

Territorial cohesion

Analysis of environmental aspects of the EU Cohesion Policy in selected countries

ISSN 1725-2237



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Cover design: EEA
Layout: Diadeis/EEA

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Luxembourg: Office for Official Publications of the European Communities, 2009

ISBN 978-92-9213-007-7

ISSN 1725-2237

DOI 10.2800/12634

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Contents

Acknowledgements	4
Executive summary	5
1 Introduction	13
1.1 Study background	13
1.2 Why is evaluation important and relevant to the EEA?	14
1.3 Study aims and objectives	14
2 Cohesion Policy and the environment	17
2.1 Introduction to the Cohesion Policy and its main instruments	17
2.2 Environmental objectives of the Cohesion Policy	18
2.3 Has Cohesion Policy brought convergence?	19
2.4 Stocktaking	20
3 Wastewater treatment and sewerage	22
3.1 Introduction and context	22
3.2 Case study of Italy	24
3.3 Case study of Spain	32
3.4 The 2007–2013 spending cycle	39
3.5 Effectiveness of spending	39
3.6 Stocktaking	40
4 Biodiversity	43
4.1 Introduction and context	43
4.2 Case study of Italy	45
4.3 Case study of Spain	54
4.4 Case study of Austria	56
4.5 The 2007–2013 spending cycle	59
4.6 Effectiveness of spending	64
4.7 Stocktaking	65
5 Energy	67
5.1 Introduction and context	67
5.2 Austria case study	69
5.3 Italy case study	74
5.4 Spain case study	78
5.5 The 2007–2013 spending cycle	81
5.6 Effectiveness of spending	82
5.7 Stock-taking	82
6 Absorption capacity	84
6.1 Introduction	84
6.2 Absorption capacity for environmental projects in Italy	84
6.3 Absorption capacity for environmental projects in Spain	89
6.4 Absorption capacity for environmental projects in Austria.....	90
6.5 Developing a methodology to assess absorption capacity	91
7 Conclusions and recommendations	96
Annex 1 Ex-post evaluation framework	101
Annex 2 An overview of spending	104
Annex 3 Available instruments in Cohesion Policy	110
Annex 4 Annotated bibliography	111
Reference list	122
Abbreviations	127

Acknowledgements

This report is prepared by the European Environment Agency (EEA) project manager Gorm Dige. Elena Cebrian Calvo (EEA) provided support and analysis. The report is published jointly with the European Network of Environmental Authorities (ENEA) which is coordinated by the DG Environment. It has been undertaken in close cooperation with the ENEA working group established for the purpose of this analysis.

Special thanks are, hence, extended to the ENEA working group members, namely Gottfried Lamers (Austria), Ivana Capozza (Italy), Yago Garcia (Spain), Juan Martin (Spain), Uroš Nučič (Slovenia), András Csanády (Hungary), Stefanie Lang (WWF), Yvette Izabel (DG Environment) and René-Laurent Ballaguy (DG Regio) for their important contributions and their guidance. We would also like to thank the chair of the ENEA plenary George Kremlis (DG Environment) and the ENEA plenary on the whole for their comments.

We would further like to acknowledge the contributions from the European Topic Centre on

Land Use and Spatial Information (ETC-LUSI), including Stefan Kleeschulte and Alejandro Iglesias; the Italian Environmental Protection Agency — ISPRA — team: Marco Falconi, Antonella Vecchio, Valerio Vitale and Mauro Roma. Several EEA experts, too, provided guidance, reviewed drafts and contributed ideas, among them Agnieszka Romanowicz, Jan-Erik Petersen, Ybele Hoogeveen, Philippe Crouzet and Ronan Uhel.

The report is based on a comprehensive analysis carried out by the Milieu Consortium (Milieu Ltd, Collingwood Environmental Planning and Ecosphere Lda) as part of the study commissioned by the EEA for the ENEA. The principle authors of the comprehensive report were: Ric Eales (Collingwood Environmental Planning), Tony Zamparutti (Milieu Ltd), José de Bettencourt (Ecosphere Lda), Luca Santarossa (Milieu Ltd) and Eduard Interwies (Milieu Ltd), with inputs from Collingwood Environmental Planning: William Sheate, Amalia Fernandez-Bilbao, Owen White and Eoghan Daly.

Executive summary

I Background

The EU Cohesion Policy seeks to strengthen the process of reducing the gap between the poor and the rich regions of the EU. It should reduce social disparities by enhancing employment and social inclusion. To that end, considerable amounts of money are spent on programmes that are supposed to contribute to the attainment of these policy objectives.

Although the EU Cohesion Policies have been in place for quite some time, the questions remain — up to what degree have those policies been reaching their objectives. How well are the measures working in various EU Member States? In other words, how successful has been the undertaking that involved spending considerable amounts of taxpayers' money on the Cohesion Policy? This calls for a thorough evaluation of the policy effectiveness.

Over the years, numerous evaluations of the Cohesion Policy have been undertaken both at the level of the European Community and at national levels. However, the majority of those evaluations are still of a rather generic nature, mostly reporting on the levels of spending and on distribution of investments between sectors at a country level — rather than on the effectiveness and effects of the measures put in place in those countries. Moreover, currently, when analysing these evaluations, we do not have at our disposal much more than reports on the results of the programmes. Obtaining information at the project level is difficult, as this information is only available to the Cohesion Fund and through the regional managing authorities.

This report has been prepared with a particular task in mind: to support the officials of the European Network of Environmental Authorities (ENEA) in their efforts to analyse whether the Cohesion Policy investments in the environmental field have been effective in a few selected countries. The analysis is also intended for the attention of the DG Region in connection with their current in-depth

ex-post evaluation activities of the Cohesion Policy programmes. Furthermore, it has been written in support of and as a way of elaborating on the 2006 report on 'the contribution of Structural and Cohesion Funds to a better environment' prepared by the ENEA.

II Purpose and scope

The overall aim of the study is to evaluate *ex-post* the effectiveness and, where possible, the effects ⁽¹⁾ of implementing the Structural and Cohesion Funds in the environment within three pilot countries (Italy, Spain and Austria).

With this overall aim in view, the study addresses the specific objectives presented below.

- (1) Evaluate *ex-post* the integration of the Structural and Cohesion Funds and the implementation of environmental policies and specific environmental sectors in selected pilot countries.
- (2) Assess and discuss the potential imbalances in the allocation of the Structural and Cohesion Fund resources; and the environmental priorities in the regional development, taking into account the experience accumulated in the previous programming cycles.

The study considers two of the Structural Fund themes: the European Regional Development Fund (ERDF) and the European Social Fund (ESF), as well as the Cohesion Fund instrument ⁽²⁾. Whilst considering three EU spending cycles (1994–1999, 2000–2006 and 2007–2013), it mainly analyses the cycle of 2000–2006, as far more data were available for this period compared to the other two. The study focuses on certain types of environmental interventions. These were studied in different pilot countries as appropriate, namely:

- **wastewater treatment** (Italy and Spain);
- **biodiversity** — Natura 2000 sites (Italy, Spain and Austria); and

⁽¹⁾ These are defined in the 2001 EEA report (*Reporting on environmental measures: Are we being effective?*), as follows:

- *the effects of an environmental measure*: the outputs of a measure that can be directly attributed to its implementation;
- *the effectiveness of an environmental measure*: a judgement about the outcome, whether or not they have resulted in the objectives and targets of the policy measure being achieved.

⁽²⁾ Note that in 2000–2006, out of the three pilot countries the Cohesion Fund only applied to Spain.

- **energy efficiency and renewable energy** (Italy, Spain and Austria).

Within the three pilot countries, the study focuses on specific regions:

- **Italy:** all six Objective 1 regions in 2000–2006 (Campania, Apulia, Basilicata, Calabria, Sicily and Sardinia);
- **Spain:** two Objective 1 regions in 2000–2006 (Andalusia and Galicia);
- **Austria:** all nine regions (eight Objective 2 regions plus the only one Objective 1 region in 2000–2006 — Burgenland).

III Main findings and recommendations

Impacts on water quality and the links between spending and outputs, in terms of new treatment facilities, are complex and difficult to measure

Both in Italy and Spain, the EU Funds play a key role in supporting water investments needed to implement the Urban Wastewater Treatment (UWWT) Directive. In two Italian regions, Structural Funds provide about 60 % of all investment, including private sources. Six Objective 1 regions in Italy, and Galicia and Andalusia in Spain have all made progress in terms of putting new wastewater treatment plants in place. In these areas, both the share of the population and the number of municipalities having access to wastewater treatment have increased. As a result, Spain has improved its implementation of the Urban Wastewater Treatment Directive. The picture is similar for Italy where, compliance with the directive has improved. However, the lack of data makes it difficult to assess the full extent of progress. While both Italy and Spain have increased compliance with this directive, it appears that both countries need to make further, and more targeted, investments.

At the same time, the inter-dependencies between spending and outputs in terms of new treatment facilities and broader impacts on water quality are complex. Comparisons made and correlations established between financing of wastewater treatment in Apulia and the quality of the coastal bathing water suggest that to make the analysis reliable, such an approach requires further information (integrating scientific data, the monitoring data for other components).

In water infrastructure, the Water Framework Directive calls for adequate recovery of costs, including financial costs (as well as the environmental and resource costs). A move to greater cost-recovery (where appropriate) may also improve the cost-effectiveness of investments, and thus ensure faster implementation of the EU policies ⁽³⁾.

Monitoring data have improved for the spending cycle of 2007–2013. Italy has introduced targets and a performance-based reward system linked to the level of population equivalent connected to a secondary and tertiary wastewater treatment. This approach is, thus, closer to the Urban Wastewater Treatment Directive. It should allow a more detailed assessment of how Italy is spending the Structural Fund resources on the wastewater treatment and how far the results are in agreement with the Urban Wastewater Treatment Directive.

The analysis was not intended as a means of comparing the two case study countries, Italy and Spain. Nonetheless, one important difference is worth noting: Spain has a series of national plans for wastewater treatment, supported in turn by regional plans. In Italy, the overall level of national planning and policy steering towards the Structural Fund appears to be lacking. Although regions have their own water plans, as seen, for example in Apulia, the Operational Programmes have to agree with the regional ones, and do not appear really informed by it.

How can the Cohesion Policy better support EU goals for biodiversity?

The study found that in the Campania region of Italy, the Structural Fund resources for biodiversity exceeded those of the LIFE-Nature Programme, the EU's instrument for this sector. However, this and other regions had specific difficulties in absorbing projects on biodiversity and the related projects. For this reason, it is suggested that the multi-year initiative should focus primarily on this area.

It appears that in the 2000–2006 cycle, two of the Objective 1 regions in Italy have allocated significant resources to the protection of biodiversity. However, no monitoring data or indicators in Italy link spending of the Structural Fund to biodiversity. Thus, the analysis proposes to introduce an indicator of resources allocated to support Natura 2000 sites. It should be based on resources

⁽³⁾ See for example: EEA Report No 2/2005 *Effectiveness of urban wastewater treatment policies in selected countries: an EEA pilot study*.

made available to municipalities with 75 % or more of their territory covered by the Natura 2000 sites. The proposal for this indicator should be reviewed to establish its accuracy in terms of assessing the support of biodiversity from the Structural Fund and its value for use in other countries.

The analysis shows that Italian regions support biodiversity. Of particular importance are the measures prescribed by the Operational Programme for 'ecological networks' and the Integrated Territorial Programmes (the PITs). Having reviewed spending in Campania, two specific concerns were identified. Firstly, only a small share of the budget planned for 'ecological networks' was allocated to the protection of biodiversity proper. These resources are mostly used to promote tourism, build facilities for visitors and stimulate the development of jobs and small enterprises linked to natural areas. The second concern is that only a small share of resources for 'ecological networks' in Campania was allocated by the end of 2006. This suggests that the region is struggling as regards its absorption capacity for this area of spending.

The case study of Campania demonstrates that the system of intervention codes used in EU in the period of 2000–2006 is too broad and does not provide for a proper monitoring of the impacts. It is necessary to consider a revision of the classification, or at least a system of sub-category codes, either identified at the level of the EU or at a national level. Indicators for Campania's measures to further its 'ecological network' give no accurate readings of the outcomes and impacts related to biodiversity. This suggests that further work is needed, in Italy at least, to identify good indicators to measure the support of the Structural Fund towards biodiversity.

The case study also shows the difficulty in identifying how much spending is actually done in support of biodiversity. Moreover, the effectiveness of spending will be tied to the management plans for protected areas. During the cycle of 2007–2013, despite the difficulties encountered Italy should continue supporting the economic development compatible with the protection of nature and biodiversity.

Apart from the common set of indicators used in the Structural funding programmes, Austria uses monitoring indicators at a project level, thus measuring various potential environmental impacts, including biodiversity. This approach is elaborate. However, the process of gathering and

reviewing the information makes it possible to bring to the project level the EU goal of integrating environmental considerations in the Structural Fund spending. Other Member States should consider this system.

Cohesion Policy investments in renewable energy are increasing

In 2007, the EU gave a much higher priority to its policy goals for the climate change, and in the cycle between 2007 and 2013, there has been a marked increase in spending the Structural Fund resources on energy, and in particular renewable energy and projects to increase energy efficiency.

In Austria, in the period from 2000 to 2006, Structural Funds supported an estimated 20 % of the new renewable energy generation. Moreover, the spending of the Structural Fund fits into a strong policy of support for renewable energy and energy efficiency. One of the paramount monitoring indicators used in Austria — reduction in CO₂ emissions — is linked to the core EU goals and can be used to assess the results of the Structural Fund spending. In Austria, there is yet another goal — achieving a national and local autonomy of energy.

In Italy, the Objective 1 regions have used their Structural Fund resources in a variety of ways. Some sought to support projects launched by municipal governments, others — to provide co-financing to large commercial wind farms (apparently, the case in Campania), and yet another decision was to promote mini-hydroelectric plants. Overall, Italy appears to be lacking a clear national strategy for the Structural Fund spending in this category. Moreover, the Operational Programmes do not even identify clearly their priorities or goals in this sector.

Spain, by contrast, does have a clear policy framework. Innovative projects in this field link energy to other Structural Fund goals, such as job creation and support to SMEs. In the 2007–2013 spending cycle, Italy and Spain have dramatically increased their Structural Fund allocations to renewable energy and energy efficiency. In Italy, a national Operational Programme for the new cycle would increase the coherence of the Structural Fund support.

Innovative projects in this sector, when linked with goals for growth, jobs and competitiveness, also mean that in future the effective evaluation will become more complex to carry out.

Mixed results in Cohesion Policy spending to the objectives of the EU Sustainable Development Strategy

In the current spending cycle (2007–2013), a brief review of the spending plans reveals that the Structural and Cohesion Funds have allocated much more substantial resources to one of the key areas of the EU Sustainable Development Strategy: the climate change and clean energy. The Funds have also shifted their resources from transport infrastructure to, for example, rail projects — though the road projects across the EU continue to receive billions of euros. In addition, for the first time ever the Funds have introduced an intervention code to be used specifically for biodiversity, thus suggesting that this priority in the sustainable development has also received a greater emphasis. Nevertheless, the Lisbon Strategy continues to be the central element of the Community Strategic Guidelines for the Structural and Cohesion Funds in the period of 2007–2013.

On the other hand, the Funds have not taken on board some other key recommendations of the Sustainable Development Strategy, notably included there proposals for green public procurement throughout the EU. It sets the goal of reaching, 'by 2010, an EU average level of Green Public Procurement (GPP) ⁽⁴⁾ equal to that currently achieved by the best performing Member States'.

Cohesion Policy can and should play an important role in achieving this goal. A key first step would be to develop guidelines for the Structural and Cohesion Funds as regards the green public procurement, identifying examples of current best practices in the Member States and promoting Green Public Procurement as a priority for spending by the Operational Programmes.

After the guidelines are prepared, the European Commission should undertake a full evaluation of the Green Public Procurement in the current spending cycle, with an eye to incorporating the guidelines into the Regulations for the next spending cycle.

Moreover, while the Funds have shifted their spending on transport infrastructure away from the roads, neither the rules nor the Guidelines for the 2007–2013 cycle respond to the Strategy's call to gradually eliminate environmentally harmful subsidies ⁽⁵⁾.

Why are national and regional environmental policies not playing a bigger role in creating the framework for effective fund expenditures?

The case studies showed that national and regional environmental policies play an important role in providing the platform for effective spending. In Austria, for example, strong national policy goals for renewable energy provide the context and identify broad objectives for spending funds on renewable energy and energy efficiency. In Spain, spending funds on wastewater treatment fits with the detailed national and regional plans for the sector.

In Italy, by contrast, during the cycle of 2000–2006, different regions adopted quite diverse approaches to spending on renewable energy. As a result, the overall effectiveness of spending is not clear. During the cycle of 2007–2013, Italy has addressed this problem with the adoption of a national Operational Programme that sets an overall strategy. Objective 1 regions in Italy are required to develop regional strategies following the national approach.

In the 2000–2006 cycle, Italy followed a similar approach in the waste sector, where Objective 1 regions were required to develop plans for waste before they could spend Structural Fund resources. In the area of biodiversity, spending has focused on a targeted measure called 'ecological networks' and also, on a special tool called the system of Integrated Territorial Programmes (PITs) which sought to create integrated environmental and economic plans in rural areas.

While Italy may represent an interesting approach in terms of integrating policy into the Structural Fund spending, the overall lesson from the comparison suggests that the most effective spending occurs when environmental policies are developed outside Structural Fund programming, and are incorporated into the programming to guide spending.

Why aren't the environmental aspects of the Cohesion Policy better linked to the spending cycles?

The Cohesion Policy has spread the 'evaluation culture' throughout the EU. The effect has been particularly obvious in those Member States where it did not exist previously. Nonetheless,

⁽⁴⁾ Green public procurement means that public purchasers take account of environmental factors when buying products, services or works.

⁽⁵⁾ An environmentally harmful subsidy increases production or use of a product /substance with environmentally harmful properties.

evaluations are not well linked with the spending cycle. For example, *ex-post* evaluations are not used as a source of information when preparing for the next cycle, which starts before those evaluations are completed. Having said that, the mid-term evaluations in the 2000–2006 cycle did feed some information on performance into the new cycle. As for the new cycle, however, it is not clear if the more flexible ongoing evaluations might play the same role. The new approach seeks to link evaluation closer with monitoring. If it works practically, this would be a valuable tool to promote the quality and effectiveness of spending. For example it will be possible to address problems that arise early in the spending cycle.

The case studies revealed a number of difficulties with data and indicators — in particular, those related to the environmental impacts of the spending from the Structural and Cohesion Funds. For example, in the area of wastewater treatment, it was difficult to establish a chain of causality as new treatment plants represent only one of several various factors that influence the quality of water. Similarly, in the area of renewable energy and energy efficiency, good data on outputs (in terms of new capacity and impacts, and reduction of greenhouse gas emissions) were seen only in one case study country, Austria.

In addition, little information was found on the 'durability' of the project outputs — i.e. whether projects made a lasting difference after spending has been completed. This concern applies in particular to 'soft' projects, that is to say, projects in support of biodiversity. In principle, 'durability' should be less of a concern for infrastructure projects. At the same time, it is not clear if Member States regularly are running *ex-post* evaluations of the projects themselves, to understand if the planned outcomes (e.g. expected renewable energy generation or volume of wastewater treated) are actually produced.

Territorial cohesion among regions and countries is occurring but in an imbalanced fashion

The concept of territorial cohesion, as enunciated in the recent Green Paper from the European Commission, makes little reference to the EU's environmental objectives, and this appears to be an important lacuna in the concept. The environment certainly forms part of the 'inherent features' of regions and territories that the Green Paper refers to. Nonetheless, what is needed is a more explicit reference to the opportunities, risks and needs related to the environment.

The Green Paper sees initiatives that connect territories as an important component of territorial cohesion policies. However, we have seen that transport policies can harm the biodiversity, natural and landscape features of a territory. It will be important for the European policy to address these potential problems.

The Green Paper also sees cooperation among European regions as a key element of territorial cohesion. Nonetheless, having assessed the spending areas, we arrived at this initial conclusion. It appears that coordination and cooperation are not very strong, especially compared to the high level of spending on environmental infrastructure projects. For example, although the ENEA plenary has provided a forum for the exchange of information, overall, there appears to be little cooperation among regions. Equally, there is insufficient discussion of good practices or methods such as more effective approaches to managing and spending resources or evaluating project results.

Some areas of environmental spending reviewed in this report do contribute to territorial cohesion. For example, financing made available to wastewater treatment projects will reduce pollution to rivers and other water bodies, and this is expected to improve water quality, thus allowing citizens to use and enjoy the water resources of their regions better. The Cohesion and Structural Funds address imbalances through financing such projects, especially in less developed regions such as southern Italy and, now, parts of the new Member States, helping them to catch up with richer parts of the EU.

In the area of biodiversity, the Integrated Territorial Programmes (PITs) underway in Italy are intended to link economic development with biodiversity protection and other areas of environmental management. If they reach their goals, they can play an important role in addressing imbalances. Moreover, these projects often operate in rural, mountainous areas where development is lagging behind other parts of regional, national and EU territory. Nonetheless, financing data have shown that spending for the PITs has been slow, suggesting that the concept has been difficult to translate into reality.

Renewable energy and energy efficiency projects can make good use of the energy potential of the undeveloped areas and thus strengthen their competitiveness. These projects, too, can provide an opportunity for innovative regional development, as seen in Burgenland region in Austria.

What can we do to mitigate negative environmental impacts in the Cohesion Policy?

Austria has adopted the principle that Structural Funds should not have negative impacts on the environment. While this may be difficult to ensure completely, the EU should endorse this as a general principle for the Cohesion Policy.

The European Commission should strengthen its mechanisms for reviewing transport and infrastructure projects supported by the Structural and Cohesion Funds to ensure that their negative environmental impacts are minimised. The following actions should be considered:

- A small share of the Fund resources should be set aside for independent reviews by the Commission of the potential impacts of large projects.
- In mitigating the environmental impacts of transport and other infrastructure projects, the Commission could prepare guidelines on good practices— these should provide criteria for the independent reviews. Such reviews should make a robust comparison between different options. In areas such as water supply, 'soft' options such as water demand management should be considered closely, as encouraged by the Water Framework Directive.
- As regards the infrastructure projects that have been approved, the Commission should make sure that the Structural Fund resources are available and used to support any additional costs incurred to prevent and mitigate negative impacts on biodiversity.

Supporting environmentally favourable projects — the way forward

Review of the Structural Fund support for biodiversity and of the absorption capacity suggests that when programming and managing effective spending on biodiversity and, possibly, other 'softer' areas of environmental protection, regions may run into difficulties (Objective 1 regions in Italy, too, experienced problems in terms of their absorption capacity in the area of spending on environmental monitoring systems).

To address these problems and to ensure that Structural Funds support effective, high-quality projects, ENEA plenary members and other national

or regional authorities, together with stakeholders, should consider launching a multi-year initiative to exchange best practices among the Member States in terms of using Structural Funds for key environmental sectors. In the areas of biodiversity, the broad goal will be to assist the Member States in putting in practice recommendations on the Structural and Cohesion Funds put forward by the 2006 Biodiversity Action Plan. While this effort should focus on the 'Convergence' regions, it could also address spending on biodiversity under the 'Territorial cooperation objective' ⁽⁶⁾ and other programmes, such as LIFE. These may offer examples of good practice as well as opportunities for better promotion and integration of biodiversity projects. Moreover, the initiative should look at opportunities for improving synergies among funding sources for biodiversity, and in particular between the LIFE-Nature Programme and the Structural Funds.

A model for such an initiative already exists: in the energy field, projects such as BACCHUS ⁽⁷⁾ and PromoScene ⁽⁸⁾ have already been promoting effective spending of the Structural Fund on the renewable energy and energy efficiency.

Are perverse environmental subsidies reviewed in the Cohesion Policy context?

The Sustainable Development Strategy calls on the European Commission to 'put forward a roadmap for the reform, sector by sector, of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to gradually eliminating them.' This roadmap should look, in particular, at the support from the Structural and Cohesion Fund available to transport infrastructure such as roads and airports.

The renewed Sustainable Development Strategy does not call for ending all financing in these areas — rather to discontinue harmful subsidies. There may still be reasons for supporting these areas of transport infrastructure, such as addressing transport bottlenecks and integrating peripheral regions. The review should consider whether financing from other EU mechanisms, such as loans from the European Investment Bank (EIB), could replace Structural and Cohesion Fund subsidies. The Funds might still play an important role in terms of co-financing mitigation efforts in cases

⁽⁶⁾ Building on the experience of the previous Community initiative Interreg.

⁽⁷⁾ BACCHUS: Best Actions for Collaboration in countries for a high efficient use of energy in Structural funds.

⁽⁸⁾ PromoScene: Promoting the use of Structural Funds and Cohesion Funds for energy investments in New Member States.

where infrastructure damages biodiversity or where alternative projects are not considered viable.

In terms of broader objectives, the Structural Funds should not only address infrastructure gaps, but also do so through the promotion of new and more sustainable patterns of mobility.

What can be done to improve absorption capacity, especially in 'softer' areas of the environmental spending?

A key issue is the ability of the Member States and regions to spend the Fund resources they are allocated, especially in the area of environmental protection. The analysis indicated that in Italy, Objective 1 regions had difficulty programming and spending their resources in 'soft' and innovative areas such as the measures for 'ecological networks', monitoring pollution and, to a lesser extent, energy and waste management. In Spain, Galicia reduced its allocations for renewable energy. In several regions of Austria, however, the allocations for renewable energy, energy efficiency and environmental technologies in enterprises increased markedly.

ENEA and other bodies should consider a follow-up on this subject across several areas:

- The initial analysis presented here should be updated and reviewed, once the data on the final years of spending in the 2000–2006 cycle become available.
- Evaluations of Structural Funds should examine issues related to the absorption capacity, and in particular, where it pertains to environmental projects. These evaluations should establish whether the difficulty in financing 'soft' projects, such as those to support biodiversity, is a common one.
- Specific evaluations and a study could review how different Member States ensure a good 'pipeline' of environmental projects, in particular of the 'soft' projects.
- It would be useful if the review of how Member States link monitoring and ongoing evaluation occurs early in the 2007–2013 cycle. It would help identify examples of best practice and countries where the system could be improved.

ENEA and other bodies should consider launching initiatives to strengthen Structural and Cohesion Fund spending on the environment. Similar initiatives could help Member States draw lessons from evaluations and studies such as those proposed here. This could help them improve their project pipelines and enhance planning concerning other

areas of the environmental spending. While these initiatives would focus on assisting the new Member States and those countries where administrative capacity can be improved, the exchange of information and identification of best practices may help others as well.

Access to data is still a problem and should be improved for the sake of public awareness and future reporting

This study encountered several difficulties in obtaining appropriate data for analysis. In some cases, this was due to faults in national monitoring programmes and limitations of indicators, in others — due to data restrictions in case study countries. For example, in Spain, annual reports on the Operational Programmes in the case study countries were not available on the Internet; most of the Italian regions studied had such reports but in one or two cases, these were not up-to-date.

