in a SMART fashion and that a comprehensible environmental monitoring plan is established.

Stakeholders suggests that the steering group has been a positive introduction as it is able to guide and support the Airport Development Team deliver the vision for NCA by embedding the best sustainable development principles in the development of the Airport. The introduction of this steering group thereby offers an aspirational model for other small and medium sized regional airports in the UK and Europe.

Programme managers emphasise the inherent trade-off in the delivery of structural fund investments as they tend to be carbon intensive in nature and investments are therefore not contributing to meeting targets that the South West has pledged to reach in terms of carbon emissions. Although a low carbon emphasis when commissioning projects helps to ensure that impacts are minimised, there continues to be need to re-orientate the OP and in many ways go further than the current state of the art and think about new ways to attain a real low carbon environment. The Grants for Business Investment (GBI) programme implemented in the South West tries to reflect this thinking providing financial support to businesses that introduce changes that aim to reduce carbon emissions. There is also exploratory work around developing a low carbon grants programme for businesses this would follow a similar model to the GBI Solutions for Business product, but instead of focusing on productivity and employment gain it would seek to deliver economic resilience through carbon savings.

Contribution of green investment to growth jobs and competitiveness:

Stakeholders suggested that focusing on the low carbon theme can make businesses more economically resilient. Due to the peripheral location of the region rising energy/fuel costs can render companies less economically competitive. Therefore changing business activity and reducing energy costs can improve long term resilience and competitiveness. In addition increased competitiveness comes from sector development opportunity, traditional business efficiency and developing sector and competitiveness opportunities. Cornwall has embraced the competitive advantage that an environmental focus can have e.g. the development of 'Wave Hub' will make the area a sector leader in marine energy opportunities. The Programme aims to deliver economic and environmental benefits through a mixture of low carbon investments and R&D which will aid the region in the ambition to become a leader in the low carbon economy. Furthermore low carbon investments have the potential to increase economic competitiveness through increasing long-term profits.

5.2 Other tools to enhance environmental integration

There are few examples of alternative policy instruments used in the South West although in Cornwall carbon accounting is used through projects which are match funded by the council. Cornwall Council stated that they were looking at ways to draw in alternative instruments and were, for example, in the process of assessing the feasibility of using feed-in tariffs (FITs) alongside projects. Assessment will look at the costs and benefits of the proposed FITs, the associated risks and uncertainty and will also look at examples of other areas where FITs have been successful and aim to describe the necessary conditions for success.

The RDA suggested that in principle alternative instruments could be used to good effect in the future to integrate environmental issues into everyday life and encourage greater environmental consciousness, for example carbon accounting is currently being explored by the RDA as an alternative instrument that could be more widely used within the programme. The RDA has worked with the Stockholm Environment Institute to develop an approach for assessing the carbon impact of investments and achieving the net zero carbon ambition. The RDA is now beginning to implement this approach, known as the Carbon Compass, across their investment portfolio for any project with a total financial value in excess of £1 million and for all projects that significantly generate or save carbon.³⁶⁷ Furthermore stakeholders suggested that this is an area for greater exploration in the next OP programming phase, particularly instruments such as payments for eco-system services.

However alternative instruments can cause confusion on occasion, for example when feed-in tariffs have been used in the past this has led to issues of double counting and double funding. Alignment with policy framework is therefore important in avoiding a loss in efficiency of funding. To overcome issues of double counting and double funding the RDA proposed that ERDF funds be used alongside existing feed-in tariffs to help homeowners in deprived areas afford the initial capital investment and then accept a reduced time period to gain income which would avoid the duplication issue. However UK central government were not open to this suggestion and policy and legislation around this issue seems inflexible. In addition many instruments such as feed-in tariffs are member state specific and it can therefore be difficult to control or co-ordinate at a European level.

³⁶⁷ http://www.southwestrda.org.uk/working_for_the_region/working_for_the_environment/low_carbon_economy.aspx

Stakeholders emphasised that if alternative instruments are implemented there needs to be a clear purpose and clarity to them and they need to be implemented consistently across Europe. In addition the Cornwall Council emphasised that obstacles such as knowledge, cost and economies of scale can prevent the use of alternative instruments.

Stakeholders suggested that the private sector had an important role to play in terms of match-funding projects. For example the low carbon grant programme was suggested by private sector businesses themselves who identified a market failure and approached the public sector for help. However, in the experience of interviewees, encouraging widespread change in behaviour and attitude towards the environment often requires subsidising by the public sector which can help to stimulate demand and move into new markets. Therefore there is currently a good balance and in general a good working relationship between the public and private sector in the South West and stakeholders did not provide any evidence of 'crowding out'.