The Cohesion Policy has played an important role in introducing uniformity among financial control mechanisms. While the Cohesion Policy has played an important role in promoting transparency of spending and of the results, still further steps should be taken. Information currently presented in the annual reports on spending, as well as indicator results, could be entered into a uniform web system. While the European Commission would incur the cost of setting up such a system — and Member State and regions would also face administrative costs of adapting to it, a common web portal would greatly improve public awareness and potentially reduce future reporting and evaluation costs.

How do we create consistent and effective systems for monitoring indicators?

The case study countries and regions varied greatly in terms of the monitoring indicators they track. For example, some regions in Italy used, as an output indicator, the number of projects financed rather than information on the outputs of these projects. By contrast, Austria has prepared a comprehensive system of environmental monitoring indicators for the cycle of the years 2007–2013.

The European Commission and ENEA should review current systems of indicators and ensure that Member States and their regions adopt effective and consistent approaches. Such systems should introduce strong indicators covering the entire chain of causality: from inputs through to outputs, outcomes and impacts. The Austrian system constitutes an important example of best practice,

in particular in the way that it tracks potential environmental impacts from non-environmental projects.

One important area for attention is the potential negative impacts on biodiversity originating from the Structural Fund spending, in particular in areas such as infrastructure. In relation to the Structural Funds interventions, there should be developed biodiversity-related indicators, which then should be integrated with other relevant sets of indicators, particularly the SEBI⁽⁹⁾. From this point of view, an interesting approach has been demonstrated through the use of a set of indicators to assess the integration of environmental concerns into the Common Agricultural Policy (CAP), the IRENA operation⁽¹⁰⁾.

The intervention codes for the period of 2000–2006 were not well adapted to the evaluation of environmental spending, much less so in the area of biodiversity. In Italy, national codes of higher degree of comprehensiveness provided a greater thoroughness of detail. The EU codes for the cycle of 2007–2013 are better. For example, there is an intervention code for biodiversity and separate codes for different types of renewable energy. Nonetheless, more codes that are detailed would be useful: the European Commission should consider developing a uniform set of sub-codes. This would enable evaluations to be more precise and to focus on specific areas of spending. As an alternative, common EU codes could allow for specific national sub-codes while the latter could be tracked through the European Commission's system. These codes should be linked to the current NACE (National Classifications of Economic Activities) coding that is used when carrying out economic accounting and relates to environmental accounts.

IV Why is evaluation important and relevant to the EEA?

Although the EU has strengthened its system for evaluating the Cohesion Policy, better information is needed on its territorial dimensions. It should concern environmental results, impacts, challenges and opportunities. For the Cohesion Policy, the

European Commission has emphasised that the Structural Funds programme should be subject to regular and rigorous evaluations (*ex-ante*, midterm and *ex-post*).

Furthermore, the Sixth Environment Action Programme (6 EAP) of the European Community highlights the need to undertake '*ex-post evaluation of the effectiveness of existing measures in meeting their environmental objectives*' (Article 10). The European Parliament has clearly expressed its wish for a more systematic reporting on the implementation of policies in the Member States and the effectiveness of past policies in the EU.

As the European Community is placing an increasing emphasis on evaluation to improve the effectiveness of its policies, programmes and projects⁽¹¹⁾, the EEA has taken initiative and published a report entitled *Reporting on environmental measures: are we being effective?* (EEA, 2001). The report confirmed that in Europe there exists a widespread lack of knowledge, as regards most areas, about the effectiveness of past policies. The report also set out a framework for undertaking evaluations of effectiveness. It provided guidelines for exploring a relation between the needs of a society to introduce a policy measure and the final impact of that measure on the environment.

Such an approach to the evaluation of effectiveness has been used as a foundation for developing the evaluation framework in this study. As a starting point, the report has considered the policy cycle — the process within which evaluation needs to integrate and inform. It is important to consider the whole chain of effects throughout the policy process and the spending cycle. Information must be collected at each stage along this chain. These have been key considerations in developing the overall evaluation framework for Structural and Cohesion Funds of environmental policies (illustrated in Annex 1). The framework has been tested in the pilot countries and, subsequently, refined and adjusted to reflect a real state of events. This approach proved useful. It has made the evaluation framework 'fit for purpose' and sufficiently robust to be applied in other evaluations of this nature.

⁽⁹⁾ SEBI: Streamlining European 2010 Biodiversity Indicators. See EEA Technical report No 11/2007 *Halting the loss of biodiversity by 2010: proposal for a first set of indicators to monitor progress in Europe*.

⁽¹⁰⁾ IRENA: Indicator reporting on the integration of environmental concerns into agricultural policy. See EEA Report No 6/2005 *Agriculture and environment in EU-15 — the IRENA indicator report*. The study includes analysis of policy responses and spending, among others, regarding the impacts on farmland-related biodiversity. This will be further analysed in a forthcoming EEA report on the distribution of CAP payments with a view of a biodiversity perspective.

⁽¹¹⁾ See, for example: Commission of the European Communities, *Responding to Strategic Needs: Reinforcing the use of evaluation*, SEC(2007) 213, February 2007.

1 Introduction

1.1 Study background

The EU Cohesion Policy seeks to strengthen the economic, social and territorial 'cohesion' of the Union. The Cohesion Policy currently accounts for about one third of the total EU budget, spent mainly through the Structural Funds and the Cohesion Fund. The size and the crosscutting nature of the Cohesion Policy create both significant challenges and major opportunities for environmental protection and sustainable development in Europe.

The recognition of the importance of territorial cohesion is not new. It is, and has been, the core of the EU Cohesion Policy since its inception. Several sectoral policies also have a specific territorial impact and some have elements that address specific territorial problems. As far as the Cohesion Policy is concerned, eligibility for support is determined at the regional level, in line with the principle of subsidiarity, and there has been a growing awareness of the need to shape development strategies around the particular assets of territories, their physical, human and social capital as well as their natural resources. Moreover, the Cohesion Policy has championed a multi-sectoral, integrated approach to economic and social developments across the EU.

Territorial cohesion is a multi-faceted concept that, ultimately, is about creating harmonious development and ensuring that citizens are able to make good use of the most inherent features of their territories. As such, it is a means of

transforming diversity into an asset that contributes to sustainable development of the entire EU. The European Commission has put out a 'Green paper on territorial cohesion — turning diversity into strength' as a response to the many problems and challenges that territories in Europe are facing across sectors. These problems and challenges require effective integrated solutions jointly arrived at by authorities and stakeholders.

The systematic evaluation of cohesion measures can help assess these challenges and opportunities. Evaluation is a means of reviewing the results and impacts of policy implementation and of the continuing needs and is needed to provide information for decision-making. To improve the effectiveness of its policies, programmes and projects, the European Community places a growing emphasis on evaluation⁽¹²⁾. Evaluation is of growing importance, also, for the EU environmental policy. The EU Environment Council, in its 1999 assessment of the Fifth Environmental Action Programme, referred to the lack of a systematic *ex-post* evaluation process in the Community environmental policy, and subsequently called for *ex-ante* and *ex-post* evaluations⁽¹³⁾.

Although the EU has strengthened its system for evaluation of the Cohesion Policy, better information is needed as regards environmental results, impacts, challenges and opportunities of its territorial dimensions. For the Cohesion Policy, the European Commission has emphasised that the Structural Funds programme should be subject to regular and

Box 1.1 Why a Green Paper on territorial cohesion?

Long history:

- debate on territorial cohesion started in the early 1990s;
- led to the INTERREG and ESPON programmes;
- in 2007, German and Portuguese presidencies adopted the Territorial Agenda and its Action programme.

Strong demand from:

- the European Parliament;
- from the informal ministerial meetings;
- from contributions to the consultation on the Fourth Cohesion report;
- from associations representing specific types of territories.

⁽¹²⁾ See, for example: Commission of the European Communities, *Responding to Strategic Needs: Reinforcing the use of evaluation*, SEC(2007) 213, February 2007.

⁽¹³⁾ Cited in EEA, 'Reporting on environmental measures: Are we being effective', *Environmental issue report*, No 25, November 2001.

rigorous evaluation (*ex-ante*, mid term and *ex-post*). The systematic evaluation of cohesion measures can assess these challenges and opportunities.

1.2 Why is evaluation important and relevant to the EEA?

The Sixth Environment Action Programme (6EAP) of the European Community highlights the need to undertake '*ex-post evaluation of the effectiveness of existing measures in meeting their environmental objectives*' (Article 10). The European Parliament has clearly expressed its wish for a more systematic reporting on the implementation of policies in the Member States and the effectiveness of past policies in the EU. For the Regional policy, the European Commission has emphasised that the Structural Funds programme should be subject to regular and rigorous evaluation (*ex-ante*, mid-term and *ex-post*).

The EEA has an interest in evaluating the effects and effectiveness of policies. Its role, as set out in the EEA Regulation 933/199 (as amended), is to provide the Commission with the information it needs to, amongst other things, evaluate measures and legislation in the field of the environment and to assist the monitoring of environmental measures through appropriate support for reporting requirements (EEA, 2001).

In 2001, the EEA published a report called *Reporting on environmental measures: are we being effective?* (EEA, 2001). This report confirmed that at the time in Europe there existed a widespread lack of knowledge about the effectiveness of past policies in most areas. The report set out a framework for stepping up effectiveness of evaluations. It formulated guidelines for exploring the relation between the needs of a society to introduce a policy measure and the final impact of that measure on the environment.

The EEA itself has become engaged in such evaluations in order to inform policymakers and the public. For example, it published reports on the effectiveness of environmental taxes and charges for managing sand, gravel and rock extraction in selected countries (EEA, 2008a), on the effectiveness of national policies in the context of the Packaging and Packaging Waste Directive (EEA, 2005b) and the Waste Water Treatment Directive (EEA, 2005c).

Work in this area has underlined an important lesson, i.e. for an environment policy to deliver effective results, the institutional setup can be as important as the design of the policy itself. Governance can therefore make or break the success of a policy. With the aim of getting practical experience of evaluating the policy effectiveness *ex-post* and of providing support in selected policy areas, this report is considered a further step along that path.

The European Commission along with the 27 EU Member States are facing an increasing demand for information and knowledge about the extent to which the policies they put in place give 'value for money' and whether the measures are working in specific countries. This is particularly true for the 12 new Member States who are now facing a significant challenge in implementing EU directives as soon as possible, and without repeating the mistakes or encountering the problems experienced by the EU-15 Member States.

1.3 Study aims and objectives

The overall aim of this study is to build on the European Network of Environmental Authorities (ENEA) working group study (2006) and to explore the possibilities of undertaking more in-depth *ex-post* evaluations of the effectiveness and, if possible, effects⁽¹⁴⁾ on the environment of implementing the Structural and Cohesion Fund-supported projects within three pilot countries (Italy, Spain and Austria). This study has been undertaken in close cooperation with the ENEA plenary and the ad hoc established ENEA working group. This group has been set a task of analysing 'territorial cohesion — environmental aspects of EU Cohesion Policy in selected countries.' The study has been made available to DG Regional Policy to support their *ex-post* evaluations of the Cohesion Policy programmes financed by the ERDF, in particular their analysis of the effectiveness of the environment and climate change. Such a partnership has borne fruit. Its broad and varied structure must be seen as a prerequisite for carrying out an in-depth analysis of this nature, as data availability is limited and what exists is not organised in a user-friendly fashion.

Thus, the basis of this study is unique since members of the ENEA working group set up for

⁽¹⁴⁾ These are defined in a 2001 EEA report, *Reporting on environmental measures: Are we being effective?*, as follows:

- the effects of an environmental measure: the outputs of a measure that can be directly attributed to its implementation;
- the effectiveness of an environmental measure: a judgement about the outcome: whether or not they have resulted in the objectives and targets of the policy measure being achieved.

this analysis are representing the selected countries namely Spain, Italy and Austria. DG Regional and DG Environment and other stakeholders, NGOs and institutions, including the World Wildlife Foundation (WWF) and the Regional Environmental Centre (REC) also took part in the ENEA working group created for this study. This collaboration of diverse partners has proved successful. It can be seen as a prerequisite for carrying out an in-depth analysis of this nature, as the availability of data is limited what exists is not easily accessible.

The study focuses in particular on certain types of environmental interventions, including those relating to the wastewater treatment sector, biodiversity (Natura 2000 sites) and energy efficiency/renewable energy. It only considers two of the Structural Fund themes (the European Regional Development Fund (ERDF) and the European Social Fund (ESF)), but it also deals with the Cohesion Fund ⁽¹⁵⁾. The other two Structural Fund themes, i.e. the European Agricultural Guidance and Guarantee Fund (EAGGF - Guidance Section) and the Financial Instrument for Fisheries Guidance (FIGF), were not covered by the present study, and neither were the Community Initiative programmes (e.g. Interreg IIIA, Interreg IIIB, Urban II, LEADER) although they often do have environmental priorities.

With this overall aim in mind, the study addresses the following specific objectives.

- (1) Evaluate *ex-post* integration of the Structural and Cohesion Funds and implementation of environmental policies as well as specific environmental sectors in selected pilot countries.
- (2) Assess and discuss the potential imbalances of Structural and Cohesion Fund allocations and priorities to the environmental dimensions of the Regional development, taking into account the experiences of the previous programming cycles.

This report is intended in particular for the attention of ENEA officials. More broadly, the expected audiences include officials at the European Commission, EEA and other European national and regional bodies working with Structural Funds and concerned about the environment, as well as key stakeholders such as environmental NGOs. The report may be especially useful to the EU-12 Member States (new EU Member States) that are starting to use Structural and Cohesion Funds: the difficulties experienced

by the EU-15 be a source of important lessons about implementation. Finally, the report may be interesting to some members of a wider audience of academics, consultants and public.

The study uses information from the three pilot countries to provide an initial overview of the EU Cohesion Policy and the environment. In doing so, the study develops an analytical framework for undertaking *ex-post* evaluation of the effectiveness, focusing on environmental implications (see Annex 1 for further elaboration). This framework sources information from the work previously undertaken by the EEA in connection with the *ex-post* analysis of the policy effectiveness as well as from the otherwise available literature and information on existing practices, including a review of the methodologies found in the case study countries. It should be noted that whilst the study is concerned with the evaluation of efficiency and effects, the focus is on effectiveness. This approach was agreed with the ENEA working group during the initial stages of the study in recognition of the challenges associated with evaluating efficiency and effects and of the limited resources available for this study. In some areas, such as biodiversity, effectiveness had to be studied mainly from information on inputs, as few data on outputs and outcomes were available.

One key result of this study is the assessment of the data and information needed for evaluation — and the availability of comparable data in the pilot countries.

Spending cycle

The study covers three EU spending cycles: those of 1994–1999, 2000–2006 and 2007–2013. Its focus, however, is on the 2000–2006 cycle, as far more data were available for this period than for the other two.

Although the 1994–1999 cycle provided context for the subsequent cycle, and despite the fact that its *ex-post* evaluation stage has already been completed, limited data availability and inconsistencies between the data make a comparative analysis with the period of 2000–2006 difficult. An overview of the key elements of the 2007–2013 cycle serves as a source of further information on how the Cohesion Policy has evolved. Moreover, the key results and the follow-up from this study may be used to influence spending in the current cycle and approaches to

⁽¹⁵⁾ Note that in 2000–2006, of the three pilot countries the Cohesion Fund was only relevant to Spain.

evaluation itself (see Annex 2 for an overview of spending).

Environmental sectors and pilot regions

Structural Funds and the Cohesion Fund support environmental projects across a variety of sectors. This analysis focused on the three of those:

- **wastewater treatment;**
- **biodiversity** (Natura 2000 sites); and
- **energy efficiency and renewable energy.**

Due to differences in the situations in the three pilot countries, each country focused on at least two sectors out of three:

- **Italy:** wastewater treatment, biodiversity and energy;
- **Spain:** wastewater treatment, energy and biodiversity;
- **Austria:** biodiversity and energy.

For wastewater treatment and energy, where possible, indicators comparable between the countries were used. For biodiversity, the work was more exploratory. The analysis looked at both positive effects and negative impacts of the Cohesion

and Structural Fund spending, based on case study information.

For example, the study included evaluation of the potential negative impact on biodiversity and in particular, Natura 2000 sites, resulting from spending the Structural and Cohesion Funds resources on road infrastructure. In Italy and Austria, the study explored the available financial data and possible indicators. As regards this sector in particular, the study has formulated conclusions about the data needs.

Within the three pilot countries, the study focused on specific regions:

- **Italy:** all six Objective 1 regions in 2000–2006 (Campania, Apulia, Basilicata, Calabria, Sicily and Sardinia);
- **Spain:** two Objective 1 regions in 2000–2006 (Andalusia and Galicia);
- **Austria:** all nine regions (eight Objective 2 regions plus the only one Objective 1 region in 2000–2006 — Burgenland).

In addition, in a few places, the report draws on some relevant information and case studies from other countries and regions.

2 Cohesion Policy and the environment

2.1 Introduction to the Cohesion Policy and its main instruments

The 1957 Treaty of Rome, which set up the original European Economic Community, called for the 'harmonious development by reducing the differences existing among the various regions and the backwardness of the less-favoured regions'. While the common market was seen as the main tool to achieve this goal, instruments have been set up to meet these challenges.

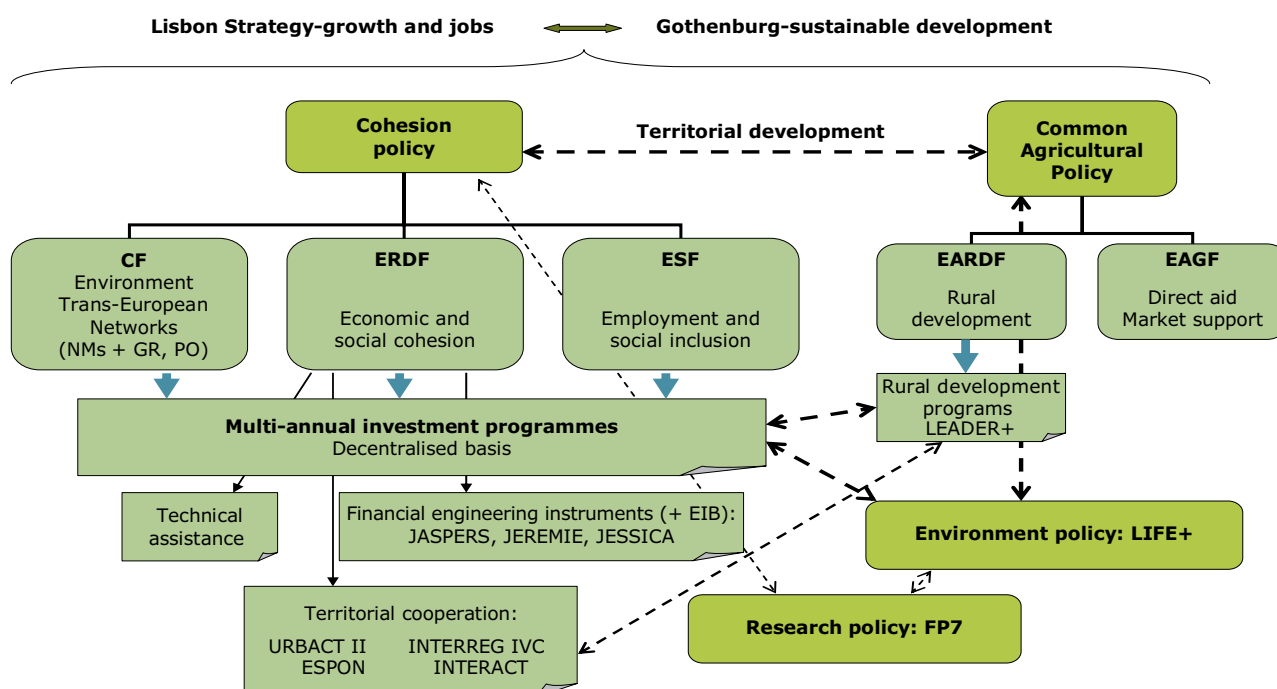
The main instruments of the Cohesion Policy are the Structural Funds⁽¹⁶⁾. In recent years, Structural Funds and the Cohesion Policy have been administered in three discrete programme periods: 1994–1999, 2000–2006 and 2007–2013. The objectives and approach of Structural funding and the Cohesion Policy have evolved over time. Structural Funds available under the Cohesion Policy are allocated according to a prioritisation system of

Objectives aimed at channelling assistance to the areas and territories most in need of support and development.

The Cohesion Policy has a multi-level system of governance. The European Council and European Parliament make strategic decisions, based on proposals by the European Commission. The European Council and Parliament decide on the overall budget for the funds. Member States and regional programmes then spend the money from Structural and Cohesion Funds, according to the National Strategic Frameworks and programming documents, with oversight by the European Commission⁽¹⁷⁾.

Figure 2.1 aims to illustrate the main EU common policies in the current policy cycle of 2007–2013 that may provide financial instruments or investments opportunities, with the purpose of enhancing sustainable development and, subsequently,

Figure 2.1 Interaction Cohesion Policy and Common Agricultural Policy instruments



Source: EEA, 2008.

⁽¹⁶⁾ For more information on available instruments of the EU Cohesion Policy see Annex 2.

⁽¹⁷⁾ For a state of play of the submission and approval of National Strategy Frameworks and programmes, see Internet: http://ec.europa.eu/regional_policy/index_en.htm.

improving the quality of the environment. The diagram, however, cannot show all the cross-effects and implementation details of these policies and their instruments.

Structural funding during the 2000–2006 programme cycles was split between four Structural Funds: ERDF, ESF, FIFG and EAGGF-Guidance⁽¹⁸⁾. These funds were allocated across Objectives 1, 2 and 3 as well as the Fisheries Fund and specific Community initiatives, namely INTERREG, URBAN, EQUAL, and LEADER; the Cohesion Fund was allocated to some Member States on a national basis. The EAGGF linked the Cohesion Policy and the Common Agricultural Policy (CAP). The Guarantee Section of this fund financed the first pillar of the CAP (direct payments and market support) plus some second pillar measures: those of the accompanying nature, including the agri-environment schemes, on all of the EU territory; and the rural development measures in non-Objective 1 regions. The Guidance section was included among the Structural Funds. The EAGGF-Guidance supported several types of projects in rural areas in Objective 1 regions, including investments in agricultural holdings, management of water resources, support to the setting-up of young farmers, training, environmentally-friendly farming, the development and promotion of forestry (though not afforestation) and certain measures for development and diversification in rural areas.

In the 2000–2006 cycle, no strategy for the Cohesion Policy was identified at the level of the EU, other than formulating the broad principles and goals for the different funds. Each Member State prepared a Community Support Framework (CSF), which gave the overall description of its approach to the use of Structural and Cohesion Funds, and submitted these for approval to the European Commission⁽¹⁹⁾. There were some exceptions: Austria, for example, did not prepare a CSF.

In the 2007–2013 cycle, the EU Council has approved a set of Community Strategic Guidelines on Cohesion, and these, in turn, have provided the context for developing national strategies, the National Strategic Reference Frameworks (NSRFs), required of all Member States. The European Commission has reviewed these national frameworks and had the power to approve or reject certain sections. The national strategies, in turn, should shape individual Operational Programmes (OPs).

The Cohesion Policy has to take full account of the situation that it is strongly interlinked with many other European, national and local policies. To contribute successfully to the implementation of the Lisbon strategy on growth and employment as well as to the Gothenburg strategy on sustainable development, not only should it support measures on economic, social, territorial and environmental issues in a balanced way but also minimise negative side effects in other areas.

2.2 Environmental objectives of the Cohesion Policy

Structural Funds

The 1994–1999 cycle was the first time ever when the need to include environmental sustainability in Structural Fund strategies for economic development was explicitly emphasised. The 1993 regulations required that Member States, in the preparation of programmes, should meet four environmental obligations: an analysis of the environmental situation in the programme area; an appraisal of the environmental impact of the proposed strategy; involvement of relevant competent national environmental authorities in the preparation and implementation of programmes; and, the duty to ensure compliance with the Community environmental policy and legislation.

For the 2000–2006 programming cycle, Council Regulation (EC) No 1260/1999 laid down general provisions on the Structural Funds. It recognised the need for a high-level of protection and improvement of the environment and that those efforts should 'in particular integrate the requirements of environmental protection into the design and implementation of the operations of the Structural Funds' (Art. 5). This meant a stronger recognition and integration of the environment than in previous Structural Fund regulations.

In the 1994–1996 and then the 2000–2006 cycles, separate legislation established and governed the Cohesion Fund. The Regulation for the Cohesion Fund in the 1994–1996 cycle (which, amended, governed it through the 2000–2006 cycle) identified the environment as one of its two main areas of spending, alongside 'trans-European transport infrastructure networks' (Art. 2). This Regulation stated that financing should go to 'projects in

⁽¹⁸⁾ Idem 21.

⁽¹⁹⁾ As per Article 15 of Regulation (EC) 1260/1999.

line with the priorities conferred on Community environmental policy' ⁽²⁰⁾.

During the 2007–2013 cycle, a single piece of EU legislation governs Structural and Cohesion Funds. Its preamble states that:

'Cohesion Policy should contribute to increasing growth, competitiveness and employment by incorporating the Community's priorities for sustainable development as defined at the Lisbon European Council of 23 and 24 March 2000 and at the Göteborg European Council of 15 and 16 June 2001' ⁽²¹⁾.

The legislation for both the 2000–2006 and 2007–2013 cycles calls on the Member States to establish partnerships with civil society, environmental and non-governmental bodies. In fact, the role of partnerships in the new cycle is on the rise and is foreseen to be important in programming, the follow-up and evaluation.

Over these three cycles, the EU legislation has given environment, sustainable development and the participation of stakeholders a growing role within the Cohesion Policy. Despite this progress, the more recent legislation (Council Regulation 1083/2006) appears to subordinate the EU's Sustainable Development Strategy to the Lisbon priorities of growth, competitiveness and employment.

Environmental authorities

The Structural Fund regulations state that environmental issues should be addressed by designated environmental authorities: for example for arrangements to integrate environment into overall assistance and for ensuring that spending complies with EU environmental legislation (Article 41) ⁽²²⁾.

Many countries have designated environmental authorities at both the national and regional level. In Italy, for example, the Ministry of Environment acts as the national environmental authority. While several countries have created new structures, in many — including Italy, Austria and Spain — existing agencies are used.

In addition, at the end of the 1994–1999 programming cycle, both Italy and Spain created networks of national and regional environmental authorities. These networks cooperate on establishing common approaches. For example, the network in Italy drafted common guidelines on the *ex-ante* environmental evaluation in Objective 1 regions for the 2000–2006 cycle.

Major projects

The European Commission has an oversight role in reviewing and approving 'major projects': for the 2000–2006 cycle, this referred to projects with a total value of at least EUR 50 million (for the 2007–2013, the category refers to environmental projects over EUR 25 million and other projects over EUR 50 million). For each major project, Member States must submit a series of information to the Commission, including a cost-benefit analysis, a financing plan and an analysis of the environmental impact ⁽²³⁾.

In the 2000–2006 cycle, the environmental requirements also called for information on implementation of the precautionary principle and of the 'polluter pays' principle; this language is not present in the Commission Regulation governing the 2007–2013 period.

The review provision allows the Commission to withhold financing or otherwise influence a project. It has served as an important tool in terms of reviewing infrastructure projects that may have an impact on the environment.

2.3 Has Cohesion Policy brought convergence?

The European Commission's *Fourth report on economic and social cohesion* reports that the Cohesion Policy has led to convergence in economic conditions both between Member States — as the largest beneficiaries, Greece, Ireland, Portugal and Spain have grown significantly — and to a convergence among EU regions ⁽²⁴⁾. Moreover, according to the Fourth report, employment rates converged between 2000 and 2005 and economic activity has become less concentrated in the 'core areas' of the EU.

⁽²⁰⁾ Council Regulation (EC) No 1164/94 of 16 May 1994, establishing a Cohesion Fund (OJ L 130).

⁽²¹⁾ Council Regulation (EC) No 1083/2006 of 11 July 2006, laying down general provisions on the European Regional Development Fund, the European Social Fund and the Cohesion Fund and repealing Regulation (EC) No 1260/1999 (OJ L 210/25 of 31.7.2006).

⁽²²⁾ ENEA (2006), *The contribution of Structural and Cohesion Funds to a better environment*, February 2006.

⁽²³⁾ Commission Decision 1083/2006, Articles. 39–41.

⁽²⁴⁾ European Commission, *Growing Regions, growing Europe: Fourth report on economic and social cohesion*, May 2007.

Some academic reports have supported this positive picture. For example, Sosvilla-Rivero and Herce (2007) estimate that Structural and Cohesion Funds have boosted the Spanish economy by 0.4 % of growth per year registered since 1989. They also state that Cohesion Policy has supported decentralisation and the development of regional policy in Spain ⁽²⁵⁾. Other researchers have been less enthusiastic. Rodriguez-Pose and Fratesi (2004), for example, contend that Structural and Cohesion Funds have led to short-term improvements in economic growth but have not resolved overall regional disparities and, in particular, have not strengthened the medium-term growth of disadvantaged regions ⁽²⁶⁾.

The report of a high-level group on the European economic policy provides a more mixed picture: the 2003 'Sapir Report' (named after the group's chair) for the European Commission included a review of the impact of the Structural and Cohesion Fund spending in Ireland, Italy, Greece and Spain. The group concluded that while the four Member States have indeed converged over the period from 1980 to 2000, the picture is mixed at the regional level. Poorer regions in Ireland have converged rapidly; those in Greece and Spain more slowly, and little progress is seen in southern Italy ⁽²⁷⁾. This result suggests that in terms of supporting economic development, the national and regional policy context and other characteristics are at least as important as the Structural and Cohesion Fund spending in itself.

2.4 Stocktaking

As regards the multi-level system of governance of the Cohesion Policy, some observers argue that the Member States and regions have the main decision-making power, and that the key decisions are made in the operational programmes. The Operational Programmes are 'the heart of programming' for the Cohesion Policy. While the EU level provides broad policy objectives, administrative and spending requirements, the national or regional bodies that prepare the

operational programmes decide how resources are spent. They decide, for example, the share of the EU co-financing for wastewater treatment plants, or whether renewable energy support goes to farms or households, to municipalities or to large companies, or is used to produce renewable energy equipment — rather than install it. Academic studies also emphasize the strength of national and regional governments in drawing up and then implementing the operational programmes ⁽²⁸⁾.

In comparing Cohesion Policy in the cycle of 2000–2006 with that in the 2007–2013, two somewhat contradictory changes stand out. On the one hand, a much clearer strategic framework has been set at the EU level for the cycle of 2007–2013. The Community Support Guidelines incorporate the Lisbon and Gothenburg Strategies. These Guidelines then influence the National Strategic Reference Frameworks and, in turn, the Operational Programmes. The European Commission reviews and approves the operational programmes and their axes of expenditure — a step that should ensure their coherence with the strategy. In comparison, the previous cycle lacked a comparable strategic framework.

This strategic framework appears to have had different effects in different parts of the EU. It reportedly has strongly influenced spending plans in the EU-12 Member States, which in 2007 started their first full cycle. One official from a southern EU-15 Member States noted that the emphasis on the Lisbon Strategy has influenced their spending, as the earmarking has required a shift in resources from infrastructure, the focus of spending in previous cycles, to labour and enterprise support. Another official notes that the Community Support Guidelines (CSG) had less impact in other EU-15 Member States: for example, some National Frameworks are not fully consistent with the CSG, and in turn some operational programmes are not fully consistent with them either (at the same time, Member States are given some flexibility in implementing the Lisbon earmarking requirements) ⁽²⁹⁾.

⁽²⁵⁾ Sosvilla-Rivero, S. and Herce, J. A., 'European cohesion policy and the Spanish economy: A policy discussion case', *Journal of Policy Modelling*, in press (accessed via Internet: www.sciencedirect.com).

⁽²⁶⁾ Rodriguez-Pose, A., and Fratesi, U., 'Between Development and Social Policies: The Impact of European Structural Funds in Objective 1 Regions', *Regional Studies* (Vol. 38.1), February 2004.

⁽²⁷⁾ Sapir, A. et al., *An Agenda For A Growing Europe: Making the EU Economic System Deliver*, July 2003.

⁽²⁸⁾ See, for example, Blom-Hansen, J., 'Principals, agents, and the implementation of EU cohesion policy', *Journal of European Public Policy*, Vol. No 12:4, August 2005. Blom-Hansen refers only to Member States — his analysis, however, is based on national programmes.

⁽²⁹⁾ WWF supports this view. Its recent study entitled *How Green is the Future of EU Cohesion Policy?* states that new Member States 'seem to be more open to the guidance of the Commission than the old ones, who — as in the case of Germany — would prefer to have no Commission guidance and therefore ignore it as much as possible' (p. 18).

While the CSG has set a strategic framework, in response to demands, in particular from some EU-15 Member States. Some Member States, on the other hand, have greater flexibility in implementing the tasks for the 2007–2013 cycle. This is seen in the rules for reallocation of resources — reallocations are among measures that no longer need approval

of the Commission. The CSG incorporates both the Lisbon and the Gothenburg Strategies — though, its leading priorities appear to be 'jobs, growth and competition'. At the same time, the EU environmental *acquis* shapes regional policy decisions, as has been demonstrated by a recent Espon study (see Box 2.1).

Box 2.1 The EU and regional governance

Research for the Espon Programme has shown that the EU environmental policy and environmental legislation have influenced regional governance in a broad and diffuse way. EU directives, including those for the environment, have become a point of reference for regional actions ⁽³⁰⁾. The resources available through Structural and Cohesion Funds have shaped territorial policies, while their financial requirements and evaluation procedures have influenced regional governments.

⁽³⁰⁾ Inter-University Institute of Local Development (University of Valencia) *et al.*, *Governance of Territorial and Urban Policies from EU to Local Level: Final Report*, Espon project 2.3.2, February 2007.

3 Wastewater treatment and sewerage

3.1 Introduction and context

In this chapter, the analysis of Structural and Cohesion Fund spending will focus, in particular, on the Urban Wastewater Treatment Directive (91/271/EEC) which was passed in 1991. Under this legislation, Member States must treat wastewater from their urban areas, and thus this directive has required major investments in urban wastewater treatment (UWWT) plants and sewerage networks:

'...implementation in the EU-15 even more than 15 years after adoption still presents significant challenges. Challenges are even more marked for the EU-10 as the directive is one of the most expensive (challenging) pieces of EU legislation to implement.'⁽³¹⁾

The specific requirements depend on the size of an 'urban agglomeration', the area where population or economic activities are concentrated, as well as the type of waters into which they discharge. Table 3.1 provides an overview of these requirements.

In 2000, the Water Framework Directive (WFD) was adopted. This is Europe's most ambitious water legislation. It establishes an integrated approach to water policy and calls for water management at the river basin-scale. The directive covers all pressures on both surface waters and groundwater, and thus provides a framework for all other legislation.

The WFD sets the target according to which all waters should achieve 'good' status by 2015. This is measured in terms of biological, physico-chemical and hydro-morphological standards for surface waters. For groundwater, good status depends on quantity (maintaining abstractions below recharge rates) as well as chemical quality. The directive requires a series of management steps for each river basin: an initial characterisation to identify water bodies at risk of not achieving good status by 2015; the development of a monitoring programme (by 2006); and the preparation of a water basin management plan together with a programme of measures (by the end of 2009).

Wastewater storyline

The analysis looks at two of the pilot countries, Italy and Spain. The Structural and Cohesion Funds have played a leading role in financing the construction of urban wastewater treatment plants in southern Italy and in Spain. In Spain, the Cohesion Fund alone provided, between 1993 and 2002, over EUR 3.8 billion accounting for about half of Spanish investment in the sector⁽³²⁾. The funds have been spent specially in Objective 1 regions. (This is not the case in Austria, where EU financing for this sector was very low and implementation of urban wastewater treatment is advanced. For these reasons, Austria is not assessed here.)

The objectives are set by the Urban Wastewater Treatment Directive. The Structural and Cohesion

Table 3.1 Requirements of the Urban Wastewater Treatment Directive (91/271/EEC)

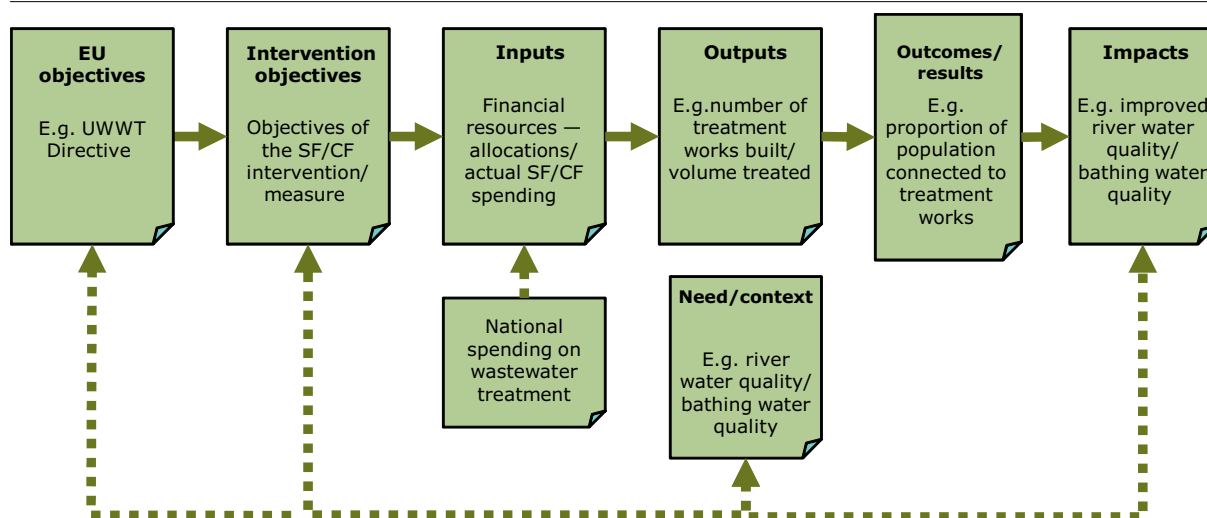
Characteristics of the agglomeration	Treatment level required
< 2 000 person equivalents	Appropriate treatment
< 10 000 p.e. and discharging to coastal waters	
> = 2 000 p.e. and discharging to freshwaters and estuaries	Secondary treatment
> = 10 000 p.e. and discharging to coastal waters	
> 10 000 p.e. and discharging to freshwaters and estuaries and to sensitive areas	More stringent treatment

Note: 'Person-equivalent' is a measure that aggregates population (including non-resident population such as tourists) and industry.

Source: UWWT-D-REP working group, 'Terms and Definitions of the Urban Waste Water Treatment', Directive (91/271/EEC), January 2007.

⁽³¹⁾ European Commission (DG Environment) and UWWT-D-REP working group, 'Terms and Definitions of the Urban Waste Water Treatment', Directive (91/271/EEC), January 2007.

⁽³²⁾ EEA Report No 2/2005 *Effectiveness of urban wastewater treatment policies in selected countries: an EEA pilot study*.

Figure 3.1 Wastewater storyline

Source: EEA, 2008.

Funds, with national and regional co-financing, provide the inputs to be analysed. The outputs can be measured in terms of the number of plants physically constructed (and their capacity in terms of total volume of wastewater that can be treated). The outcomes are the share of population or of municipalities connected to wastewater treatment plants.

The level of Structural Fund spending on wastewater treatment is available for both Italy and Spain under the following EU intervention code:

- 345 *Sewerage and purification*

This code covers both sewer systems and wastewater treatment. The output of spending is the construction of new sewer systems and wastewater treatment plants. Data on these outputs is available, in particular for spending. The broader results refer to the increase in the size of the population and number of municipalities connected to these plants. An ideal output indicator would show the share of agglomerations that meet the UWWT Directive's requirements. While this indicator is not available for either country, an overview of these results can still be provided for Spain — based on reports on implementation of the directive; this information, though with less certain data, is available for Italy as well.

In addition, both Italy and Spain have data for the following indicators:

- *population served by wastewater treatment plants* ⁽³³⁾;
- *municipalities with a wastewater treatment plant*.

As regards the first indicator, Spain has data on population equivalents (p.e.) — thus, in terms of the measure used in the UWWT Directive. Italy, however, only has data on population ⁽³⁴⁾.

The second indicator can be used as a proxy to the Urban Wastewater Treatment Directive's requirements, which are stated in terms of agglomerations with greater than 2 000 p.e. This indicator has a shortcoming, as several agglomerations can be a part of a single municipality, some municipalities have less than 2 000 inhabitants, and a single treatment plant can process sewage from any set of entities or part of these entities. As noted, however, for neither Spain nor Italy was an indicator more closely related to the directive's goal identified.

Ideally, the evaluation should show results in terms of the improvements in the state of the environment. Here, some information is available for Spain.

A review was undertaken to work out whether individual indicators of the state of the environment

⁽³³⁾ A similar indicator is part of EEA's core set: share of population connected to urban wastewater treatment plants by type of treatment (core set indicator No 24).

⁽³⁴⁾ Italy's monitoring system for Structural Funds includes data on the type of treatment plant (primary, secondary, tertiary). However, the accuracy of these data is considered weak. To link spending more clearly to UWWT objectives, there is a need for a more detailed data review and a verification exercise.

can provide useful results for the evaluation of the effects of spending in terms of environmental improvement. This analysis used the one indicator available for Italy.

Length of coastal shorelines without acceptable bathing water

This analysis investigated whether Structural Fund spending is linked to achieving the EC goals under the Bathing Water Directive (76/160/EEC, replaced by 2006/7/EC). It is recognised that this indicator is not the most suitable, since disinfection of water is not part of the UWWT Directive and the indicator of bathing water quality is related to the concentration of faecal germs in seawater. Assuming that a correct sewerage and sewage purification are prerequisites for bringing down the coastal sea pollution, the above indicator is used as a proxy.

Two concerns need to be noted. First, data analysis was limited by project resources — and as a result, analysis focused only on one region in Italy. Second, surface water quality is influenced by several factors, including non-point source loads such as agricultural chemicals and urban run-off. Moreover, since there is a link between pressures (pollution loads) and the state of the environment, in this case bathing water quality may not be simple or linear. Other factors that may also influence the quality of the bathing water such as contamination in sediment. For this and other reasons, there may be a time lag between a reduction in pollution discharges and an improvement in bathing water quality. These and other factors make our understanding of the link between spending and the environmental improvements not fully reliable at this stage ⁽³⁵⁾.

3.2 Case study of Italy

Policy context

In Italy, the implementation of the UWWT Directive has coincided with a reorganisation of the country's water service sector. A 1994 law separated the oversight and management of drinking water supply, sewerage and wastewater treatment. Each

region designated its service areas (*ATO, Ambiti Territoriali Ottimali*), each with a separate authority and an integrated water service provider ⁽³⁶⁾. All six Objective 1 regions followed different paths: while Apulia, Basilicata and Sardinia each designated a single, region-wide ATO, other regions created up to nine ATOs (in Sicily).

The Community Support Framework incorporated this goal and linked funding of the water sector to the introduction of these management reforms. As a result, the regions made important progress. For example, by 2005 all of the ATOs in the Italian Objective 1 regions had an approved management plan for water service — a major step forward compared to 1999, when no ATOs had such plans.

In 1999, Italy adopted a river basin approach to water management. The regions continued to play an important role: all regions in Italy were preparing regional water management plans in 2005 ⁽³⁷⁾. (Italy transposed the Water Framework Directive only in 2006. In doing so, Italy set up new river basin districts, which did not always correspond to the former river basins).

Italy's Community Support Framework for 2000–2006 set several objectives for investments in the water sectors. These included:

- in accordance with EU priorities, to guarantee adequate water supply for households and productive activities;
- to facilitate entry of the private sector and introduce broader market mechanisms in the sector;
- to improve conservation, treatment and reuse of water resources, to protect and restore marine and transitional waters.

Structural Fund spending on wastewater treatment

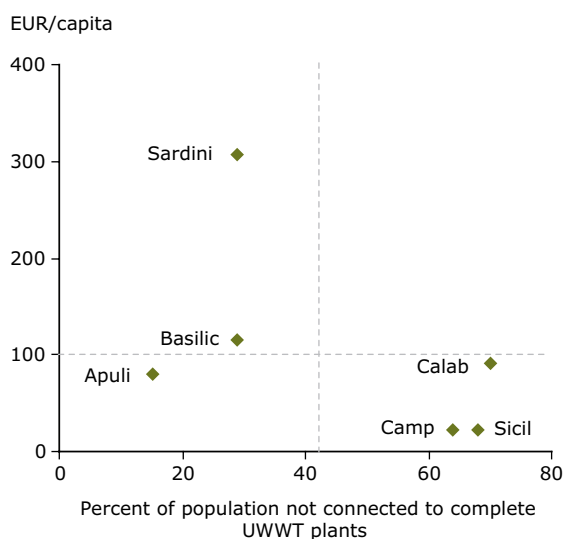
In the majority of the six regions, wastewater treatment is one of the largest areas of environmental spending in accordance with the Operational Programmes. The total budget allocations — including both Community and national resources — to sewerage and wastewater treatment were within a range from almost EUR 60 million in Basilicata to over EUR 500 million

⁽³⁵⁾ It appears that a longer term analysis is needed that would estimate the share of each polluting source and consider the time needed for a rise in water quality, as well as other factors.

⁽³⁶⁾ Comitato per la vigilanza sull'uso delle risorse idriche, *Rapporto sullo stato di attuazione dei servizi idrici: Situazione aggiornata al 31 dicembre 2007*, Rome, February 2008.

⁽³⁷⁾ Dipartimento per le Politiche di Sviluppo — Unità di valutazione degli investimenti pubblici (UVAL), *Aggiornamento della Valutazione intermedia del QCS Ob. 1 2000–2006 — Quadro Macroeconomico e Analisi dei Dati di Monitoraggio*, November 2006.

Figure 3.2 Original Operational Programme budget allocations for wastewater treatment and sewerage (EU Code 3.4.5) per capita in Italy's Objective 1 regions, 2000–2006 spending cycle



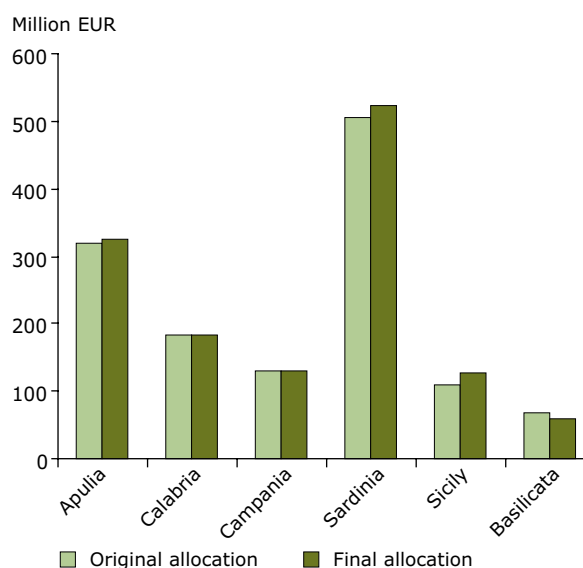
Source: European Commission (DG Regional Affairs).

in Sardinia⁽³⁸⁾. The total of the funds provided across the six regions was close to EUR 1.5 billion⁽³⁹⁾.

In 1999, the correlation between spending per capita and the share of population without a complete treatment was not very obvious (see Figure 3.2). This is contrary to expectations, as all six regions had been expected to ensure compliance with the 2005 deadline of the UWWT Directive. Notably, two regions with significant shares of population not connected to completed UWWT plants — Campania and Sicily — spent relatively little per capita.

Explanation may partially lie in the spheres of the data and geography. Firstly, the indicator used (a share of the population not connected to a

Figure 3.3 Structural Fund resources for wastewater treatment: original versus final allocations in the Italian Objective 1 regions, 2000–2006 spending cycle



Source: European Commission (DG Regional Affairs).

UWWT plant) is only a proxy. As was mentioned before, the data directly related to the requirements of the UWWT Directive — i.e. the data on the agglomerations larger than 2 000 of population equivalent — were not available for Italy. Secondly, to meet the requirements of the directive, regions with a sizeable rural population resident in very small agglomerations would need to allocate fewer resources to wastewater treatment than regions with more numerous urban settlements. At the same time, to provide a sewerage and wastewater treatment to small towns is, generally, more expensive than to provide it to large urban areas, and this may have influenced costs in some regions⁽⁴⁰⁾. And thirdly, discrepancies in the data may have affected the results⁽⁴¹⁾.

⁽³⁸⁾ The data presented here are from the European Commission (DG Regional Affairs), and represent Community and national budget resources, as reported by the regions. Data on actual commitments from the Italian Ministry of Economic Developments show somewhat different figures.

⁽³⁹⁾ The financing is divided between wastewater treatment plants and the sewerage: a 2005 analysis by UVAL/Ministry of Economic Development estimated that 60 % of the total goes to sewerage networks, and 40 % — to wastewater treatment plants.

⁽⁴⁰⁾ OECD, Environmental Performance Review of Austria: Executive Summary, 2003.

⁽⁴¹⁾ For example, while the national data provided in the Figure show that in 1999, almost 85 % of Apulia's population were connected to a complete wastewater treatment plant, the revised *ex ante* environmental assessment for Apulia's ROP gives a very different picture. This document states in the late 1990s, the region's wastewater treatment plants had a capacity equivalent to 34 % of the total population equivalent (calculated on the basis of both human and industrial discharges). Regione Puglia, *Programma Operativo Regionale 2000–2006: Nuova Stesura della Valutazione ex ante Ambientale*, December 2002. Also, as noted, the figure uses financial data from the European Commission (DG Regional Affairs); data from the Italian government on commitments appear somewhat different.

During the course of a spending cycle, regions can re-allocate their resources to different axes and measures (these changes are covered in detail in Chapter 6 that deals with the absorption capacity). Overall, Objective 1 regions in Italy introduced no significant changes in the distribution of resources for wastewater treatment (see Figure 3.3). Three regions — Apulia, Sardinia and Sicily — slightly increased the resources for this area of spending. Basilicata, by contrast, reduced its total allocations to wastewater treatment, and the remaining two did not make any changes ⁽⁴²⁾.

Structural Funds appear to be serving as the largest single source of public financing for wastewater treatment in the Italian Objective 1 regions (see Box 3.1).

Population and municipalities served

Since the data on the direct outputs from Structural Fund spending — number of wastewater treatment

plants built and the length of sewers installed — have not been considered reliable by the national monitoring body, they were not considered here ⁽⁴³⁾.

In terms of results, Italy does not have data covering specifications of the UWWT Directive (requiring information on agglomerations with a greater than 2 000 p.e. connected to wastewater treatment plants). Nor does Italy have data on the increase of population having access to wastewater treatment and the increase in the number of municipalities with completed wastewater treatment plants. The data available describe all new plants, both those financed by Structural Funds (together with national co-financing) and those supported through other sources. While national experts maintain that the support from the Structural Funds accounted for the largest share of new wastewater treatment infrastructure in the Italian Objective 1 regions, precise information was not available.

Box 3.1 Estimating the share of Structural Funds in the total financing of the wastewater treatment

The budget agreements between the national government of Italy and regional governments on the subject of water infrastructure detail different sources of finance. The table below lists the main sources of wastewater treatment in four regions (in all but Apulia, financing for several water sectors is listed together). Analysis suggests that in two regions, Apulia and Calabria, the Structural Funds (including national and regional co-financing for the regional Operational Programme (OP) provide about 60 % of all support for the investments in water. In Campania, the Structural Funds provided a lower share: less than 40 %; and in Basilicata — less than 30 %.

These data provide only a rough estimate: one reason is that the national-regional budget agreements (APQs, or *Accordi di programma quadro*) do not have the same time frame as the Fund spending cycle, and thus, are not directly comparable.

Public and private financing for water infrastructure in four Objective 1 regions

	Total resources (million euro)	Share of financing			Sectors financed	
		Regional OP 2000–2006	National budget	Regional budget		Tariffs and water service operators
Campania	995	37 %	23 %	1 %	39 %	Sewerage, UWWT plants, water supply
Apulia	184	58 %	17 %		25 %	UWWT plants
Calabria	271	63 %			37 %	Sewerage, UWWT plants
Basilicata	142	28 %	54 %	18 %		Sewerage, UWWT plants

Source: *Accordi di Programma Quadro* between the national government and regional governments, 2003.