5.3 Preliminary outcomes

Stakeholders provided information on positive impacts which emphasises the strong degree of environmental awareness that has been integrated into Cohesion Policy investment in the South West region:

- Wave hub is a good example of positive synergies and win-wins. Wave Hub is a ground-breaking renewable energy project which aims to create the UK's first offshore facility to demonstrate the operation of arrays of wave energy generation devices which will also deliver economic benefits and increase the competitiveness of the region.
- Business support activity provides win-wins and can make companies more economically competitive as well as reducing environmental impacts and becoming more resource focused.
- An environment sustainability institute has been created which is predominantly SME focused. An innovation centre exists on the same campus which carries out enhanced environmental research. Furthermore an incubation facility at Tremough exists to fertilise some of these ideas and therefore these investments ensure that the whole business journey is covered.
- The low carbon grant programme is another win-win example. For example, a large national company based in the region saw rises in fuel and energy costs decrease their competitiveness. The low carbon grant programme under the OP allowed them to make dramatic changes and they eliminated 100% of their waste and 40% of their electrical energy use. They received a £1million grant to make changes and ensure that their business remained commercially viable and more economically resilient in the long term even though in the short term it did not contribute to any increase in productivity or jobs. Programme managers emphasises that it is sometimes necessary to focus on more long-term impacts to achieve real environmental gains.
- A project named Heartland is an environmentally sustainable site that has been created in a post industrial area of Poole. It aims to attract cultural industries which build on past heritage as well as regenerating surrounding areas and acting as a catalyst for further high quality sustainable development investments. The sustainability advisor believes that in general firms are more resource focused as they

have become increasingly aware of the cross-cutting themes employed in the programme and the associated benefits.

The Programme recognises that additional effort is required in terms of win-wins. For example, sustainable construction although reducing environmental risk and negative impact has the potential to contribute real improvements i.e. not just reducing environmental intensity but looking at investments that deliver actual environmental improvements. In this respect the South West has attempted climate proofing of transportation through investment in mobility management, infrastructure and innovation using structural funds. The example of Newquay airport goes some way to illustrate the measures taken to ensure that transportation systems are created an environmentally sustainable way. The ultimate aim is to achieve a zero carbon transportation system whilst unlocking economic potential through three main methods:

- Reducing the need for mobility management (e.g. Next generation broadband - £100m of public/private investment)
- Investing in Infrastructure (e.g. train line development - £8m ERDF investment)
- Investing in Innovation (e.g. energy efficient engines in aerospace - £100m in total investment)

These investments show that the region is challenging the transport sector to meet carbon reductions and think beyond standard capital investments.³⁶⁸

Some additional ideas for future investment include a low carbon business support programme where companies can share best practice and enable delivery partners and mainstream support organisations (e.g. Business Link and Carbon Trust) to gain a greater understanding of their differing roles. This is particularly important as it is likely that environmental business support element of the OP will be increasingly under threat given the recent recession and there will be a subsequent focus on jobs and growth. This therefore calls for up-skilling and a transfer of knowledge to ensure that environmental concerns become more mainstreamed.

6.0 Conclusions

The South West Operational Programme has made substantial effort to embed environmental principles and considerations into programme management and project appraisal. This focus has helped to reduce the environmental intensity of investment activity and to mitigate risks. As a result, substantial win-wins have been noted including the development of environmental technologies, leading to social and economic benefits. The OP estimates that investments in the environmental technologies sector will lead to the assistance of 700 enterprises and the creation of over 855 net additional in these areas.

By investing in research and development social and economic benefits will include the improved sales and productivity of companies through increasing the rate of innovation and the economic benefits from the pull through and exploitation of knowledge. The OP envisages cost savings through increased environmental performance of technologies. New jobs will be created (4,870 net additional new jobs) and £192m of net additional value added.

³⁶⁸ A.Huke, EU funds for climate proofing transport, SWRDA

However, despite achievements to date and noticeable win-wins, stakeholders stress that a greater emphasis needs to be placed on how Cohesion Policy can contribute to an 80% reduction in carbon emissions in the region. In addition the research has suggested that there is currently a good balance and a good working relationship between the public and private sector in the South West. It has been emphasised that the private sector has an important role to play in terms of match-funding projects, however, encouraging widespread change in behaviour and attitude towards the environment often requires subsidy by the public sector which can help to stimulate demand and move into new markets.

Although the Operational Programme is contributing to meeting environmental targets such as microgeneration targets and 2020 targets, stakeholders suggest there is little understanding of the link between the use of the structural funds and capacity to deliver long term environmental targets. Stakeholders suggested that it would be useful if long term targets are given greater emphasis together with achieving absolute savings over relative savings³⁶⁹. In order to improve the environmental performance of programmes, environmental monitoring needs to be strengthened and an appropriate system that is not overly cumbersome needs to be implemented. In the South West there is an argument that tools such as SEA and ex-ante evaluations would be more effective if they were updated on a bi-annual basis, In addition several stakeholders emphasised that projects deemed to bring significant environmental risk or damage should not be funded.

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³⁶⁹ A. Huke, 2010 *Delivering environmental sustainability through EU Structural Funds, SW ERDF Competitiveness and Employment programme, SWRDA.*

8.0 Interviewees

Name	Role	Organisation
Ruth Binny	Convergence Policy Officer	Cornwall Council
Karen Clowes	Sustainability Advisor	Camborne Pool and Redruth Regeneration Company, Cornwall's Urban Regeneration Company
Lynda Davis	Programme Integration Manager	Camborne Pool and Redruth Regeneration company
Alex Huke	Environmental Sustainability Manager, Programmes and Policy Team	South West of England Regional Development Agency
Paul Stephens	Regional External Relations Manager	Environment Agency