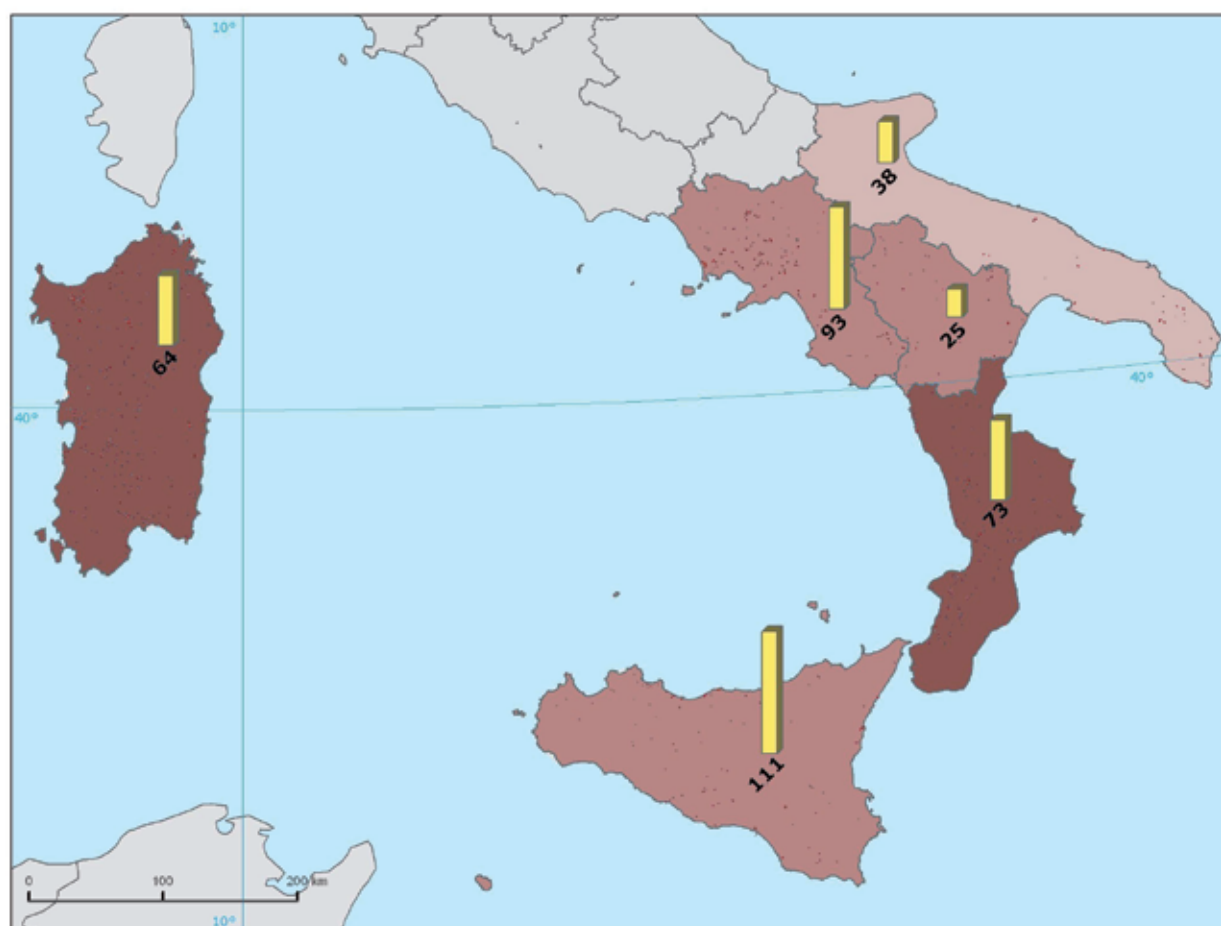
⁽⁴²⁾ In their 2000 Operational Programmes, all six regions also included a budget line for private contributions, and thus had larger totals than the figures shown by the European Commission for original allocations. Revised regional budgets largely cut out the private contributions.

⁽⁴³⁾ The national monitoring system provides, as outputs, the increase in population equivalents connected to primary, secondary and tertiary depuration systems funded by SF, but as noted previously, the accuracy of these data is considered weak.

Table 3.2 Percent of population connected to a complete UWWT plant, 1999 and 2005

Regions	1999	2005	Increase
Campania	36.07	62.08	26.01
Apulia	84.91	95.55	10.64
Basilicata	45.47	51.63	6.16
Calabria	29.93	41.93	12.00
Sicily	31.97	31.81	5.54
Sardinia	71.08	84.58	13.50
Total Objective 1	47.99	62.35	14.36

Source: ISTAT-DPS *Indicatori regionali per la valutazione delle politiche di sviluppo*.

Map 3.1 Increase in the number of municipalities connected to a complete UWWT

Increase in municipalities with complete wastewater treatment plants 1999–2005

Urban sprawl 1990–2000 (LEAC)

Up to 0.05 %

0.06–0.2 %

More than 0.2 %

Outside data coverage

Increase in WWTP 1999–2005

Areas of sprawl

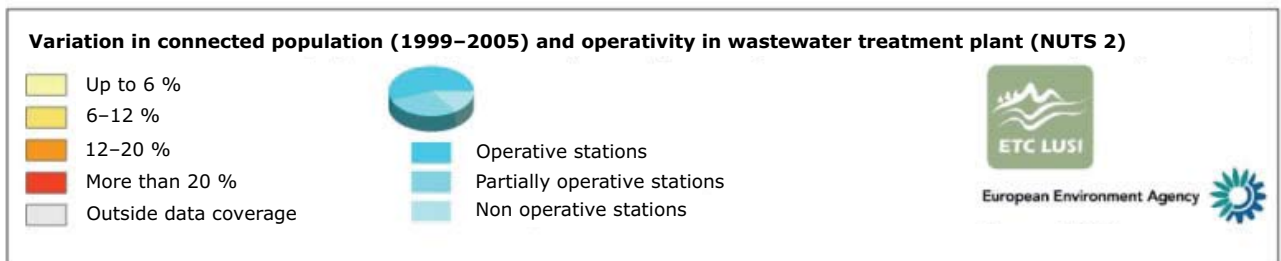
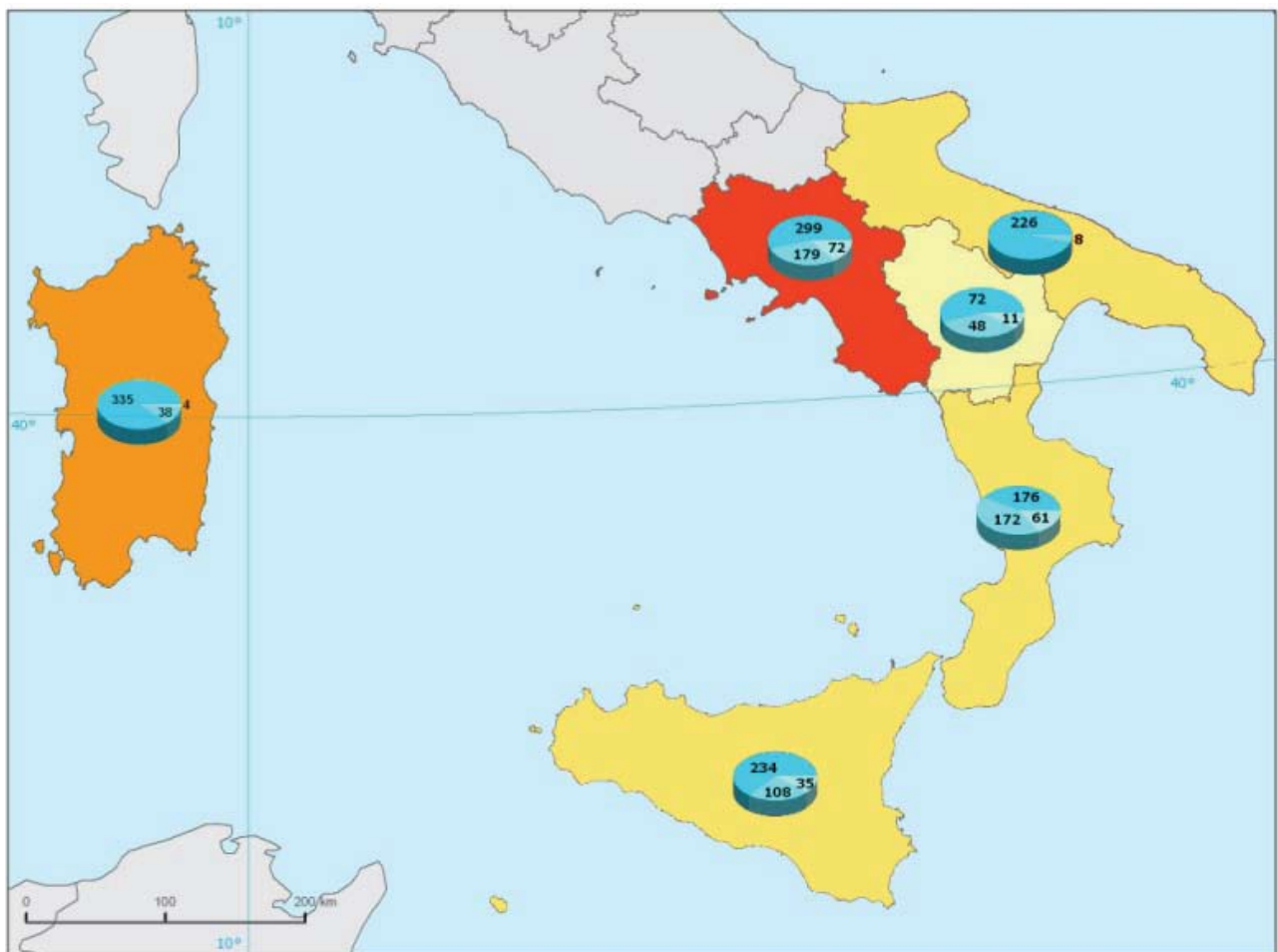


European Environment Agency



Source: ISTAT.

Map 3.2 Increase in the share of population connected to a complete UWWT plant, 1999 to 2005



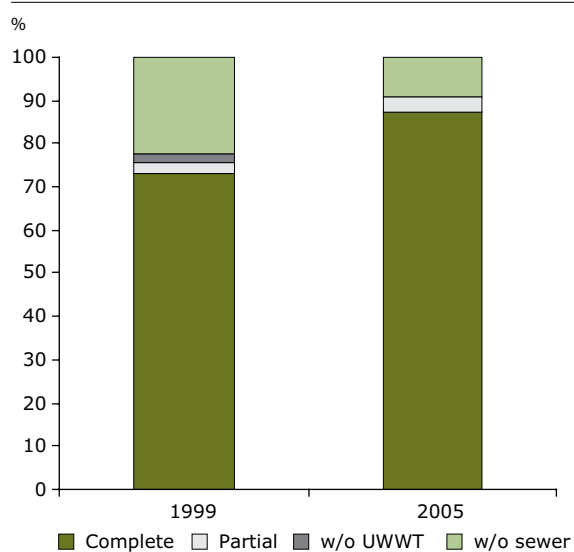
Source: ISTAT.

Population and municipalities connected to wastewater treatment

In the course of the spending cycle, according to national data, the share of population having access to the complete wastewater treatment increased by 25 % in Campania, by over 10 % in Apulia, Calabria and Sardinia, and to a somewhat lesser extent in Basilicata and Sicily. See Table 3.2 and Map 3.1; data used were those for 1999 and 2005, as the 2000–2006 data were not available.

Changes in the number of municipalities connected to a complete wastewater treatment plant follow a somewhat different pattern. Sicily, for example, which had less than a 6 % increase in the size of the population connected, saw a 29 % increase in the share of its municipalities connected to complete wastewater treatment plants. This implies that the new plants were constructed mainly in smaller municipalities. The same is true of Basilicata, which also saw a large increase in municipalities connected — about 20 %, but only a 6 % increase in terms of the population served.

Figure 3.4 Apulia municipalities having access to wastewater treatment and sewerage



Note: Municipalities without (w/o) UWWT had sewerage systems at least.

Source: ISPRA.

Map 3.1 shows the increase in the number of municipalities connected to a complete UWWT plants, together with the extent of urban sprawl in southern Italy between 2000 and 2006. Sprawl has apparently been minor, reaching at most 0.2 %. Thus, in southern Italy the construction of UWWT plants does not appear to have fuelled urban sprawl (the picture in Andalusia in Spain is quite different, as described in Section 3.3).

Map 3.2. shows the increase in the number of wastewater treatment plants operating, as well as the increase in the share of population connected.

The data presented here show changes from 1999 to 2005, as proxy dates for the spending cycle from the year 2000 to 2006. Wastewater treatment plants and the related sewage facilities can take several years to build and, thus, construction may last over more than one spending cycle. In other words, construction of the plants completed between years 2000 and 2006 may have started in the previous cycle and financed partly or wholly in that cycle. (In Spain, the period of time between approval and construction has been between three and five years — however, it is not known if the same delay occurs in Italy).

Focus on the Apulia region

The evaluation was focusing more closely on the changes in one specific region, Apulia. This analysis helped identify one discrepancy inherent in the national indicator adopted in Italy. This indicator takes into account the number of municipalities with complete wastewater treatment plants but does not include municipalities where there are no sewer systems at all. Figure 3.4 provides further detail, showing all municipalities in the Apulia region.

Between 1999 and 2005, the number of municipalities without any sewerage fell from over 20 % to under 10 %. The number of municipalities with complete wastewater treatment plants increased from over 70 % to almost 90 %. Again, these results are based

Box 3.2 Progress in the wastewater treatment in Apulia

The revised midterm evaluation for Apulia's ROP reports that by 2005, Structural Funds had supported the construction of over 60 wastewater treatment projects, compared with the 45 foreseen originally. This higher level of construction was the result of a shift in the resource allocation. Resources were moved from water supply to wastewater treatment, which, in its turn, was related to administrative problems of reorganising the water services in Italy under the 1994 law. As a result, resources from the Structural Fund could not be used for water supply projects in Apulia, even though the regional programme considers water supply as high a priority as wastewater treatment.

The 2005 midterm evaluation reported that by the end of 2008, a total of wastewater treatment projects completed should have been 72. As a result, the wastewater treatment capacity in the region should have increased. The share of the population having access should have grown from 34 % of population in the late 1990s to about 75 % in 2008. Note that the data included in this regional report differ considerably from the national data provided by ISTAT and presented in Table 3.2 and Map 3.2. According to the latter, in 1999, 85 % of Apulia's population was connected to a wastewater treatment plant, and this indicator grew to 95 % in 2005.

Generally speaking, the spending of this kind should be consistent with the region's water management plan (*Piano d'Ambito*), as well as related agreements with neighbouring regions. Investment is financed entirely from public resources, though national co-financing will be partly recovered through user tariffs.

on the data from national data sources. Apulia's regional documents provide somewhat different data, this time using population equivalents (see Box 3.2). While this confirms the overall picture — the Structural Fund has financed an important increase in wastewater treatment capacity — the regional data give an even more positive picture of the results of using the Structural Fund. However, it is noted in the box that the regional data for Apulia are not consistent with the national data for Italy, and this presents a problem in terms of reaching final conclusions about the outcomes of spending.

Meeting the objectives of the UWWT Directive

The European Commission, in its 2007 report on the implementation of the UWWT Directive in Member



States, indicates that Italy has made progress in terms of implementing the directive. Objective 1 regions in Italy also appear to have improved their implementation⁽⁴⁴⁾. However, the Commission did not receive sufficient data from Italy. The data received provided neither an overall picture for the whole country, nor a detailed description of the improvements by region. For example, agglomerations listed in previous reports were not included in the most recent information, whereas the new ones did get listed⁽⁴⁵⁾. These results confirm that Italy does not have a strong base of publicly available data for the assessment of national implementation of the UWWT Directive. This is an impediment not only to efforts to review implementation of the directive, but also to the need to evaluate how much the

Map 3.3 Spending on wastewater treatment in Apulia, 2000–2006



Spending on wastewater in Apulia, 2000–2006
 Financial data on waste water management in coastal municipalities

- Up to 40 mio EUR
- 40–70 mio EUR
- 70–100 mio EUR
- Outside data coverage

Source: EEA/ETC-LUSI and Ministry of Health, Italy.

⁽⁴⁴⁾ European Commission, *Fourth Commission Report on Implementation of the Urban Wastewater Treatment Directive: Status of Implementation in each Member State*, (Informal background document to the Communication from the Commission: Towards Sustainable Water Management in the European Union), January 2007.

⁽⁴⁵⁾ See, for example, pp. 61–63 of the report.

Table 3.3 Spending on wastewater treatment as compared to changes in bathing water quality on the Apulia coastline

Province	Total spending for wastewater and sewerage (million EUR)	Coast with acceptable waters		Variation, 2001–2006		Total coastline for bathing (km)
		2001 (km)	2006 (km)	(km)	(%)	
Bari	36.1	108.5	105.37	- 3.13	- 2.24 %	140.03
Brindisi	33.3	83.0	83.04	0.04	0.04 %	89.01
Foggia	37.7	192.8	209.26	16.46	7.44 %	221.15
Lecce	67.5	212.8	209.8	- 3.0	- 1.17 %	255.96
Taranto	87.9	85.5	85.54	0.04	0.04 %	109.8

Source: Ministry for Health, elaborated by ISPRA. Spending data as of 31 December 2006 from IGRUE-MONIT, elaborated by DPS-UVAL and ISPRA.

resources from the Structural Fund have contributed towards meeting the goals of the directive.

The report does identify several major regional cities — those that in January 2003 lacked adequate treatment systems:

- Cagliari (Sardinia) had an advanced treatment plant but it was servicing only a part (not all) of its urban area;
- A few major cities, including Sarno (Campania) had no UWWT plants whatsoever;
- Information on wastewater treatment in Naples (Campania) was not clear.

Bathing water quality

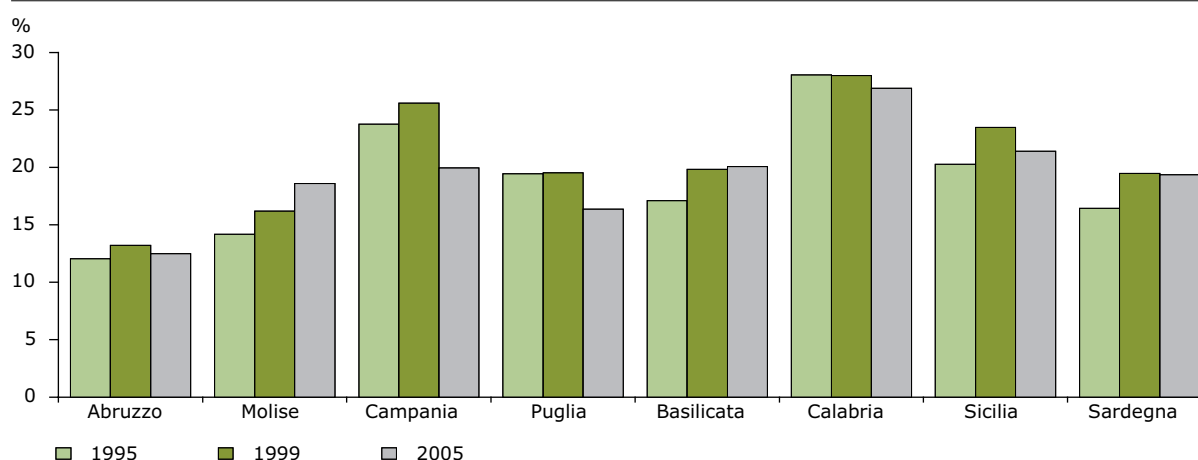
Improvements in wastewater treatment should have broader consequences and contribute towards a better quality of water. Among the indicators currently

monitored in Italy there is one on water quality: the quality of coastal bathing waters.

- *Length of coastal shorelines without acceptable bathing water.*

These data refer to the requirements for bathing water quality as set forth in the Bathing Water Directive (76/160/EEC, replaced by 2006/7/EC) ⁽⁴⁶⁾.

The present analysis draws a comparison between spending on wastewater treatment and sewerage, and changes in the length of coastline where the water is fit for bathing. The analysis was conducted at the NUTS 5 level (coastal municipalities, by province) in one region, Apulia, in order to test the indicator. Financial data for total disbursement of the Structural Fund are presented in Map 3.3 and in the first column of Table 3.3.

Figure 3.5 Changes in the coastline with waters not fit for bathing due to contamination, Objective 1 regions in Italy (1994–1999 cycle), 1995 to 2006 (%)

Source: Ministry of Economic Development, www.dps.tesoro.it/QSN/Indicatori/coste.asp (accessed May 2008).

⁽⁴⁶⁾ Separately, the Water Framework Directive (2000/60/EC) calls on Member States to ensure, by 2015, a good status of all surface water bodies, including coastal waters.

The national government has endorsed this as an indicator to monitor the results of utilising the resources from Structural Fund in the 2000–2006 spending cycle. It has been and will be further used during the 2007–2013 period. This is one of the few indicators for which all Objective 1 regions have to identify a target.

According to the 2006 annual report for the Apulia region, disbursement of this tranche of resources produced a major influence in terms of improving wastewater treatment. Table 3.3 compares the spending data. The data are compared with the change in the length of the coastline with acceptable bathing waters.

Contrary to expectations, the correlation between the financial and environmental data does not exist⁽⁴⁷⁾. Only one of these saw a significant change in the bathing water quality. There may be several reasons. Firstly, the data set are rather small, they only cover 700 km. The comparison may need a more detailed set of data, looking either at a finer scale (e.g. NUTS5) or across several regions (see below).

Secondly, the relations between spending and environmental improvement are complex. It should be noted that local conditions, including the coastline morphology, may also influence the bathing water quality. Moreover, the surface water quality is influenced by the urban run-off and, indirectly, by non-point source loads such as agricultural sources.

Italy has used this indicator to provide an overview of the changes in bathing water between the years 1995 and 2005 (see Figure 3.5). Over this period, three regions — Campania, Apulia and, to a lesser

extent, Calabria — saw a reduction in waters not fit for bathing (in other words, a net improvement in quality). During the 2000–2006 period, the overall trends were mixed in the three other Objective 1 regions as well as in Abruzzo and Molise, regions that have phased out of Objective 1.

These results show yet again that support for the wastewater treatment and sewerage provided by the Structural Fund cannot be directly linked to improvements in coastal water quality, though the expectation remains that these investments will have an influence. Nonetheless, this indicator does not appear to be the most effective one, and further review should consider whether better alternatives are available⁽⁴⁸⁾.

3.3 Case study of Spain

Policy context

While the provision of wastewater treatment is a municipal responsibility in Spain, it is the national government that sets policy plans in this area, while most Spanish regions prepare regional strategies for wastewater treatment.

The National Plan for Sewage and Wastewater Treatment in 1995–2005 led to significant public investments that developed and improved wastewater collection and treatment systems. This also helped to improve existing facilities, for example through the development of secondary and tertiary treatment aimed at a further elimination of nutrients in wastewater discharges, and thus, a reduction of the environmental impacts (national policy also addresses related issues, such as sludge treatment). Within this

Table 3.4 Cohesion Fund commitments for wastewater treatment plants in Andalusia and Galicia (mid-2006)

Code	Cohesion Fund (million EUR)	National contribution (million EUR)	Total funds per capita (EUR)
Andalusia	304.0	67.6	49.9
Galicia	284.5	65.9	129.8

Source: European Commission (DG Regional Affairs).

⁽⁴⁷⁾ $R^2 < 0.1$.

⁽⁴⁸⁾ The complex relationships between pressures, such as wastewater discharges, and surface water quality should have been addressed in the 2005 reports that Member States had to submit under the Water Framework Directive, along with the river basin management plans required by that legislation. Unfortunately, the information on coastal water quality contained in the Italian reports was not good. Indeed, Italy was condemned by the European Court of Justice for its poor reporting under this directive: Case C-85/07, with judgement passed in December 2007.

national framework, Regional Administrations and City Councils prepared their own Sewage and Treatment Integrated Plans. For example, Galicia's Plan for the period of 2000–2015, released in October 2000, foresaw a total investment of EUR 1.5 billion.

These various plans and the associated financing — a large portion of which, as noted above, came from the Structural and Cohesion Funds, were designed to ensure compliance with the EU directives, in particular with the Urban Wastewater Treatment Directive.

Andalusia has focused its investments on big plants, and Galicia — on smaller ones. This difference in approaches appears to be partially due to differences in the territorial structure and distribution of the population in those two regions. In addition, Galicia appears to have been more advanced in terms of implementation of the UWWT Directive.

Spending of the Structural and Cohesion Fund on waste water treatment

In the period from 2000 to 2004, Spain received just over EUR 2 billion from the Cohesion Fund for its sewage and waste water plants. This represents 24 % of the total money committed and about 50 % of the commitments for the environment ⁽⁴⁹⁾. Management of Cohesion Fund resources is shared between the three levels of government: the national government, which received 41 % of the total, the Autonomous Communities (regional governments) – 35 %, and local authorities – 22 %.

The two case study regions, Andalusia and Galicia, both benefited from the Cohesion Fund support (see Table 3.4). Between 2000 and 2006, Andalusia received over EUR 300 million of the EU financing,

which was supplemented by nearly EUR 70 million of the national co-funding (provided by all three levels of government). These resources supported a total of 17 projects in Andalusia. Galicia received slightly less in this period and had financing for a total of 13 projects. In per capita terms, however, Galicia received a far greater share of the total resources: almost EUR 130 per inhabitant, compared with just under EUR 50 in Andalusia.

In Objective 1 regions in Spain, the Structural Fund investments into wastewater treatment are provided under Measure 3.3: waste water sanitation and purification. Both the Integrated Operational Programmes (POIs) — such as the POI of Andalusia and the POI of Galicia, and the Multiregional Programme for local development incorporate this measure. In addition to an increase in wastewater treatment, due to this measure about ten thousand jobs have been created in Objective 1 regions.

The POIs in Galicia are among those that place a high priority on this measure. From the point of view of the Structural Funds too, this region achieved a high level of spending: about EUR 66 per inhabitant — compared to about EUR 18 in Andalusia. Both Andalusia and Galicia spent in that period almost 80 % of their Structural Fund allocations for the cycle between 2000 and 2004. This is below the average spending rate for all regional programmes.

The financial data in Table 3.5 show final commitments in August 2006, near the end of the spending cycle. Both Galicia and Andalusia had lower allocations for wastewater treatment in their original Structural Fund budgets. During the cycle, however, Galicia re-allocated resources to this sector, increasing total spending by 41 %; Andalusia increased its allocation by 82 %.

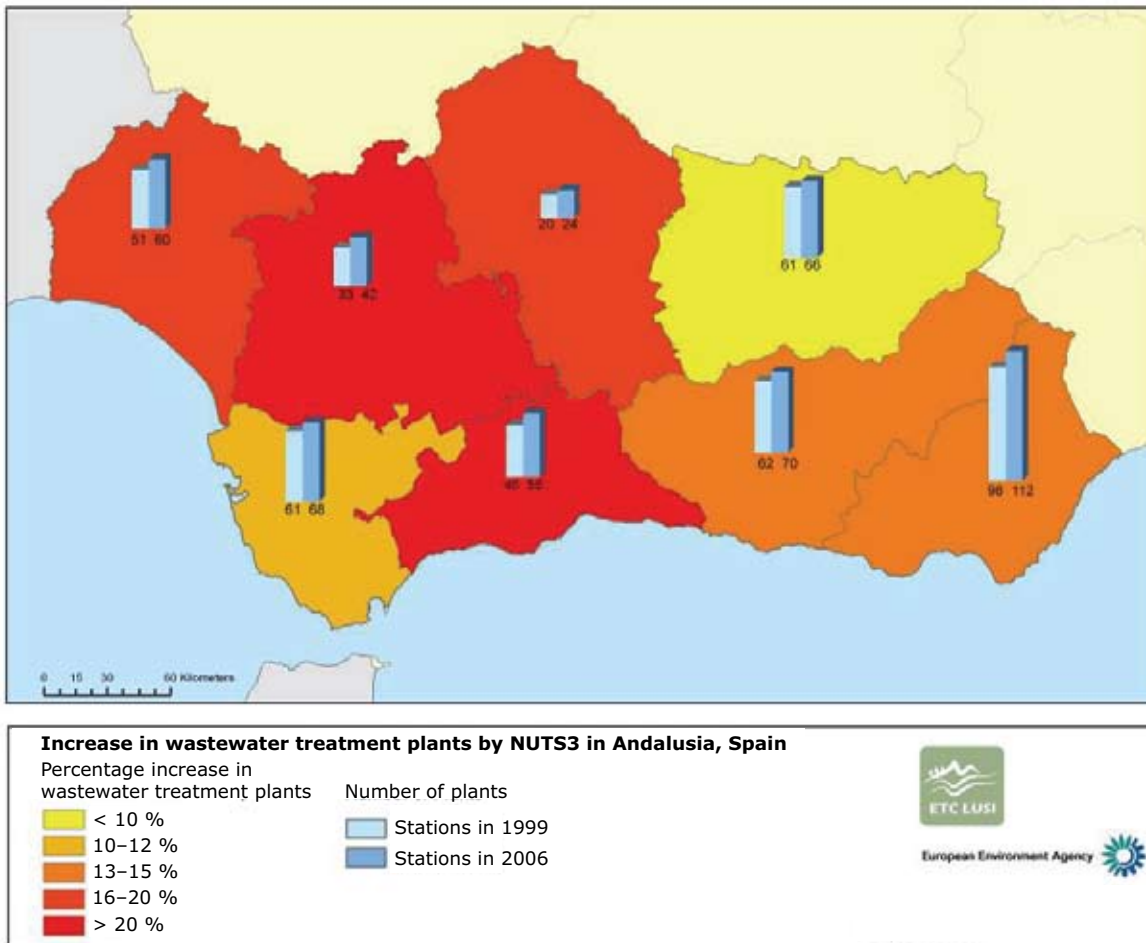
Table 3.5 Structural Fund commitments for wastewater treatment and related investments (intervention Code 345) in Andalusia and Galicia (mid-2006)

Operational programmes	Amount (million EUR)	Share of total programme resources	Resources per capita (EUR)
Andalusia	134.8	3.3 %	18.1
Galicia	178.2	20.9 %	66.0
<i>Total all POI</i>	<i>797.6</i>	<i>8.2 %</i>	
Pluri-regional Programme	186.2	17.2 %	
National total	938.8		

Source: European Commission (DG Regional Affairs).

⁽⁴⁹⁾ Strategic Evaluation of the Environment and Risk Prevention under Structural and Cohesion Funds for the Period 2007–2013, National Evaluation Report for Spain, 2006.

Map 3.4 Increase in wastewater treatment plants in Andalusia, 1999 to 2006



Source: Consejería Medio Ambiente Andalucía; Agencia Andaluza del Agua; EEA/ETC-LUSI, 2008.

In total, Andalusia received almost EUR 70 per inhabitant for investment in wastewater treatment plants and sewerage. Spending in Galicia, however, was significantly higher: almost EUR 300 per inhabitant.

Spain, as a whole, committed about EUR 11.5 billion for wastewater treatment investments. Community sources provided about one quarter of this total. If one were to consider national and regional co-financed as well, the Structural and Cohesion Funds provided close to half of the total. Moreover, Objective 1 regions, such as Galicia and Andalusia, received a large share of the fund resources for wastewater treatment. In a survey of cities in the two regions, all the municipalities that provided a response reported that the Community resources had been used to finance their wastewater treatment

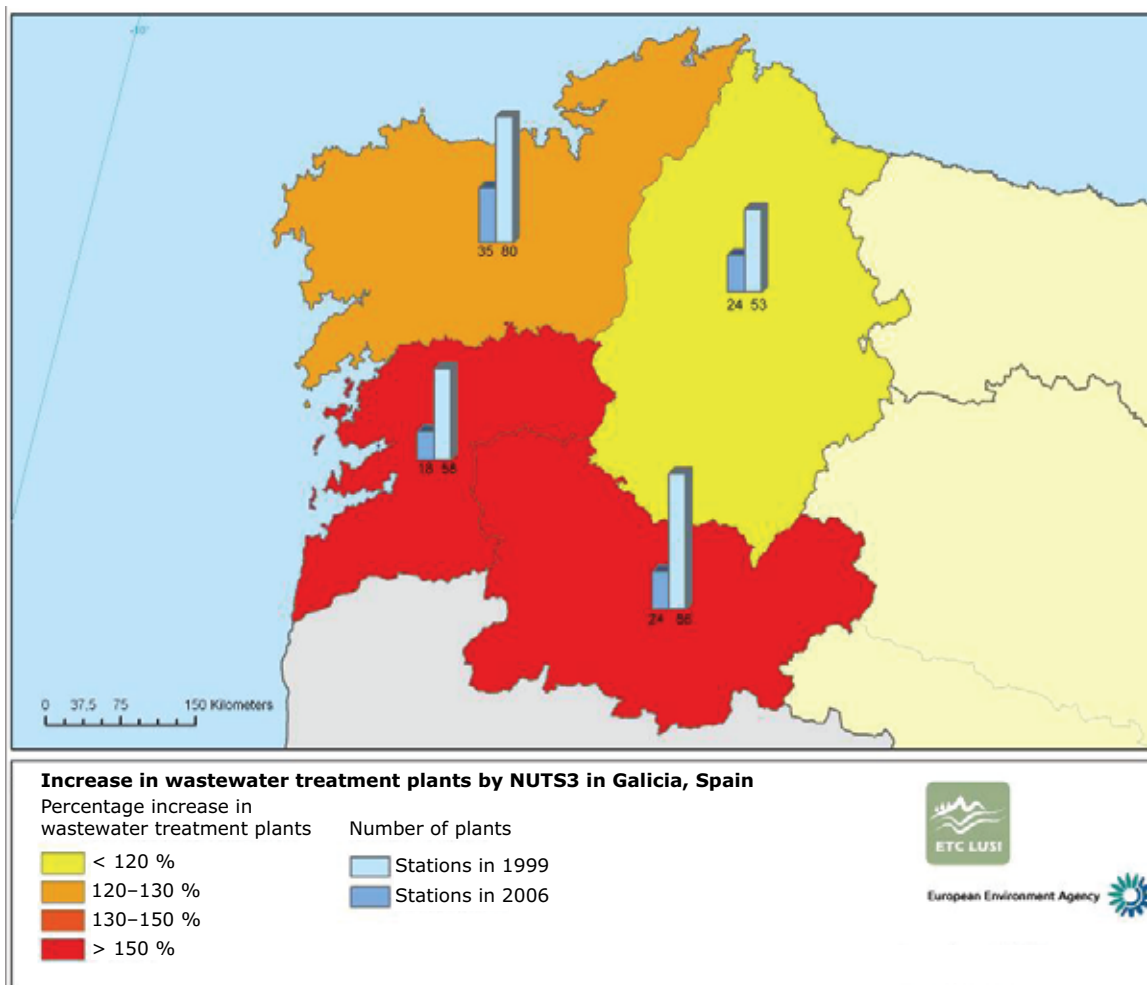
plants⁽⁵⁰⁾. Thus, it appears that the Structural and Cohesion Funds provided the majority of resources for these investments in the two case study regions, although it was not possible to get hold of the exact figures.

Increase in number of UWWT plants

Four of Andalusia's eight provinces saw more than a 15 % increase in the number of active wastewater treatment plants between 1999 and 2006 (see Map 3.4). Galicia saw a more dramatic increase in the number of the UWWT plants: over 150 % in two of its provinces (see Map 3.5).

As was noted in the case for Italy, the construction of a wastewater treatment plant can take several years and, thus, span the Structural Fund spending cycles.

⁽⁵⁰⁾ The survey of approximately 30 cities had a poor response rate, only four in total, two from each region, and thus cannot be considered as an illustration that the Community funding played a definitive role for obtaining results.

Map 3.5 Increase in wastewater treatment plants in Galicia, 1999 to 2006

Source: Augas de Galicia; EEA/ETC-LUSI, 2008.

In a small survey of cities in Andalusia and Galicia, municipal officials indicated that the time needed to progress from a stage when financing is approved to the start of operation of a new plant is between three to six years (the shortest time, three years, was what it took to upgrade an existing plant).

Increase in the population having access

Map 3.6 shows the increase in the proportion of the population connected to waste water treatment plants during the period between 2000 and 2006, along with the number of operating plants in Galicia and in Andalusia.

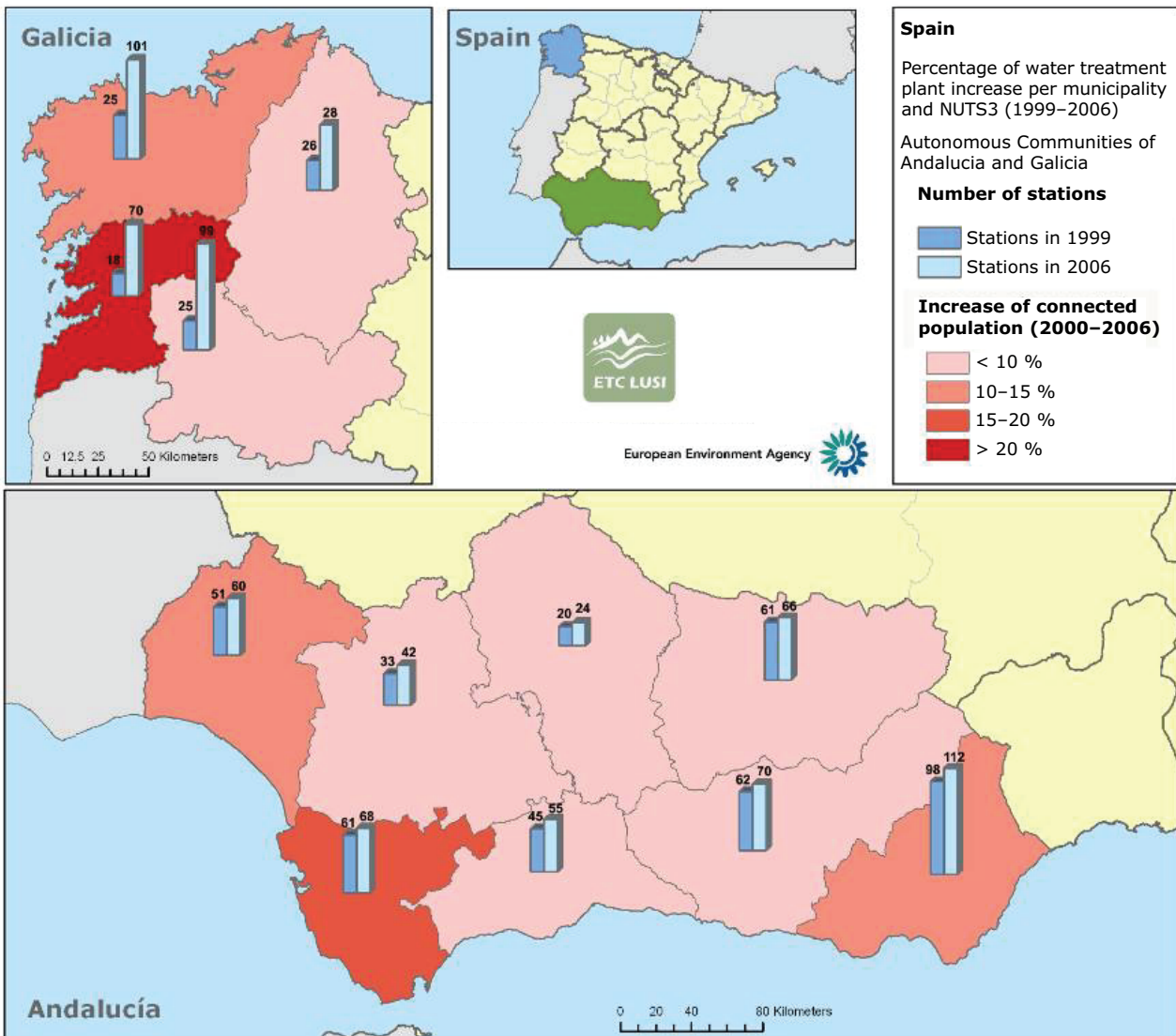
The number of wastewater treatment plants in both Andalusia and Galicia increased markedly from the year 2000 to the year 2006. The OPs planned to support the construction of 43 wastewater treatment plants in Andalusia and 60 — in Galicia. A total of over 200 plants were built in Galicia, and the

financing was both from the Cohesion Fund support and national sources.

The large increase of wastewater treatment plants in Galicia may be explained by two main reasons. Until recently, all the provinces were discharging wastewater into the rivers that flow into the coastal areas where one of the largest European areas for aquaculture production is located; fisheries and aquaculture are extremely important for the regional economy. Additionally, the 'Plan Galicia', adopted after the Prestige accident, promotes the wastewater treatment plants in the four provinces to increase the regional water quality.

The increase in wastewater treatment plants has been less significant in Andalusia. Since 2002, Andalusia has been enhancing the territorial coverage of its wastewater treatment plants more systematically. It started with the coastal municipalities, where the tourism is, in some cases, the only local economy

Map 3.6 Increase in the proportion of population connected to operating UWWT plants in Andalusia and Galicia, Spain, 2000–2006



Note: Non-operative plants are those that have not yet been fully connected to the sewerage system (they include both new and existing plants being upgraded).

Source: Consejería de Medio Ambiente de la Junta de Andalucía and Augas de Galicia, elaborated by EEA/ETC-LUSI.

and the larger cities, mainly province capitals. In addition, Andalusia has built plants that cover several urban areas at once, which means fewer and larger plants.

Meeting the objectives of the UWWT Directive

The European Commission reports that by 2002, almost 300 agglomerations in Spain — or over 10 %

of the total ⁽⁵¹⁾ — did not meet the requirements of the directive. Across Spain, in that year, 34 out of the total of 74 large cities did meet the directive's requirements; while out of the remaining 40, seven did not have any UWWT plants at all ⁽⁵²⁾.

As a result of the investments made in the wastewater treatment projects in Spain, by 2005, over 75 % of the population equivalent in Spain met the requirements

⁽⁵¹⁾ The total number of population equivalents was 73 million (compared to the national population of 41 million); Spain has atotal of over 2 500 agglomerations as per the directive: i.e. with more than 2 000 population equivalents.

⁽⁵²⁾ European Commission, *Fourth Commission Report on Implementation of the Urban Waste Water Treatment Directive: Status of Implementation in each Member State* (Informal background document to the Communication from the Commission: Towards Sustainable Water Management in the European Union), January 2007. The judgement from the European Court of Justice of 8 September 2005, case C-416/02, condemned Spain for not having met the directive in one city (Vega).

of the Urban Waste Water Treatment Directive. This is an increase from 58 % in 2000 and from just over 40 % in 1995⁽⁵³⁾. According to the Spanish government, when plants under construction are completed the level of compliance should reach 89 %.

At the same time, only one region fully met the requirements of the directive: in Navarra, 97 % of all wastewater and 100 % of the wastewater from agglomerations with more than 2 000 person-equivalents are fully treated. In 2004, Galicia had a lower level of conformity with the UWWT Directive — about 58 %⁽⁵⁴⁾.

All four respondents to the survey of the cities in Galicia and Andalusia are municipalities with between 70 000 and 120 000 inhabitants. For three of these, wastewater facilities were under construction: two cities lacked a treatment plant, and the third was upgrading an existing plant to meet the requirements of the directive.

Improvement in water quality across Spain

As a result of the investments in the wastewater treatment, pollution discharges have decreased and the water quality has improved. Overall, between 1993 and 2003, concentrations of Biological Oxygen Demand — a measure of organic pollution — was on a decline.

In 2002, 62 % of the overall length of the Spanish rivers displayed good physical-chemical characteristics (compared with only 52 % in 1995).

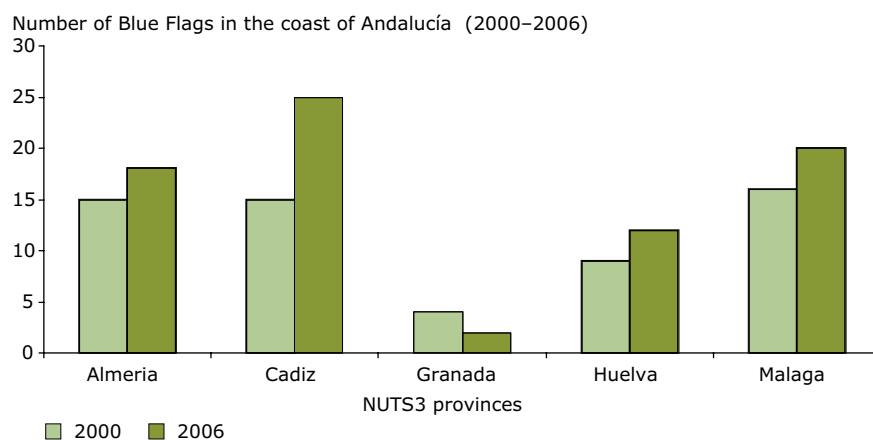
The length of the rivers of an intermediate quality fell to 32 % — from 40 % in 1995. Rivers registering a better water quality are in the northwest (including Galicia). In other parts of Spain, rivers show a lower water quality downstream where the lack of water flow limits dilution of the pollution.

The Segura, Guadalquivir, Duero and Tagus river basins saw the greatest improvements — and in the 2000–2006 cycle, these basins received significant resources from Cohesion and Structural Funds for wastewater treatment projects.

These improvements have continued. According to the Spain's 2007 Sustainability Report⁽⁵⁵⁾, the general surface water quality index improved during the period between 1998 and 2005, although not all river basins saw an improvement. The trend of the decline in Biological Oxygen Demand has also slowed down, although there has been a slight reversal in 2005 — compared to 2004. Figure 3.6 shows the dynamics in the conformity of the wastewater discharges across Spain from 1995, the date of adopting the National Plan, until 2005.

On the other hand, although in 2006 there were improvements in the quality of freshwater bathing waters in the continental Spain, these have not yet reached a good level. Marine bathing waters improved to a good quality level, having reached the peak in the registered quality in 2006. This is also true for Andalusia, where coastal bathing waters improved in four out five coastal provinces (see Figure 3.6).

Figure 3.6 Improvement in the bathing water quality in Andalusia, 2000 to 2006



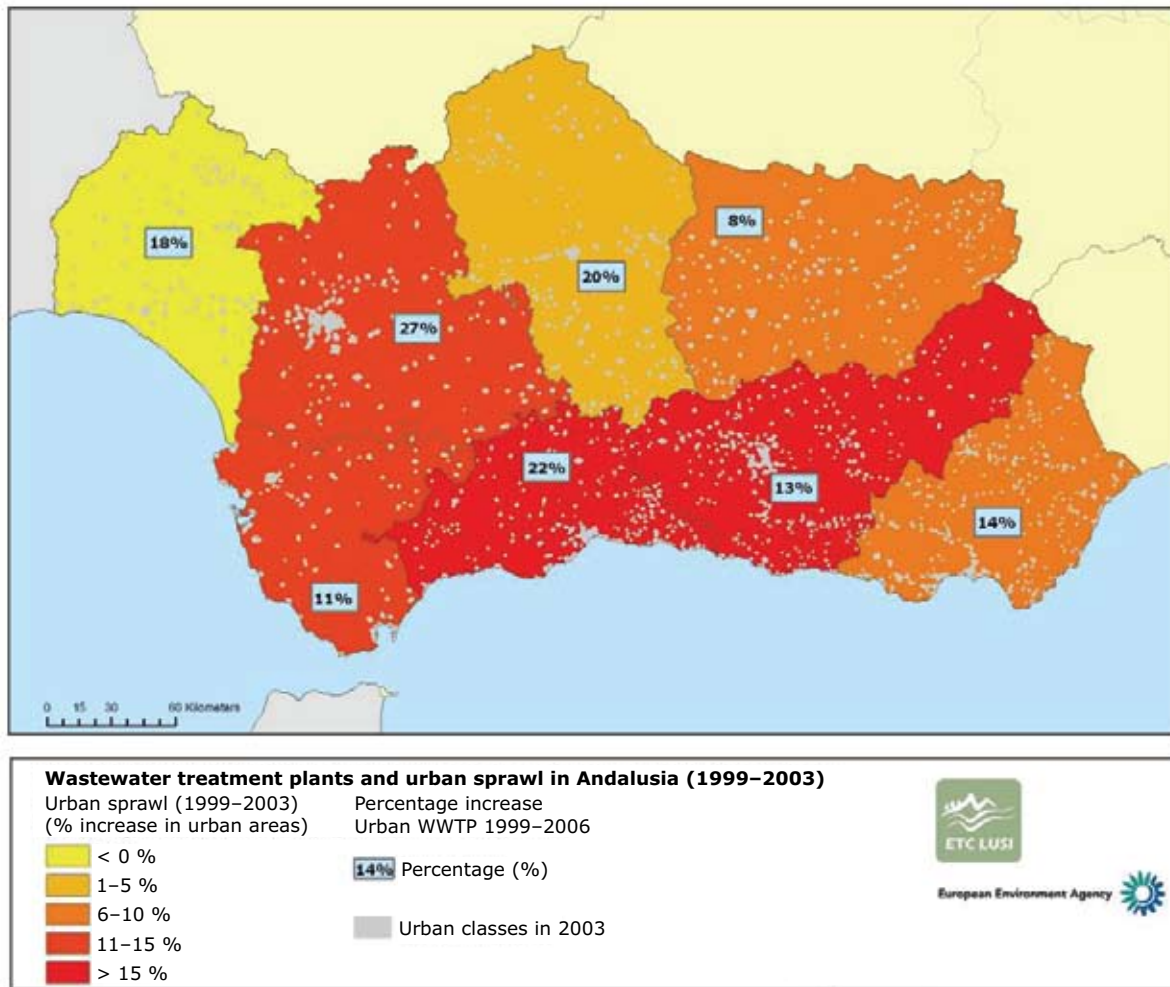
Source: EEA/ETC-LUSI.

⁽⁵³⁾ Ministerio de Medio Ambiente, *Plan Nacional de Calidad de las Aguas: Saneamiento y Depuración 2007–2015*, 2007.

⁽⁵⁴⁾ Strategic Evaluation of the Environment and Risk Prevention in 2007–2013 — Country Report — Spain.

⁽⁵⁵⁾ *Sostenibilidad en España 2007*, Observatorio de la Sostenibilidad en España, University of Alcalá.

Map 3.7 Wastewater treatment plants and urban sprawl in Andalusia, 1999 to 2006



Source: Consejería Medio Ambiente Andalucía; REDIAM — Andalusian Environmental Information Network; EEA/ETC-LUSI, 2008.

Wastewater treatment plants and urban sprawl

While Structural Fund spending on UWWT plants has been a contributing factor in improving the water quality in Spain, one concern there is that these developments may also trigger the urban sprawl, for example by financing the construction of wastewater treatment plants in new urban areas. In this way, such support has subsidised infrastructure costs including tourism developments, thereby expediting urban sprawl. In some cases, as a consequence of urban sprawl, rather urgent solutions have had to be found to provide wastewater services to these new, quickly developing areas. In any case, both examples illustrate the need for integrating wastewater planning with the spatial planning and spending of the Structural Funds. This should happen at all administrative levels — in order to avoid mismatches and to increase efficiency of the Structural Funds spending.

Map 3.7 draws a comparison between the number of new wastewater treatment plants and urban sprawl. It does it by province across Andalusia. Sprawl is an ongoing phenomenon in this region: between 1956 and 2003, artificial surface cover in Andalusia increased four-fold, while the population increased by less than 30 %.

Between 1999 and 2003, Andalusia saw a considerable increase in urban sprawl. However, there are important differences between the region's eight provinces. The province of Sevilla, the capital, grew the fastest (especially in the urban areas surrounding the capital city). High growth rates for the sprawl were also seen in Granada, Málaga, Bahía de Cádiz and Campo de Gibraltar in Cádiz. In all these provinces, the growth in the number of urban wastewater treatment plants matched the growth in sprawl. By contrast, the western province of Huelva saw essentially no

change in sprawl, despite the construction of new wastewater treatment plants.

In any case, there is a marked need for further analysis of the combined effects produced by Structural Funds interventions (in the spheres of water management, wastewater treatment and transport infrastructures) in their relation to urban sprawl. It is necessary to understand how best to integrate these elements in the spatial planning with a view to ensuring harmonized development of territories.

3.4 The 2007–2013 spending cycle

In the 2007–2013 spending cycle, the Structural and Cohesion Funds are expected to provide just over EUR 2 billion of Community resources for wastewater treatment. While this represents a decrease compared to the allocations in the previous cycle (about EUR 3.5 billion), nonetheless, wastewater remains an important spending area, receiving almost 6 % of all resources in the new cycle. The next paragraphs provide a summary of the two case study countries, Italy and Spain.

In the 2007–2013 spending cycle, Italy has allocated about EUR 230 million for sewerage and wastewater treatment — a several-fold decrease from the spending levels in the previous cycle. Overall, allocation of fund resources to this sector has fallen from 2.4 % of the total to under 1 %. This decrease in funding may be a reflection of the lower need for wastewater treatment — following the successful commissioning of facilities financed in the previous cycles. Unfortunately, poor availability of the statistics in this area does not allow any definite conclusions.

Spain has prepared a new National Plan for Water Quality ⁽⁵⁶⁾ for the period from 2007 to 2015. The overall amount of the programme is EUR 19 billion. Of this amount, six million are to be provided by the Ministry of Environment, and over three million came from the previous plan. European funds are involved through various routes — through the Ministry, Nature 2000 sites and the cost recovery from water public companies. This plan has four main components:

- (1) Completing infrastructure projects where funds are committed but not yet spent;
- (2) Implementing tertiary treatment in the sensitive areas including those located in international river basins between Spain and Portugal;
- (3) Implementing the Programme of Sustainable Rural Development that envisages state support for water quality improvements in rural municipalities inside National Parks and Nature 2000 sites;
- (4) Undertaking other actions at a regional and local level for compliance with the European directives.

One of the main challenges of this plan is to ensure effective wastewater treatment by installing systems in the thousands of agglomerations with less than 2 000 inhabitants, and in particular, in those declared sensitive under the Wastewater Treatment Directive.

Given that Spain has a scarcity of water resources, another goal of the new plan is to increase the amount of water reuse. Currently, Spain re-uses about 13 % of treated wastewater: of this volume, about 75 % are re-used in farming, 12 % — on golf courses and in other recreational activities, 6 % in urban services, 4 % are put to ecological use and recharging of aquifers, and about 3 % — go to industry. Andalusia is updating its wastewater plan for the 2007–2013 cycle, while Galicia continues to implement its 2000–2015 Plan.

3.5 Effectiveness of spending

The Structural and Cohesion Funds provided significant resources for wastewater treatment and sewerage in Italy and Spain: about EUR 1 billion went to the two case study regions in Spain and about EUR 1.5 billion went to Italy's six Objective 1 regions. These resources represent a large share of all financing in the sector. The share of Andalusia and Galicia is estimated to be over 50 %. It should be similarly high in southern Italy.

In terms of outputs, the Funds have been effective — they have played an important role in financing new treatment plants, thus increasing, both in Italy and in Spain, the share of population and the number of municipalities whose wastewater is discharged.

In both countries, disbursement of the Funds has brought about important results, increasing the share of population connected to wastewater

⁽⁵⁶⁾ National Water Quality Plan.

treatment as well as the number of municipalities with plants. In Spain, the results can also be seen in terms of the country's increasing compliance with the UWWT Directive. This should be the case in Italy as well, though data uncertainties cloud the picture. A more detailed assessment of one region, Apulia, shows that according to regional reports, the compliance with the directive has increased greatly due to new wastewater treatment plants financed through the Structural Funds.

In terms of impacts, water quality has improved in many rivers in Spain, and fund spending on wastewater treatment is believed to have had a contributing role. At the same time, the inter-relations between spending, outputs in terms of new treatment facilities and broader impacts on water quality are complex. Attempts to carry out a comparison to establish correlation between wastewater financing in Apulia and coastal bathing water quality suggest that to apply such approaches for a reliable analysis, one needs integrate other types of information (scientific data and the data from monitoring other elements).

By contrast, it is impossible to analyse cost-effectiveness of spending. As noted, the unit costs of sewerage and wastewater treatment vary in terms of the size and density of agglomerations; they are also influenced by geographic factors. What is needed for any conclusions regarding cost-effectiveness is a more sophisticated analytical methodology that takes these factors into account.

It is beyond the scope of this analysis to compare the two case study countries, Italy and Spain. Nonetheless, one important difference is worth noting: Spain has a series of national plans for wastewater treatment that are supported, in turn, by regional plans. In Italy, the overall national planning and policy towards SF appear to be lacking. Nevertheless, the regions have their own water plans, as seen in Apulia. However, the Operational Programme (OP) has to be in accordance with regional planning which does not really appear to be the case. Future analysis may want to evaluate whether this absence affects the effectiveness of spending.

3.6 Stocktaking

This section examines Structural and Cohesion Fund spending in the light of the objectives of the Urban Wastewater Treatment Directive. Future evaluations will need to take into account the more recent Water Framework Directive, which now is the cornerstone of the EU water legislation and policy. It requires that 'a good status' be ensured for all water bodies and provides a set of priority targets to be met.

In providing a broader framework, the new directive creates a larger set of goals. For example, the directive calls on the Member States to develop management plans for all river basin districts. These plans are to be in place by 2009. These plans should include 'programmes of measures' — including

Box 3.3 Questions for a checklist on the effectiveness of spending

Water Framework Directive

- Does the region have river basin management plans?
- Does fund spending follow the priorities of these plans — for example, by focusing on actions to improve water bodies at risk of not meeting the directive's 'good status' by 2015 objective?
- Does the river basin plan (or national policy) introduce economic instruments and other methods to improve the overall cost-effectiveness of interventions? If yes, how have these been used and how have they been linked to financing?

UWWT Directive

- Has the national government set priorities for public spending to implement the UWWT Directive?
- Does fund spending following these priorities?

Leveraging financial resources

- What are the different financing sources used to finance UWWT (e.g. Structural Fund/Cohesion Fund support, EIB loans, national development banks, private bank loans, municipal bonds)?
- Is there a national or regional policy for cost recovery under the WFD?

both policy actions and investments — in the river basin districts. Thus, the plans should influence the spending priorities for the Structural and Cohesion Funds and force the operational programmes to identify clearer quantitative results.

The earlier Urban Wastewater Treatment Directive is an important element of European legislation. Meeting its goals and requirements remains a key financial challenge for many Member States. While both Italy and Spain have increased compliance with this directive, it appears that both countries need to make further, and more targeted, investments.

The cost of compliance will be high in the new EU-12 Member States, where almost 50 % of the population is not connected to sewerage and to treatment plants⁽⁵⁷⁾. According to the European Commission, these countries need to invest approximately EUR 30 billion to implement the wastewater and sewerage requirements fully. The largest costs are envisaged for Poland and Romania, about EUR 10 billion each⁽⁵⁸⁾. On the other hand, the benefits are also expected to be significant: at least EUR 4 billion per year, according to one estimate made before accession⁽⁵⁹⁾.

In 2008, the European Commission intended to report on the implementation of the directive in all 27 Member States. This report will provide a useful resource for evaluating the Structural Fund spending on wastewater treatment.

The Water Framework Directive introduces economic principles into the EU water policy. It refers to the 'Polluter Pays' Principle, and it calls for an adequate recovery of the costs of water services. The directive also calls on Member States to consider putting economic instruments into place.

Member States will have to decide on the adequate level of cost recovery. The directive calls on Member States to ensure cost recovery by 2010. It is clear that in many circumstances, appropriate cost recovery level will be less than 100 %: for example, the cost of sewerage and wastewater treatment can be notably higher in smaller towns than in large cities, and here support may be particularly warranted. In some poorer EU Member States, full cost recovery may create issues of affordability, in particular where it concerns vulnerable population or specific user groups, such as agriculture.

The Water Framework Directive also calls for the use of economic analysis to identify cost-effective solutions to water problems. At the same time, the Structural and Cohesion Funds have placed greater emphasis on co-financing sources in the new spending cycle: for example, large projects have to present financing plans, including information on financing from sources such as the European Investment Bank.

There may also be a need for good communication campaigns. In principle, cost recovery (and higher user fees) will go hand in hand with improved service quality: users should be readier to pay if they know that improved treatment was actually in place and working. It would allow, for example, the reuse of treated water for agriculture, thus easing water supply problems.

The new approach demonstrated by the Water Framework Directive implies that evaluation of Structural and Cohesion Fund spending in terms of the EU objectives will have to become more target-oriented and clearer articulated. Box 3.3 proposes some initial questions for an evaluation checklist. These questions provide a link to the river basin management plans required under the new directive. They also focus on the leveraging of financial resources.

The results from Spain do not provide an indication of a clear link between the Structural Fund spending and urban sprawl. In several parts of Andalusia, however, the results suggest that this type of spending may have assisted sprawl. This may be due to other factors — for example, spending on roads and transport may have a closer correlation with urban sprawl. Therefore, a further analysis is needed on this topic. In southern Italy, the data suggest that urban sprawl has been very limited, and thus the phenomenon is not linked to the construction of infrastructure such as wastewater treatment plants.

The case study in Italy encountered a number of difficulties with the underlying data. These included discrepancies between national and regional data, and a lack of specific on the Structural Fund outputs (i.e. the data that would refer to overall increases in wastewater treatment plants. It appears that Structural Funds account for between 30 % and 60 % of all resources in

⁽⁵⁷⁾ European Commission, *Fourth Report on Economic and Social Cohesion*, 2007, p. 76.

⁽⁵⁸⁾ DG Environment, Facts and Figures about Urban Waste Water Treatment, Internet: http://ec.europa.eu/environment/water/water-urbanwaste/implementation/factsfigures_en.htm, accessed March 2007.

⁽⁵⁹⁾ ECOTEC *et al.* for the European Commission, *The Benefits of Compliance with the Environmental acquis for the Candidate Countries*, April 2001.

this sector — depending on the region. The same problem was encountered in Spain). The 2007 report from the European Commission covering implementation of the UWWT Directive also had to contend with discrepancies and inconsistencies in the data received from Italy.

However, in the 2007–2013 spending cycle the monitoring data has improved. Italy has introduced targets, while its performance-based reward system linked the levels of population equivalent having access to secondary and tertiary wastewater treatment. This approach is, thus, closer to the requirements of the UWWT Directive. This should allow a more detailed assessment of how Italy is spending the Structural Fund resources on wastewater treatment and how the subsequent results meet requirements of the Urban Wastewater Treatment Directive.

Further analysis is needed in Italy to establish the possible links between spending from the Structural Fund and the quality of bathing water, to help decide whether to continue using such an impact indicator. Alternatives might also be considered. For example, the status of water bodies covered by the Water Framework Directive may provide a broader and a more useful indicator — if these data are available.

One final point for consideration is the durability of results. *Ex-post* evaluation of the 1994–1999 cycle in Italy noted that some wastewater treatment plants, although commissioned, did not work properly. It was the case of the most highly subsidised facilities. Future evaluations might consider a review of the monitoring results produced by plants in operation.

4 Biodiversity

4.1 Introduction and context

The EU has adopted important legislation and ambitious policy objectives for biodiversity protection. This section explores the interaction between the Structural Fund spending and biodiversity in two directions. On the one hand, it analyses financing that has supported EU biodiversity protection efforts; and on the other hand — the concerns that financing, notably for transport infrastructure, is harming biodiversity.

The EU has two main pieces of legislation in this field: the Birds Directive (79/409/EEC) and the Habitats Directive (92/43/EEC). The Birds Directive provides a scheme for protecting all wild bird species in the EU. Recognising that the habitat degradation and loss are the most serious threats to the conservation of the wild bird species, the directive places strong emphasis on the protection of habitats for endangered and migratory birds. One of the key means of achieving this goal has been through the establishment of a coherent network of Special Protection Areas (SPAs) to protect the most important territories for endangered and migratory birds.

The Habitats Directive combines two main aspects: a strict system of species and habitat protection and the creation of the Natura 2000 network of protected sites. The directive provides protection for over 200 habitat types and for over 1 000 species considered to be of European importance. Natura 2000 is an EU wide network of nature protection areas that contain species and habitats covered by this directive as well as sites for wild birds protected under the earlier Birds Directive. Member States designate Special Areas of Conservation (SAC) under the Habitats Directive. These areas are not necessarily nature reserves in a strict sense as the directive allows compatible economic and other activities to continue: the emphasis is on long-term management in both ecological and economic terms.

In 1998, the Commission adopted a Communication on a European Biodiversity Strategy. The strategy aims to reverse trends in biodiversity reduction or loss and ensure that ecosystems reach a satisfactory conservation status. The European Strategy and

the Natura 2000 network were developed within the framework of the UN Convention on Biological Diversity (1992). Following the adoption of the 1998 Strategy, in 2001 the Commission published four sector-specific Biodiversity Action Plans, with the aim of achieving the relevant objectives of the Strategy: Conservation of Natural Resources; Agriculture; Fisheries; and Economic and Development Co-operation.

At the World Summit for Sustainable Development (2002) and the EU Spring Council (2001), the EU made a commitment to halt the ongoing decline in the overall biodiversity loss in the EU (and significantly reduce the global rate of loss) by 2010. At the same time, the EU's Sixth Environment Action Programme (6EAP) identified conservation and biodiversity as one of the four main environmental issues to be tackled in Europe. The 6EAP set out several key actions to be taken, including the establishment of the Natura 2000 network, the integration of nature conservation and biodiversity into EU agricultural policy and the development of EU coastal and marine policies.

In 2006, the Commission published a Communication on how the EU can deliver on its commitment to halt biodiversity loss by 2010⁽⁶⁰⁾. The Communication sets out responsibilities of the EU institutions and Member States, while its policy approach and Action Plan proposing concrete measures. The Communication underlines that regional and territorial developments in the EU should be compatible with the needs of biodiversity and that 'community funds for regional development should benefit, and not damage, biodiversity'.

The Action Plan calls for the use of Structural and Cohesion Funds to support the Natura 2000 network. It also calls for the full use of strategic environmental assessment and environmental impact assessment to prevent and mitigate impacts on biodiversity.

Biodiversity storyline

Protection of biodiversity is not an explicit objective of the Structural and Cohesion Fund spending. Indeed, another EU financing source, the

⁽⁶⁰⁾ http://ec.europa.eu/environment/nature/biodiversity/comm2006/index_en.htm.

LIFE-Nature Programme, is designed specifically to finance biodiversity and nature conservation (the LIFE instrument was replaced by the new LIFE+ for the 2007–2013 cycle). Nonetheless, environmental protection is one of the goals of the funds, and the Structural Funds have supported biodiversity projects.

At the same time, ENEA plenary members are concerned about the potential negative impacts of other areas of fund spending on biodiversity. Here, environmental NGOs have warned in particular about the impacts of spending on transport infrastructure such as roads.

This section assesses the Structural Fund support for biodiversity in the 2000–2006 cycle in two of the three case study countries. It also reviews potential negative impacts, mainly at an EU level.

The overview of the Structural Fund spending identified several intervention codes that could be used for projects to support biodiversity.

In the area of productive environment, projects ascribed to the 'Preservation of the environment in connection with land, forestry and landscape conservation' (Code 1312) received over

EUR 300 million in Spain and over EUR 460 million in Italy. In addition, Spain has committed over EUR 90 million to projects ascribed to the improvement and maintenance of protected woodlands; Italy provided over EUR 30 million in this area. Support for adaptation and development of rural areas received even larger sums, though this heading as such is not yet a promise that the environment would improve.

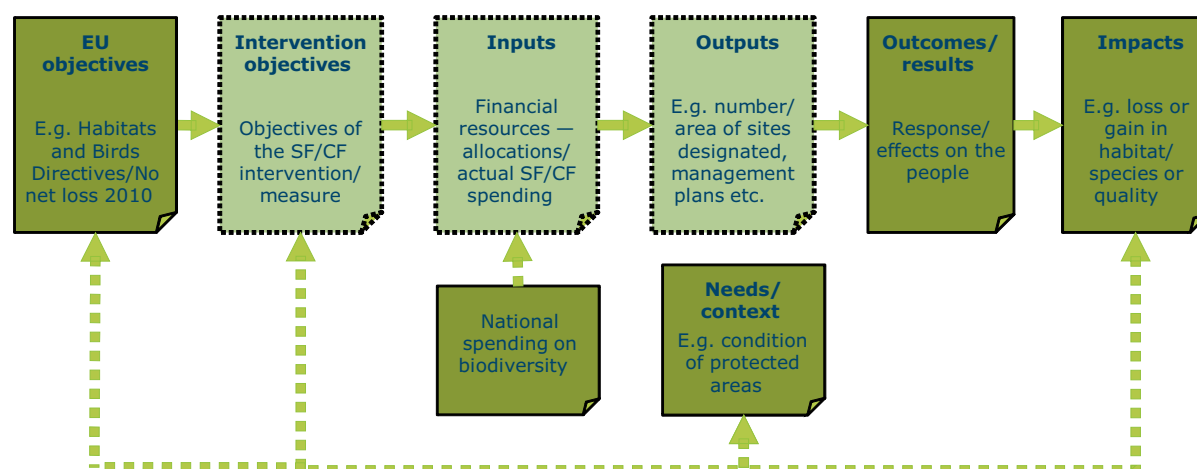
In the area of infrastructure, Spain committed almost EUR 2.2 billion to projects aimed at protecting, improving and regenerating the natural environment (Code 353). In Italy, projects in this category received almost EUR 750 million. Funding of the maintenance and restoration of cultural heritage is also included in the table, since at least in Italy landscape protection is seen as part of cultural heritage.

Despite the promising titles, however, it is not certain that the projects themselves will protect or enhance biodiversity. An ideal storyline to evaluate the positive results of the Structural Fund spending in terms of protecting biodiversity should review intervention objectives, inputs, outcomes and impacts in the context of the overall EU objectives set forth in the Habitats and Birds Directive (as illustrated in Figure 4.1).

Table 4.1 Structural Fund spending categories that could be used for biodiversity protection, 2000–2006 (spending commitments through August 2007)

Category	Spain			Italy			Austria		
	SF (million EUR)	National (million EUR)	%	SF (million EUR)	National (million EUR)	%	SF (million EUR)	National (million EUR)	%
Productive environment									
Improving and maintaining the ecological stability of protected woodlands (127)	62.5	31.1	0.13	14.1	18.4	0.05	0.0	0.0	0.00
Preservation of the environment in connection with land, forestry and landscape conservation as well as ... improvement of animal welfare (1312)	205.4	99.0	0.43	285.7	179.0	0.93	2.8	0.9	0.17
All other Promoting the adaptation and the dev. of rural areas (all 13 except 1312)	2 166.2	1 814.3	4.58	1 371.5	1 004.9	4.48	14.5	4.8	0.89
Infrastructure (not including environmental and transport)									
Protection, improvement and regeneration of the natural environment (353)	1 581.1	602.9	3.35	347.8	30 595.8	1.14	8.7	9.1	0.53
Maintenance and restoration of the cultural heritage (354)	433.1	287.6	0.92	514.5	589.2	1.68	2.2	4.2	0.13
Total	47 253.4	28 192.1		30 595.8	30 613.3		1 632.4	1 446.2	

Source: DG Regional Affairs, December 2007.

Figure 4.1 An ideal biodiversity storyline

Source: EEA, 2008.

At its initial stages, the project found very little data on the actual magnitude of the Structural Fund support for biodiversity. At the same time, several sources — including national funding as well as the EU LIFE Programme — also provide support for biodiversity protection across the EU. As a result, the analysis has adopted a case study approach, reviewing different elements of the storyline. The results are thus a pilot to test an approach for evaluation.

The most important concern was to identify inputs — Structural Fund spending that actually supports biodiversity. Although a few intervention codes imply biodiversity protection, it is not clear what types of projects they actually support. To explore this question, the analysis looks closely at the spending in Natura 2000 areas in one region in Italy, Campania.

Thus, the analysis focuses on Natura 2000 areas, and this only captures one side of biodiversity. Many natural assets are found outside these protected areas, in particular in the areas with extensive farming practices. The EU support for rural development under the Common Agricultural Policy favours agri-environmental schemes that should protect and enhance High nature value farmland. The EEA work to review this policy issue is ongoing ⁽⁶¹⁾.

In addition, this section presents case studies from Spain to illustrate the Structural Fund support for biodiversity protection projects. These case studies

provide a glimpse of results in terms of biodiversity improvements. Projects across many sectors can influence biodiversity. This section also provides a review of the case studies and other information that illustrates concerns that there are negative impacts on biodiversity arising from the Structural and Cohesion Funds spending on transport and other types of infrastructure.

In Austria, project-monitoring indicators provide information about the expected effects on several environmental fronts: one is biodiversity. The analysis reviews the indicator approach that appears to be unique to Austria.

4.2 Case study of Italy

Policy context

In Italy, Natura 2000 sites cover an average of over 20 % of its Objective 1 regions: from over 15 % in Basilicata to a high of over nearly 30 % in Campania. These levels compare favourably with the EU-wide average of 20 %.

Natura 2000 sites vary in size, but as can be seen in Map 4.1, they cover a series of large and continuous areas in southern Italy.

Figure 4.2 compares the total of the regional funding resources (per surface area) with the share of their territory covered by Natura 2000 sites. The figure

⁽⁶¹⁾ See for example, EEA Report No 6/2005 *High nature value farmland: Characteristics, trends and policy challenges* as well as EEA Report No 1/2004 *Agriculture and environment in EU-15 — the IRENA indicator report*.

Map 4.1 Natura 2000 sites in Italy's Objective 1 regions (NUTS2)

Source: EEA/ETC-LUSI/ISPRA.

is divided into quadrants along the average of both scores.

One region, Campania, has both a high-level Structural Fund budget and a high share of Natura 2000 sites. Four other regions — Sicily, Calabria, Sardinia and Basilicata — have roughly the same ratio between commitments and surface area

of Natura 2000 sites. On the graph, these four lie roughly along the imaginary line between Campania and the origin.

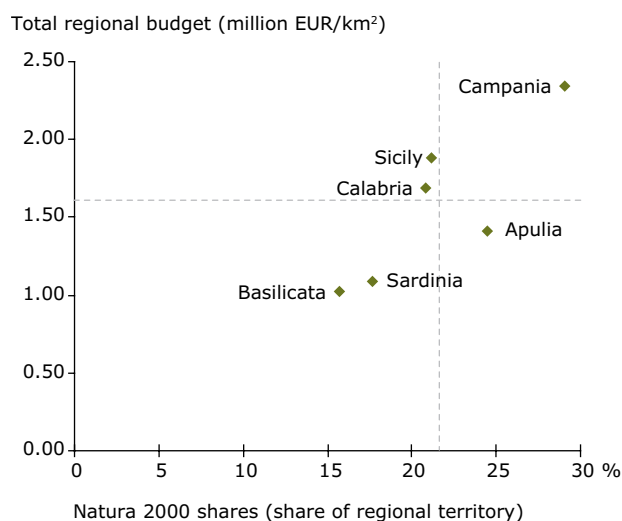
By contrast, Apulia falls slightly out of sequence: this region has not made the same level of spending commitments — proportionally to the surface area of Natura 2000 sites — as the others.

Table 4.2 Surface area of Natura 2000 sites in Objective 1 regions in Italy (2000–2006)

Regions (NUTS2)	Natura 2000		Total area of region (km ²)	Extent of Natura 2000 sites over total territory (%)
	Number of sites	Area (km ²)		
Campania	120	3 955	13 590	29.1 %
Apulia	83	4 743	19 358	24.5 %
Basilicata	49	1 572	9 995	15.7 %
Calabria	185	3 143	15 081	20.8 %
Sicily	232	5 455	25 711	21.2 %
Sardinia	103	4 272	24 090	17.7 %
Total Objective 1	772	23 141	107 825	21.5 %

Source: Ministry for Environment and Protection of the Territory and the Sea.

Figure 4.2 Total Structural Fund commitments versus Natura 2000 sites in Italy's Objective 1 regions



Source: European Commission (DG Regional Affairs) and ISPRA.

This analysis is not meant to show cause and effect. Population density will have a strong influence on spending per km², and this is reflected here: Campania has the highest figures of the population and population density among the six regions, while Basilicata and Sardinia have the lowest population densities.

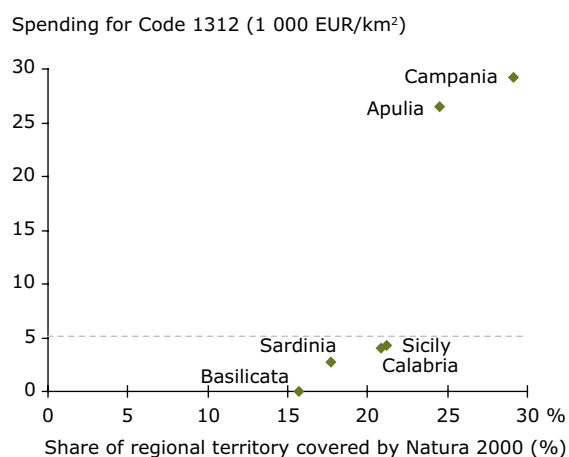
The analysis rather shows that the influence of the Structural Fund spending (both positive and negative) on biodiversity may be strongest in Campania and weakest in Basilicata and Sardinia. To show possible influences, it would be necessary to run a more detailed geographic analysis. In Campania, for example, population is agglomerated largely in coastal areas, whereas Natura 2000 sites are found mainly in the lower density sector, in mountainous regions.

Structural Fund spending on biodiversity protection

The analysis compares spending under the category potentially most favourable to biodiversity, 'Preservation of the environment', as it happens in the six Objective 1 regions in Italy. This comparison is drawn both for spending according to the per km² code and the share of regional territory covered by Natura 2000 sites.

This analysis splits Italian southern regions into two quite distinct groups. Two regions have both a relatively high level of spending for this code and the highest share of Natura 2000 sites: Campania,

Figure 4.3 Structural Fund spending for 'Preservation of the environment' (Code 1312) versus Natura 2000 sites in Objective 1 regions in Italy



Source: European Commission (DG Regional Affairs) and ISPRA.

followed by Apulia. The results imply that these two regions have been in the forefront of using the Structural Funds to support biodiversity-related projects. Indeed, Campania was chosen as a case study specifically for its high level of spending and the high share of protected areas.

By contrast, the other four Objective 1 regions had very little spending under this category, and this is particularly important in the case of Calabria and Sicily, considering their relatively high share of the territory covered by Natura 2000 sites.

Although Structural Funds have supported biodiversity projects, understanding the precise level of this support is difficult for at least two reasons. While some intervention codes appear to include biodiversity, it is neither clear — from the overview data — what share of the spending is committed to this goal, nor what types of projects are actually supported. Moreover, some spending takes place within Natura 2000 sites — but this is not recorded in the financial data, at least not in Italy.

The analysis sought to find information about these issues through a case study of the Structural Fund spending in one of Objective 1 region in Italy, Campania, where Natura 2000 sites cover almost 30 % of the territory — more than in any other Italian Objective 1 region (see Map 4.2).

The analysis develops a proxy indicator for spending within Natura 2000 areas — in an attempt

Map 4.2 Natura 2000 sites in Campania, Italy



Source: EEA/ETC-LUSI/ISPRA.

to provide a useful methodology to could help link Structural Funds and biodiversity protection. It then looks at the different types of interventions to identify those most favourable for biodiversity.

Finally, the analysis compares the Structural Fund spending with the projects funded by the EU LIFE-Nature Programme in the region, as this European instrument is specifically dedicated to supporting biodiversity.

While the data on spending directly related to the protected areas are not available, these data are available for municipalities (NUTS5). As municipalities cover all of the Italian territory, they also include Natura 2000 sites, and this fact can be used to link spending data with sites.

The analysis, thus, focused on spending in municipalities whose territory is largely (at least

75 %) covered by Natura 2000 sites. The basic idea is that if a municipality is included, entirely or almost completely, in the protected area, in principle every intervention should be encouraged or promoted by the body managing the protected area. At the very least, each project must obtain the approval of the management body, i.e. it must be in line with the conservation goals set for the natural values present in the protected area.

Following this logic, it is proposed to use the indicator below:

- Environmental spending in the municipalities with 75 % or more of their surface area within a protected site (Natura 2000 site).

This approach, however, needs elaboration, as it is necessary to identify what constitutes environmental spending. This will be done in the second step of the analysis. The principle that all environmental spending should strengthen the quality of a protected area is developed on the premise that the area is actually managed for this purpose. Having a management plan in place is a key element for protected area management.

Selecting municipalities within Natura 2000 sites

Using data available at the municipal level (NUTS5), initial spatial analysis identifies municipalities with 75 % or more of their surface area lying within a Natura 2000 site. This is then linked to the data from the Ministry of Economic Development that describe spending of the Structural Fund. To identify spending within Natura 2000 site, these data are also available at NUTS5 level.

In Campania, 40 municipalities have 75 % or more of their surface area within a Natura 2000 site. These 40 municipalities hold an estimated one third of the region's Natura 2000 surface area. However, they have only 2 % of the regional population (as expected, since the Natura 2000 sites are, by and large, located in areas with low population density).

Table 4.3 Overview of municipalities and Natura 2000 sites in Campania, Italy

Code	Municipalities where Natura 2000 sites cover over 75 % of territory	Share of regional total
No. of municipalities	40	11 %
Total municipality surface area (km ²)	1 556	11 %
Estimated Natura 2000 surface area (km ²)	1 383	35 %
2001 population	102 437	2 %

Source: ISPRA.

Identifying environmentally favourable spending

The analysis reviews the financing in these 40 municipalities coming from the Structural Fund (specifically, the data on the total size of commitments through to the end of 2006). Italy uses two classifications to register spending: EU intervention codes and national categories. Thus, as the EU and the national categories do not match up, two parallel assessments are presented here. By approaching the assessment from two angles, the analysis has been able to compare the results in terms of the potential impact on biodiversity — 'potentially beneficial' and 'potentially detrimental', which helps identify the most suitable category system for this type of analysis.

This exercise has been based on several theoretical assumptions that should be verified, e.g. through a field analysis, but the general criteria that have been adopted to set the scoring are the following:

- The spending categories (both EU and national) whose titles are more clearly tailored to biodiversity protection or, more generally, environmental improvements are considered to have potentially a high positive effect (there were identified five EU categories and eight national ones).
- By contrast, interventions intended for physical infrastructure (and not explicitly for the environment) are considered to have potentially detrimental effects (in total, three EU and eight national categories were identified as having potentially negative effects).

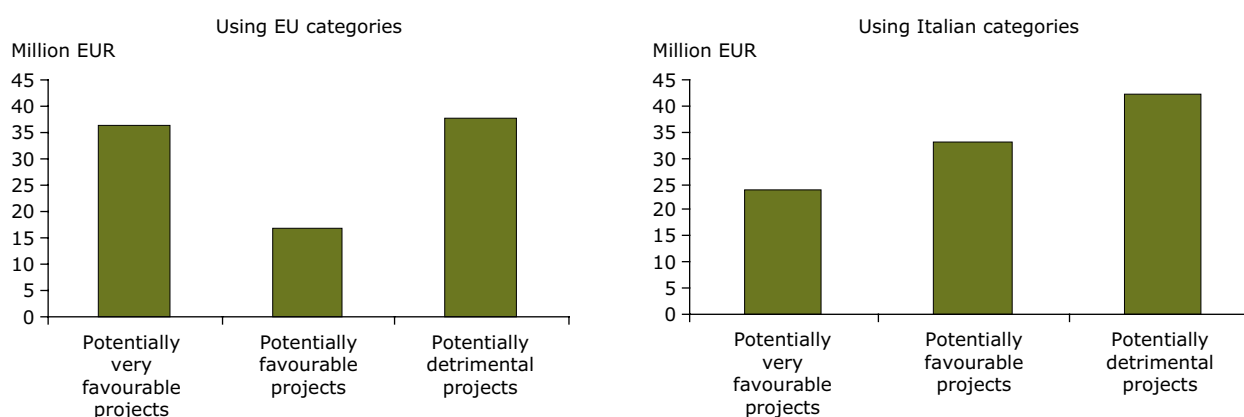
- Other categories are considered to have no direct or clear impact (e.g. interventions intended for the economic development: aid to enterprises, training activities, information society initiatives).

The most questionable assumptions are those regarding the medium and low potential for a positive effect. These include various types of interventions: from the actions to improve efficiency of the water use in agriculture to those aimed at improving cultural heritage, from interventions in favour of rural tourism to renewable energies development. Such interventions represent, in most of cases, both positive and negative potential effects.

The analysis reviews 30 EU intervention codes for projects carried out in these municipalities of Campania: 11 are considered to have a positive impact, three — a negative impact, and the remainder are neutral. These projects are classified into 42 categories of the more detailed Italian system, which, as a result, provides a greater range of categories with both positive impacts (19), and with negative ones (8).

Using the EU categories, almost EUR 35 million, more than 25 % of all the Structural Fund financing in the 40 communities, goes to projects that appear to have a strongly favourable impact on the biodiversity. The category with the largest resources, 3.5.3 ('Protection, improvement and regeneration of the natural environment') could potentially bring about the greatest direct improvements of biodiversity. By contrast, the more detailed Italian

Figure 4.4 Structural Fund support for the projects favourable and unfavourable to biodiversity in Campania's municipalities with at least 75 % of their territory covered by Natura 2000 sites



Note: Additional categories (neutral, not scored) not shown.

Source: ISPRA.

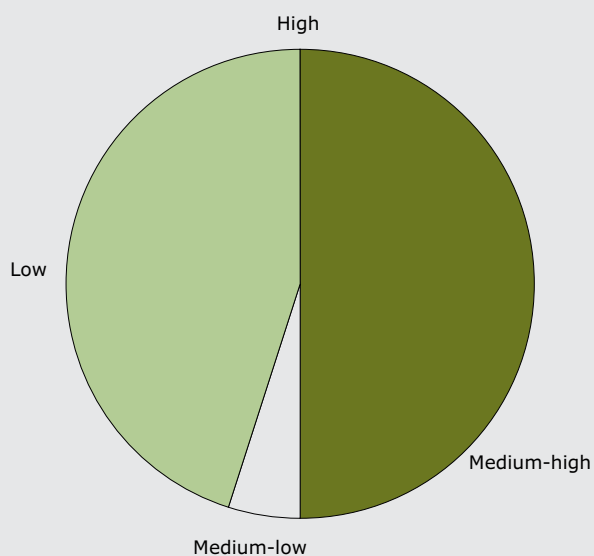
Box 4.1 Linking Structural Fund spending and protected areas: the role of management structures

In Italy, all areas protected under national legislation, such as national and regional parks, should have management plans. Natura 2000 sites should have 'appropriate management plans' if needed (see Art. 6(1) of the Habitats Directive). While this analysis focuses on Natura 2000 sites, many of these are located within parks and other areas protected under Italy's national legislation.

Structural Fund spending and protected area management can be linked in two parts of a virtuous circle. On the one side, the funds can support the preparation of management plans. On the other side, once such plans are in place, they can guide public investment, including Structural Fund spending, to ensure that resources are used in ways that are compatible with the natural assets being protected.

This suggests that analysis of the Structural Fund support for biodiversity should be linked to regional progress in developing management plans (and potentially related tools). Italy has tested an indicator for the management of areas protected under national legislation. The indicator is based on three key questions: whether a management body for the protected area has been formally established; whether the members of its managing committees have been nominated; and whether plans and related administrative tools are in place.

Figure 4.5 Management structures in Campania's protected areas (by share of total protected surface area)



Source: Ministry of Economic Development — UVAL.

An initial review of protected areas — carried out within the framework of the midterm environmental evaluation (2005) — found a mixed picture in Campania (Figure 20). Management activities are fairly advanced in half of the protected area in the region. The other half of the area under protection has a very low level of progress — the second worst score among the Objective 1 region. One possible reason is the high number of protected areas and of municipalities involved, leading to a lengthy time needed for the administrative and decision-making processes.

This indicator focuses on national and regional parks. About half of the region's Natura 2000 sites (94 out of 183) are located within such protected areas. A recent analysis shows that the development of management structures for the remaining Natura 2000 sites was much slower: as of the end of 2006, only 1 of the 89 sites outside protected areas had a management plan ⁽⁶²⁾.

⁽⁶²⁾ Rete Nazionale delle Autorità Ambientali, Gruppo di Lavoro Rete Ecologica, 'QCS Ob.1 2000–2006: Aggiornamento del Report sui progressi compiuti nell'attuazione della Rete Ecologica (RE) nelle regioni Obiettivo 1', 31 July 2007.

categories suggest that the strongly favourable impact is lower, below EUR 25 million.

Whether using EU or Italian categories, the actual impact of projects on biodiversity can vary greatly. For example, tourism projects can cause strong negative impacts or can be part of a broader strategy to manage tourism in harmony with the needs of a site. Indeed, tourism could replace higher impact activities in a Natura 2000 site, such as intensive agriculture.

Thus, while the indicator of the Structural Fund spending producing positive impacts within Natura 2000 sites provides a potentially useful result, the value of the indicator of the spending with negative impacts is less clear. Investments with apparently negative effects, such as construction of the infrastructure for tourism, could prove compatible with biodiversity protection. In principle, effective management of protected areas — including management plans — is needed to ensure the overall coherence of spending. Box 4.1 describes the role of management structures.

Structural Fund spending on the 'Ecological Network' measure

To understand how different strands of the Structural Fund spending might come together — both for categories considered positive and those considered negative — the analysis reviews the projects financed under the heading of 'Ecological Network'. All Objective 1 regional operating programmes (ROPs) in the period of 2000–2006 contained, under their Axis 1, at least one measure under the heading of 'Natural Resources'. This was a consequence of a national decision, passed in 1999, to establish a dedicated line of financing for the 'sustainable development' of the 'ensemble' (or 'network') of natural and cultural values in Objective 1 regions⁽⁶³⁾.

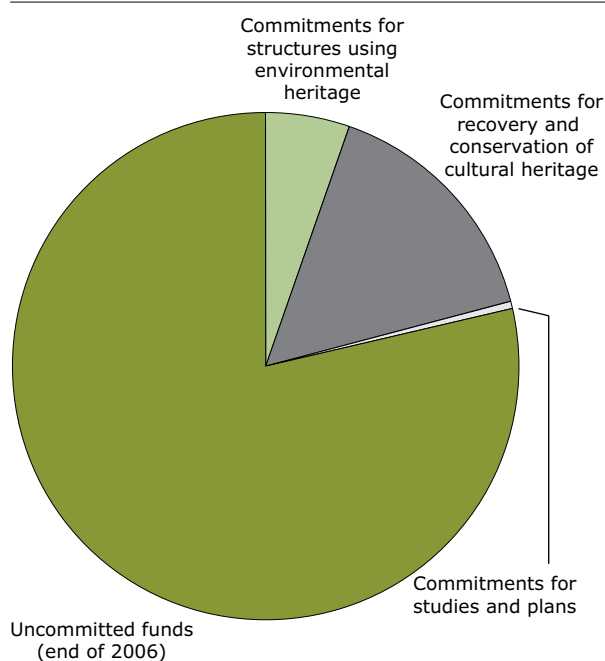
In Italy, 2000–2006 Operational Programmes refer the measure of 'ecological network' to a series of actions protecting natural and cultural values, including biodiversity, landscapes, and architectural and archaeological areas. Moreover, this measure supports the development of small businesses and jobs linked to these natural and cultural values. One area for action is the promotion of tourism.

In Campania, this line of spending is particularly interesting for three reasons: its three separate measures used, the high level of support and the use of integrated projects. First, the region has 'translated' the national decision for creating 'Ecological Network' into three separate measures of the regional programme, all of them under Axis 1 — Natural Resources. These three measures are:

- 1.9: Recovery, improvement and promotion of cultural, archaeological, natural and ethnographic heritage and of historical centres in protected areas, and in regional and national parks;
- 1.10: Support for the development of micro-entrepreneurship in regional and national parks;
- 1.11: Promotion of a competent work force and new entrepreneurship to support the protection and improvement of the territory and the development of productive activities in protected areas.

Secondly, the ROP dedicates a relatively high amount of funds compared with other Objective 1 regions, with nearly EUR 350 million of budget allocated — almost 20 % of all spending

Figure 4.6 Structural Fund spending commitments for Campania's 'Ecological Networks' Measure No 1.9, end 2006



Source: IGRUE-MONIT, elaboration by UVAL (Ministry of Economic Development).

⁽⁶³⁾ Of course in this case the term 'ecological network' is not used in its usual meaning, i.e. as the system of connections among different ecosystems. In Italian the term is also used for 'bio-corridors'.

for Axis 1 (Natural Resources). Measure 1.9, with over EUR 270 million, had the largest of all three measures share committed to 'ecological networks'.

Figure 4.6 shows a breakdown of spending to implement this measure. The largest area of spending at the end of 2006 was the recovery and conservation of cultural heritage. It means environmental and landscape restoration, an area that received over EUR 19 million that were committed to 39 projects.

Despite the high level of funding, by the end of 2006 actual allocations were less than 25 % of the available budgets, much lower than the average for Axis I as a whole (71 %). This suggests that Italy's Objective1 regions had difficulty implementing this type of innovative measure (Chapter 6 on absorption capacity returns to this theme). This low level of committing creates a possible risk that either not all of the available budget will be used, or the funds will be spent quickly, possibly on poorly prepared projects.

The spending areas shown in Figure 4.6 are based on national categories and sub-categories. Here too, the EU categories are too broad to allow a good analysis of the spending. In addition to Measure 1.9, shown in the figure, Measure 1.11 provided EUR 4.6 million of resources for seven projects aimed at raising public awareness and providing information. The results illustrate well the Italian approach, which combines conservation of nature, protection of cultural heritage, landscape restoration, and tourism promotion. The goal is to put launch actions beneficial for both conservation and economic development.

Integrated territorial projects

A third important factor in Campania is that most of the interventions under the heading of the 'Ecological Networks' measure are made within the framework of one of the seven 'Integrated Territorial

Projects' (PITs) underway in the region. Each of these integrated projects is linked to a national or regional park and a few are led by the park administration (not all, though, since at the start of the cycle administrative structures had not yet been created for all parks). This approach should help ensure coherence between development and conservational aims.

In this cycle, Italian national administration introduced integrated projects. The goal is to develop link actions in different sectors of the integrated plan. These different actions should lead concurrently to a common spatial development goal. The PITs have a single implementation strategy. Moreover, one of the main conditions for an integrated project is that it must have a 'critical mass' in terms of size. Key characteristics include:

- a common 'geographical' framework, i.e. the territorial context or the topic that is the main reference; overall, each PIT should bring together support projects that have a common spatial and functional goal and follow a common guiding idea;
- a single project guiding idea and strategy for the development pattern in the area;
- a single organization taking the overall responsibility for the project — a common, integrated management approach is seen as the best way to implement the related initiatives;
- a common management and monitoring system.

Across Italy, the PITs were slow to start. This approach created an additional level of planning (perhaps, similar to the requirement for regional plans in the area of waste management).

Projects directly supporting biodiversity

Finally, the analysis identified those projects that have a direct, positive impact on biodiversity. These include projects aimed at environmental education, animal rescue and environmental restoration. Three

Table 4.4 Projects directly supporting biodiversity in Campania, Italy

Type of project	No. of projects
Environmental education centres, Nature museums, etc.	6
Centres for animal rescue	3
Observatory for biodiversity	1
Environmental restoration (of rivers, paths, sites, etc.)	15
Park plans (environmental, socio-economic or communication plans)	3

Source: IGRUE-MONIT, elaboration by Min. of Econ. Dev.-UVAL.

projects have supported the preparation of plans for the parks.

The data provided do not show the allocation of resources to each project but it is clear that the amount of funds for these projects is rather low in comparison to the overall budget for the 'Ecological network' measures. Nonetheless, all of these projects directly support the core activities of the natural parks, including their infrastructure such as visitor centres and paths as well as nature restoration.

Moreover, the fact that this measure has financed the drafting of environmental and socio-economic plans for national parks and of a communication plan for the regional park shows that the Structural Funds are playing an important role as regards development of management capacities in the protected areas in Campania. Finally, while the support is only a small portion of the total Structural Fund resources, it nonetheless is important, especially when compared to the EU's dedicated programme to support biodiversity projects, the LIFE-Nature Programme.

Identifying common themes for the other Objective 1 regions in Italy

The slow rate of spending on the ecological measures seen in Campania has been observed in most of the other Objective 1 regions in Italy (see Chapter 6 on absorption capacity). A report by the Italian network of environmental authorities

identifies two common problems in this area. One is the slow start of the PITs, the integrated projects, throughout the country. Another reason is that the regions have been slow to introduce supporting legislation or policies. In Campania, for example, a Regional Spatial Plan providing a framework for the protection of natural and cultural heritage was approved only in late 2006. Only two regions had policies to support the ecological networks — Calabria and Sicily, and these were approved in 2003 and 2004 respectively ⁽⁶⁴⁾.

The analysis found little information on the outputs, outcomes and impacts of spending — and in particular, no information directly related to nature conservation and biodiversity. One reason is that Campania's monitoring indicators in this area do not provide a strong set of information.

LIFE-Nature projects in Campania

LIFE Programme has funded several projects whose main beneficiary was located in Campania or whose actions benefited parts of Campania. The LIFE Programme in recent years has supported:

- Two LIFE-Nature projects that are entirely dedicated to the support of nature conservation in the Campania region;
- Three other LIFE-Nature projects that took place in Campania as well as other regions;
- Three LIFE-Environment projects for the Cilento National Park in Campania — these can be

Box 4.2 Campania's indicators to monitor the measures for 'ecological networks'

Campania identified a broad range of indicators to monitor the outputs, outcomes and impacts of its three measures for 'ecological networks'.

The Programme corrigendum (version approved in 2007) foresees a detailed list of indicators to describe outputs/outcomes/impacts (see Annex 2) for each Measure. The sole indicator that can be closely linked to biodiversity protection is an increase in the designation of Natura 2000 areas and in particular in the appointment of the responsible authorities for each area.

Most of the remaining indicators refer to other components of 'ecological networks', such as the creation of local enterprises and jobs, and the increase in the visits by tourist. Some of the indicators are questionable: for example, for many themes, the number of projects financed is considered to be an output indicator. One indicator that links tourism and environment is the development of new paths; curiously, this is measured in units of area rather than length. The indicators for improvements in architecture, landscape and archaeology are all geared towards the same quantitative goal, suggesting that in reality, that these are not coherent sub-programmes.

Finally, all of the 'impact' indicators focus on the creation of new enterprises, jobs and tourism — none on nature conversation.

⁽⁶⁴⁾ Rete Nazionale delle Autorità Ambientali, Gruppo di Lavoro Rete Ecologica, 'QCS Ob.1 2000–2006: Aggiornamento del Report sui progressi compiuti nell'attuazione della Rete Ecologica (RE) nelle regioni Obiettivo 1', 31 July 2007.

considered as support to biodiversity in the region, if only indirectly.

The LIFE programme does not follow the same spending cycles as the Structural Funds. As a result, most of these projects overlap, if only partially, with the 2000–2006 spending cycle that is the focus of this evaluation. The total amount of funding (taking into account the national co-funding as well) for the eight LIFE projects is a little more than EUR 13 million. This is more or less the same amount as that allocated to the 28 biodiversity-focused projects supported by the SF 'Ecological Network' Measure 1. In other words, considering both the differences between spending cycles and the wider geographical focus of some LIFE projects, from a financial point of view, the Structural Funds were at least as important as the LIFE programme in supporting biodiversity actions in Campania.

The average amount of a LIFE project is higher than this amount for the SF projects. LIFE projects are explicitly devoted to infrastructure or management interventions in favour of biodiversity in a specific location or on a specific theme. On the other hand, more of the Structural Fund projects used similar resources for a more diffused impact.

Some of the LIFE-Nature projects themes are traditional — restoration of natural areas and preparation of management plans. There is also one project aimed at reforestation of areas affected by fire. Another one, funded in two stages, is dedicated to wastewater treatment. This suggests that the park management sees human activities as a great source of pressure on biodiversity, and therefore has taken an active role in addressing these issues.

Finally, some LIFE-Nature projects see Natura 2000 sites in Campania as part of an interregional network: this demonstrates the need to bring together biodiversity efforts from across different regions, a possible limitation for the Structural Funds.

4.3 Case study of Spain

Policy context

In the Objective 1 regions in Spain, the size of territory under Natura 2000 sites varies much more than in Italy: from a low of under 12 % of territory in Galicia to almost 37 % in the small, island region of Canarias (see Table 4.5). Looking at Spain as a whole, the Natura 2000 areas include both small sites and large contiguous areas (see Map 4.3).

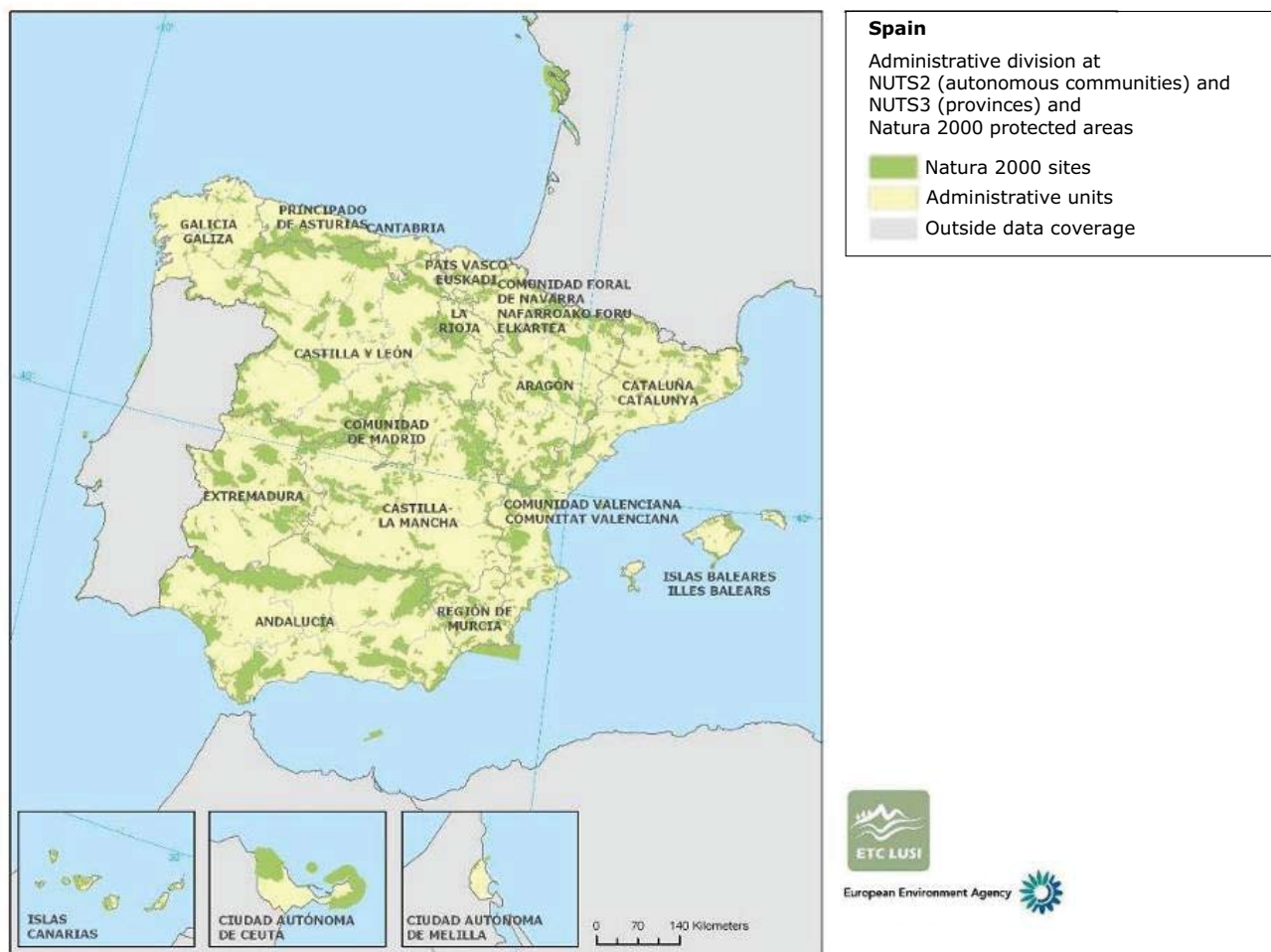
It must be noted that the EC instigated judicial proceedings and, through the Luxembourg Court, on 28 June 2007 passed a ruling condemning Spain and stating that the Canary Islands, the Balears, Castilla-La Mancha, Catalonia, Valencia and Andalusia, and Galicia had not designated enough Special Protection Areas. Nevertheless, Andalusia still has about 150 protected sites, covering about 30 % of the territory. Galicia had proposed 66 sites to cover 12 % of the territory. In May 2008, Galicia announced an increase in protected areas up to 70 000 hectares. This includes a new SPA in the Orense province, as well as new protected landscapes in Ourense and A Coruña provinces, the creation of a new natural park in Lugo, and the extension by 9 000 hectares of the Natural Park of Limia-Serra do Xurés.

Table 4.5 Surface area of Natura 2000 sites in Spain's Objective 1 regions (2000–2006)

Autonomous community (NUTS 2)	Share of NUTS2 area covered by Natura 2000
Andalucia	28.7
Asturias	26.7
Canarias	36.9
Cantabria	25.7
Castilla y León	20.1
Castilla-La Mancha	19.7
Comunidad Valenciana	26.7
Extremadura	19.9
Galicia	11.6
Murcia	14.8

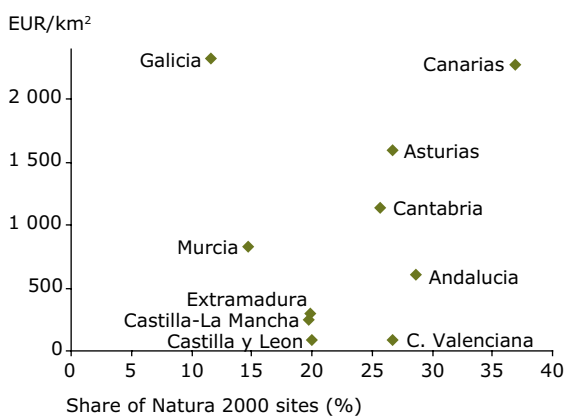
Source: EEA/ETC-LUSI.

Map 4.3 Natura 2000 sites in Spain



Source: EEA/ETC-LUSI and DG Regional Affairs, 2007.

Figure 4.7 Structural fund commitments for 'Preservation of the environment' (Code 1312) versus Natura 2000 sites in Objective 1 regions in Spain



Source: European Commission (DG Regional Affairs) and EEA/ETC-LUSI.

Structural fund spending on biodiversity

The analysis of spending and protected areas looked at all 10 Objective 1 regions in Spain. It revealed a far greater variance compared to that in the six regions of Italy. In the top right quadrant, Asturias, Cantabria and the Canary Islands had high levels of spending under this code. They also had a high number of Natura 2000 sites.

One of the case study regions, Galicia, is in the top left quadrant: despite having the lowest number of Natura 2000 sites, 11.6 %, this region has the highest funding under Intervention Code 1312 – more than EUR 23/km². One of the reasons for this is the smaller size of the protected area. Several reports point out that the investments made by Galicia in biodiversity have not been significant. The 2006 Sustainability Report stresses that in the natural parks investment by hectare has been EUR 40, far less than in Andalusia where it

amounts to EUR 100/ha. It should be pointed out that Galicia has allocated 5 % of the OP total for 2007–2013 towards promotion of biodiversity and nature (including Nature 2000) programme.

By contrast, Andalusia falls into the lower right quadrant: it has a high level of Natura 2000 sites, which cover 28.7 % of its territory, but it uses only EUR 6/km² under this intervention code. In contrast with Figure 4.7, this could mean that Andalusia has been concentrating its spending on natural parks, which correspond to 16 % of the total protected area.

Support for biodiversity protection in Spain

In Andalusia, several projects funded by the ERDF have been aiming at biodiversity protection. To name a few, the Andalusian Wetlands management programme (which received about EUR 800 thousand during the period between 2001 to 2005) published a manual where it compiled management and rehabilitation proposals for each province, undertook monitoring and improved awareness in the urban agglomerations around the wetlands. The Andalusian Network for recovery of threatened species (EUR 3.8 million in 2005 and 2006) concentrated its efforts on building facilities for wounded specimens of threatened species; it also supported captive breeding programmes and extended the network of Recovery Centres for

Threatened Marine Species to cover more of the coastline. Three centres were built in total: one for threatened terrestrial species, one — for marine species, and one of a mixed nature. The Spanish fir garden project in Grazalema Natural Park (about EUR 465 thousand) consisted of awareness raising activities, including the re-creation of the fir forest in the centre of a town in the natural park.

On the forest protection front, about EUR 4 million were spent on the forest protection centres in Huelva and Cordoba. These centres carry out monitoring, observation, detection and extinction of forest fires. Besides, EUR 10 million were spent on fire engines.

4.4 Case study of Austria

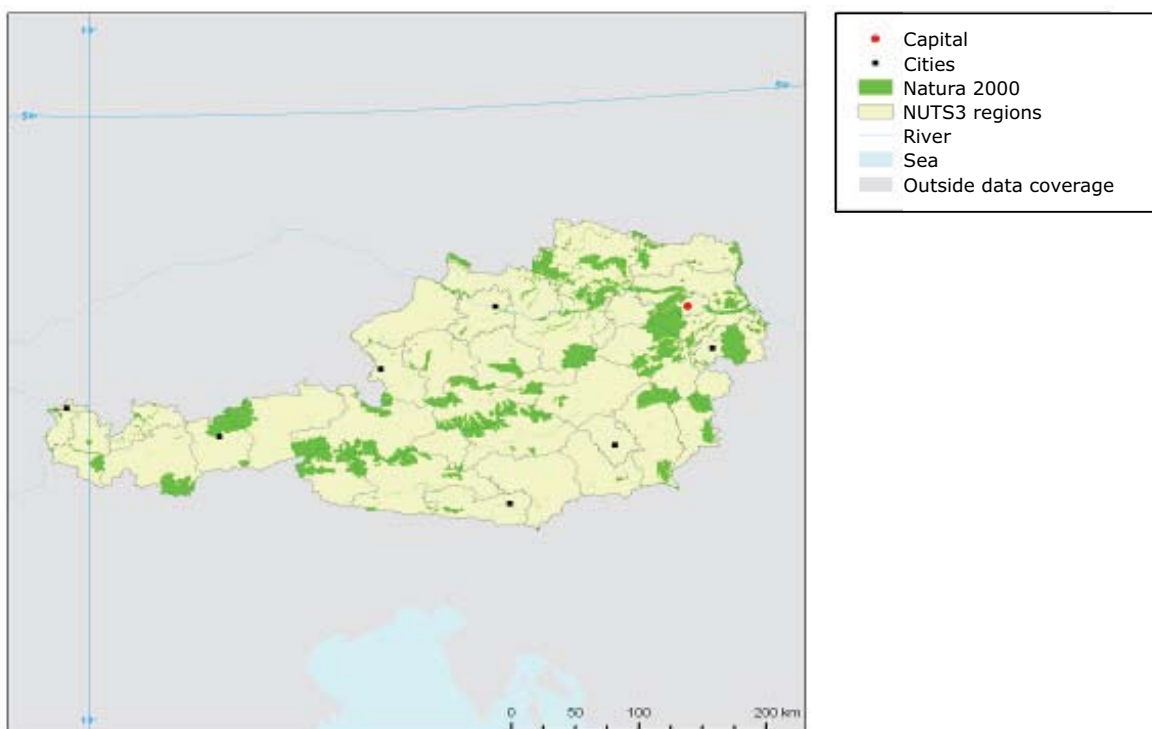
Policy context

Distribution of Natura 2000 sites in Austria is shown in Map 4.4.

Structural Fund spending on biodiversity

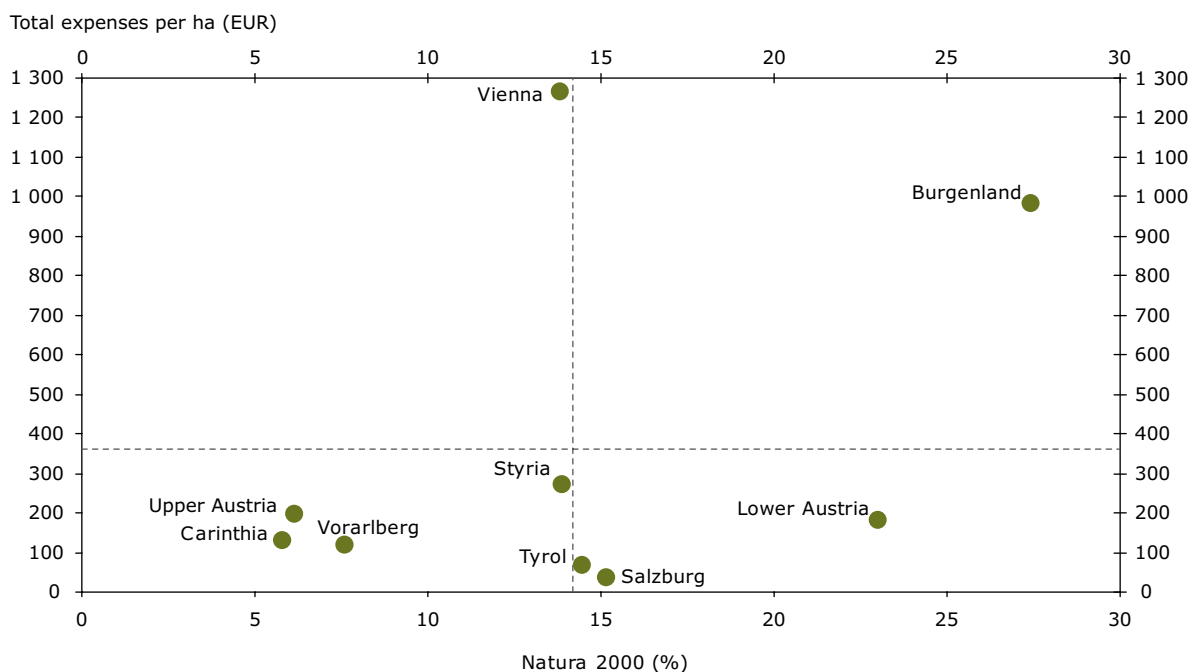
In Austria, the comparison between the total volume of spending and number of Natura 2000 areas reveals a rather different pattern than in Italy. This is largely because there are two regions there that are quite different from the others:

Map 4.4 Natura 2000 sites in Austria



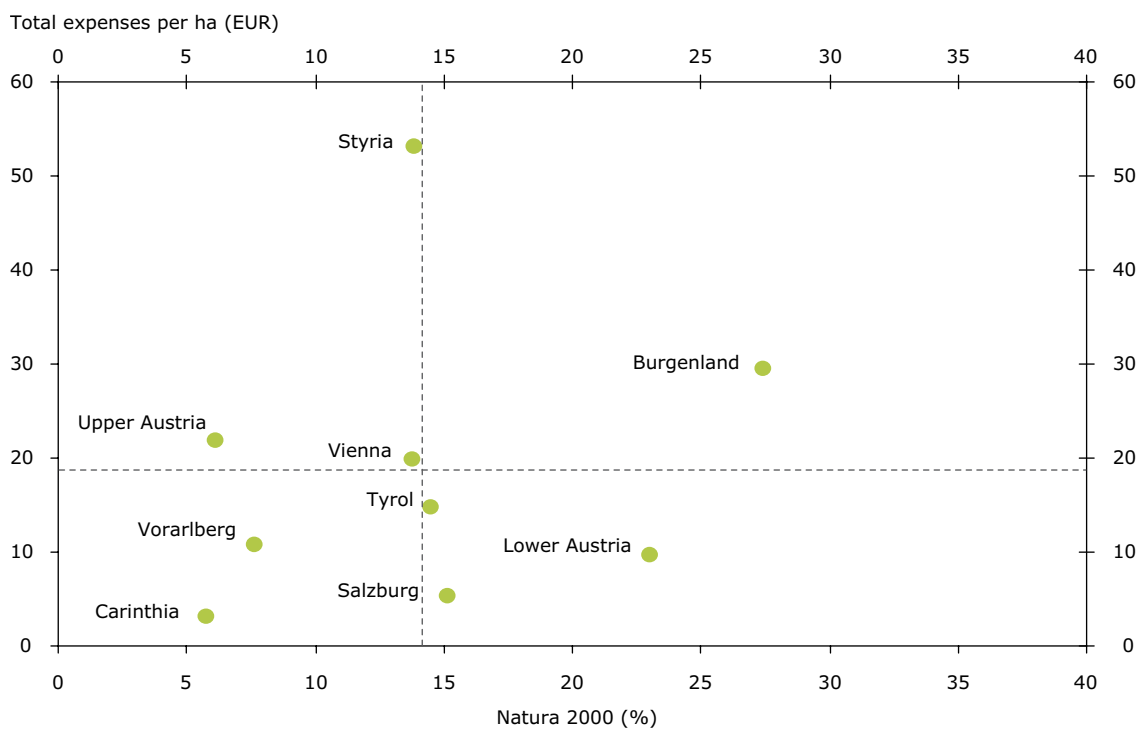
Source: EEA/ETC-LUSI.

Figure 4.8 Total Structural Fund spending commitments versus Natura 2000 sites in Austria regions



Source: European Commission (DG Regional Affairs) and EEA/ETC-LUSI.

Figure 4.9 Structural Fund spending commitments for 'Preservation of the environment' (Code 1312) versus Natura 2000 sites in the regions of Austria



Source: European Commission (DG Regional Affairs) and EEA/ETC-LUSI.

Burgenland, the only region in the upper right quadrant, was also the only Objective 1 region in the 2000–2006 cycle in Austria. It registered a much higher level of spending (see Figure 4.8). At the same time, this region has the highest share of Natura 2000 sites. Vienna is a largely urban region, with a high population and high population density, though its share of Natura 2000 sites more or less follows the national average.

Spending for biodiversity

Only Burgenland, Austria's sole Objective 1 region, spent Structural Fund money under Code 1312. For this reason, a set of different codes was used to estimate environmental spending. This approach combined spending under Codes 152 and 162 (environmental investments in enterprises), with the idea that some of the resources may go for biodiversity-related investments, together with Codes 333 and 334 for energy.

Here too, Burgenland stands out — as the only Objective 1 region, it should have more available resources than the others (see Figure 4.9). On the other hand, Vienna shows no difference compared

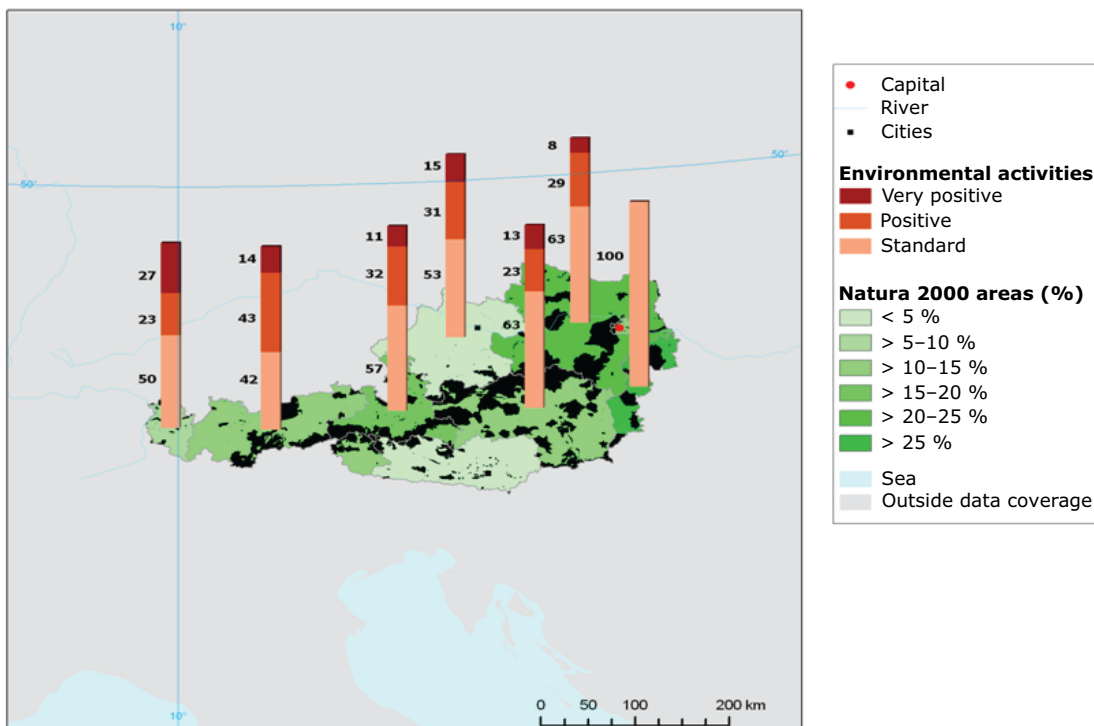
to other regions. Styria is notable for its high use of resources under the environmental codes ⁽⁶⁵⁾.

Austria's indicators to monitor project impacts on biodiversity

In the 2000–2006 cycle, Austria elaborated the basic EU-wide indicator used to measure Structural Fund influence on the environment. The indicator used in Austria scored impacts across four environmental themes: pollution, waste, resource consumption and biodiversity. This indicator provides a simplified measure of the impact produced by the Structural Fund projects on biodiversity.

Overall, the environmental indicators in Austria included in ERDF-monitoring (applied to projects not focused on environmental improvements) relate to four separate environmental dimensions: pollution, consumption of resources, waste and biological diversity. The indicator is measured on a scale of three points: 'in accordance with statutory requirements', 'positive impacts' or 'very positive impacts'. Thus, it cannot capture projects with potentially negative impacts.

Figure 4.10 Environmentally favourable projects in Austria



Source: KPC, elaborated by EEA/ETC-LUSI.

⁽⁶⁵⁾ For this proxy in Austria, the correlation between the level of environmental spending and the Natura 2000 sites appears fairly high, as was the case in Italy, while in Spain this correlation is very weak. R2 = 0.84 for Italy, R2 = 0.02 for Spain.

Box 4.3 Designating 'environmentally favourable' projects in Italy

By contrast, Italy uses only the basic indicator required by the EU legislation: each project should be rated as environmentally favourable, neutral or unfavourable. A brief review of the Italian project database shows that in practice many projects do not provide this information. Where information is provided, the database shows that projects in the same spending categories — and apparently with similar characteristics — often have different designations. Thus, the impression is that the use of this indicator in Italy has been incorrect.

While the assessment of the effects on biodiversity remains qualitative and is at a risk of being subjective, the bodies responsible for the state aid assign scores to each project. They use guidelines developed jointly through workshops. The idea is to distinguish between qualitative criteria in relation to the area of intervention and make it possible to categorise projects as 'positive' or 'very positive' depending on their environmental impacts.

Figure 4.10 provides the results of applying this indicator to about 1 000 'environmental' projects (those carried out under EU Intervention Codes 152, 162, 332 and 333). Thus, the data here do not cover non-environmental projects. Overall, the results show that about 55 % of the 1 000 projects assessed had a 'neutral' impact on biodiversity. Just over 30 % had a positive impact, and about 15 % had a very positive impact. In Burgenland, the only Objective 1 region in Austria, only four projects were assessed and all had a neutral impact.

In the 2007–2013 cycle, Austria developed this indicator further. One notable addition is in extending the scale: projects can now be rated as negative for biodiversity. However, Austria's programming documents for this cycle stipulate that projects should not produce negative environmental impacts.

Therefore, it is logical to conclude that the simple indicator prescribed in the EU legislation appears overly simplistic and not at all useful. While this

study did not make an in-depth investigation of its usage, it is easy to see how difficult it was to work out the score. For example, a rail project could have beneficial results in terms of climate change but produce negative impacts on biodiversity. Another problem is that if the judgement is passed internally, there is a danger of bias. For a more accurate result, the scores should be developed or at least reviewed by an independent external body.

4.5 The 2007–2013 spending cycle

Now, in the 2007–2013 cycle, among the new Structural and Cohesion Fund spending codes there is one dedicated to biodiversity and nature protection. In this new cycle, 2007–2013, Spain plans to allocate almost EUR 700 million, about 2 % of all Structural Fund spending, to this area (see Table 4.6). By contrast, Italian allocations are at a much lower level, EUR 72 million. Austria has not allocated any resources to this spending area at all.

In principle, there will be no need in the new cycle for a complex analysis to identify Structural Fund inputs to support biodiversity. At the same time, it remains to be seen what share of their resources will be allocated by the Operational Programmes to nature protection and biodiversity projects or related activities, such as socio-economic projects that support biodiversity; or to establish the share that will go to projects with a weaker link to nature and biodiversity goals. Because of these uncertainties and for the lack of a comparable code

Table 4.6 Structural Fund budget plans for nature protection and biodiversity, 2007–2013 cycle

Category	Spain		Italy	
	SF (million EUR)	% of SF	SF (million EUR)	% of SF
Promotion of biodiversity and nature protection (including Natura 2000) (51)	681.8	1.97	72.0	0.26

Source: DG Regional Affairs, December 2007.

for the previous project cycle, it is not possible to say whether these levels of funding represent a change from the previous cycle.

Structural Fund spending with negative impacts on biodiversity

Environmental NGOs have identified numerous cases where projects financed by the Structural Funds and the Cohesion Fund, as well as projects proposed for their support, threaten biodiversity. This section reviews examples of road and water supply projects, as well as the EU's framework for transport infrastructure. It also considers the measures to prevent and mitigate negative impacts on biodiversity.

Transport projects are one of the largest areas of financing for the Structural Funds and the Cohesion Fund. The 2006 Biodiversity Communication underlines that transport infrastructure represents a growing pressure on biodiversity in the EU. Environmental NGOs have warned of the adverse environmental impacts on Natura 2000 of numerous

current and planned projects. Here, three examples are presented from recent reports.

Environmental NGOs warned in the 1990s that a segment of the Egnatia highway project through the Pindos Mountains in Greece threatens the brown bear population in the region. EU funds, including the Structural Funds and the Cohesion Fund, provide about half of the financing for this highway. At the same time that these funds supported this infrastructure project, DG Environment was financing a LIFE project for the preservation of the same bears. Thus, there was a risk that the EU money would be working at cross-purposes⁽⁶⁶⁾.

The proposed Polish section of the Via Baltica, the new international express highway to run from Warsaw to Helsinki, has raised serious concerns regarding the conservation of birdlife in eastern Poland, in the area of Bialystok. The proposed path would take the highway through several Natura 2000 sites. Alternative routes are possible, at least one of which would allow all significant nature conservation areas to be unaffected by road construction⁽⁶⁷⁾.

Map 4.5 The Trans-European Transport Network (TEN-T)



Source: EEA, Ten-T.

⁽⁶⁶⁾ WWF, *Conflicting EU Funds: Pitting Conservation Against Unsustainable Development*, Vienna, December 2005.

⁽⁶⁷⁾ WWF (2005) and CEE Bankwatch and Friends of the Earth Europe, *Cohesion or Collision: EU and EIB funding for controversial projects in Central and Eastern Europe*, February 2008 edition.

Box 4.4 TEN-T projects in Austria, Italy and Spain

There are two priority projects that cross Austria under TEN-T: the Berlin-Palermo railway axis and the Paris-Bratislava railway axis. The first will upgrade an existing north-south railway; the second is already partly in service in Austria, as the east-west line is part of the country's 'infrastructure backbone' connecting four Austrian regional capitals. A third project, the Rhine — Main — Danube inland waterway, was excluded from the analysis. In addition, three other TEN-T projects pass through or end in Vienna.

Two projects cross Italy: the Berlin-Palermo railway axis and the Lyon-Budapest railway axis (in addition, Milan's Malpensa Airport is listed as a TEN-T project). The first cross three of Italy's Objective 1 regions: Campania, Basilicata (phasing out in 2007–2013) and Calabria.

Four projects affect Spain: the southwest Europe railway axis (with several lines); the Spain-Portugal multimodal axis, including both rail and road projects; the Sines-Algeciras railway freight axis; and Iberian rail interoperability.

An analysis by EEA/ETC-LUSI shows that many TEN-T projects run close to numerous Natura 2000 sites: 75 sites in Austria, over 330 in Italy and almost 880 in Spain are located within 2.5 km of TEN-T lines. The majority of these appear, in fact, to be located within 1 km (see Table 4.7).

Table 4.7 Natura 2000 sites near TEN-T projects in Austria, Italy and Spain

	1 km buffer		2.5 km buffer	
	Total no. of Natura 2000 sites	No. of sites per 100 km	Total no. of Natura 2000 sites	No. of sites per 100 km
Austria	75	8.0	98	10.0
Italy	203	8.3	332	13.5
Spain	557	6.5	877	10.2

Source: Birdlife International and <http://t3.codeon.eu/TEN/index.php?id=4&L=0>, elaborated by EEA/ETC-LUSI.

A change in government in late 2007 could have led to a review of the previous decisions on this highway.

The proposed route of the Struma motorway would threaten ecosystems in the Kresna Gorge Valley in Bulgaria. This motorway forms a part of the trans-European corridor between Sofia and Athens. The European Commission is encouraging consideration of other feasible routes that would bypass the gorge⁽⁶⁸⁾.

Several major *water projects* have also raised concerns over the environmental impacts, in particular in the parts of southern Europe that face water scarcity; though an example from central Europe is also presented here.

The construction of the Odelouca dam was initiated by Portuguese authorities in 2002. The dam has

caused flooding of the Monchique Natura 2000 site, fragmentation of the habitat for Iberian Lynx and negative effects on endemic fish and bird species. A 2001 opinion of the European Commission found the construction of the dam in breach of the Habitats Directive and the Water Framework Directive, suspending support from the Cohesion Fund, though financing continued for the related irrigation work⁽⁶⁹⁾.

A proposed dam on the Elbe River in the Czech Republic could damage the natural area of the Elbe Canyon, which has been proposed as a Natura 2000 site. The stated goal of the dam is to improve navigation on the Elbe, and the project has been proposed for EU funding.

The risks for biodiversity may arise not just from individual projects, but also from broader programmes. Many of the potentially harmful

⁽⁶⁸⁾ CEE Bankwatch and Friends of the Earth Europe, 2008.

⁽⁶⁹⁾ WWF, *Conflicting EU Funds: Pitting Conservation Against Unsustainable Development*, Vienna, December 2005.

transport projects cited by NGOs are part of the Trans-European Transport Network (TEN-T), the EU framework for transport infrastructure. The original programme was adopted in 1990, and by 2020 TEN-T is to include almost 90 000 km of roads, 94 000 km of railways and over 11 000 km of inland waterways (see Map 4.5).

A recent study conducted by a coalition of environmental NGOs and written by Birdlife International reviewed 21 TEN-T priority projects and warned that they could affect over 1 200 existing and proposed Natura 2000 sites ⁽⁷⁰⁾. The study analysed projects with three levels of impacts: those that pass directly through Natura 2000 sites, those that pass within 2 km and those within 5 km of sites. Case studies reviewed potential impacts on specific sites across Europe.

A separate analysis carried out here reviews the impact of TEN-T projects in the three case study countries (see Box 4.4).

The TEN-T includes projects for rail and intermodal transport, which may bring environmental benefits, such as reductions in greenhouse gas emissions as well as local air pollution. In some cases, the projects expand existing transport lines — rather than new ones. In some areas where they are close to Natura 2000 sites, TEN-T axes run underground. Thus, potential impacts need to be assessed with care, and compared to existing impacts.

Two mechanisms under European legislation should play a key role in identifying and addressing negative environmental impacts of infrastructure projects, including impacts on biodiversity: environmental impact assessment (EIA) and the recent strategic environmental assessment (SEA). In principle, transport plans and programmes should

be reviewed in an SEA, and individual projects, via an EIA. Though, as Box 4.5 illustrates, some Member States have sought exceptions to the use of EIA.

The NGO study called for a close review to understand potential impacts better, along with strong mechanisms to review conflicts. For example, the authors called for a quality review of EIAs and SEAs carried out of TEN-T projects, for EU guidance on integrating environmental concerns into transport planning — for example, Natura 2000 concerns need to be considered early in project planning, and for better enforcement of environmental legislation in the Member States.

The study suggests that EIA and SEA procedures may not be working fully. One potential reason that NGO representatives have pointed to is a potential mismatch in scale between the EU's SEA and EIA procedures. While SEA looks at a whole transport plan or programme, EIA looks at specific projects. In some Member States, EIA is carried out for each segment of a highway plan ⁽⁷¹⁾. While this may provide a close review of local impacts, authorities can receive EIA approval for a low-impact segment that leads the next stage close to or through a protected area ⁽⁷²⁾.

The European Commission has an important oversight role for Structural Fund spending. In particular, the Commission must approve spending for all large infrastructure projects. Through this step, the Commission has played an important role in reviewing potential project impacts and in mediating between environmental concerns and project promoters.

The case studies listed here imply a series of conclusions: first, that in these projects at least, biodiversity concerns are poorly integrated into

Box 4.5 Exceptions to EIA requirements

In Italy, regional authorities have claimed that a few highway projects proposed for Structural Fund financing in recent spending cycles were originally approved in the 1970s, before the EIA Directive came into force, and thus are not subject to EIA requirements ⁽⁷³⁾. (European case law on the EIA Directive is complex but appears to allow such exceptions only if project plans have not been modified since the directive entered into force).

⁽⁷⁰⁾ H. Byron and L. Arnold, RSPB with BirdLife International, CEE Bankwatch, EEB T&E, and WWF, *TEN-T and Natura 2000: the way forward*, November 2007.

⁽⁷¹⁾ One infrastructure project in Madrid was split into 15 separate 'segments'. The Advocate General of the European Court of Justice reviewed the case, determining that an EIA is required — though the case focused not on the existence of many segments but rather on the claim that the project represented an 'urban road' and thus was exempt. See C-142/07, *Ecologistas en Acción-CODA v. Ayuntamiento de Madrid*.

⁽⁷²⁾ Martin Konecny, FoE Europe, presentation, 25 February 2008, Brussels.

⁽⁷³⁾ Yvette Izabel, DG Environment, personal communication, January 2008.

Box 4.6 The Jerez – Los Barrios Motorway

The plans for this highway include almost 40 km running directly through the Los Alcornocales Natural Park, the most important cork oak forest of the Iberian Peninsula and a Natura 2000 site. At the same time, the proposed highway connected two prosperous areas: the Bay of Algeciras and the Bay of Cadiz, providing the main access to the Port of Algeciras (see Map 4.6).

Map 4.6 The Jerez – Los Barrios Motorway through the Los Alcornocales Natural Park



Source: Gestión de Infraestructuras de Andalucía S.A (GIASA), Consejería de Obras Públicas y Transportes. Junta de Andalucía. www.jerez-losbarrios.com/index.html.

The Natural park Los Alcornocales has an extension of about 170.025 ha, and is characterized by the 'canutos', narrow valleys unique in Europe, which contain autochthonous vegetation. The park also has a wide range of animal species, including hawks, deer and bats.

Environmentalists opposed the motorway, calling instead for the rehabilitation of a rail line and improvement of existing roads. After lengthy discussions, the European Commission approved the project following the agreement on extensive infrastructure correction and habitat restoration measures, which amount to about 25 % of the EUR 360 million cost of the highway. In some stretches, these measures exceed 40 % of the costs.

The mitigation measures include the construction of green bridges — when the excavations exceed 10 meters, a tunnel is built and covered with natural soil and vegetation for the passage of

wild fauna. Other measures are crossways, which facilitate the passage of wild fauna underneath. Furthermore, some sound-proof barriers were implemented in critical areas. In total, five green bridges, 17 wild corridors, and 28 paths have been built.

Other measures include improving the habitats for bats, strengthening the population of the imperial eagle, creating botanical gardens and undertaking environmental awareness programmes for the local population.

Despite these measures, environmentalists underline that the highway has covered about 500 ha with tarmac and more than 10 000 trees have been cut down. The highway constitutes a physical barrier — environmentalists claim that the fauna crossways are not effective, since they are in different locations from the corridors the animals have used previously. In addition, archaeological sites have been destroyed.

While the measures reduced negative impacts on the park, the highway itself has helped inhabitants bring to market the cork harvested from the forest, thus supporting the local economy. The highway has also helped to bring nature tourism to the park. This highway has been awarded, by the International Road Federation (IRF), the Global Road Achievement Award in the environmental mitigation category.

project design, perhaps even after national EIA procedures; and second, that national environmental authorities have not, by themselves, been able to ensure proper integration.

In Andalusia, two major projects proposed for EU financing threatened significant impacts on biodiversity and the Natura 2000 network: these are the La Breña II dam and the A-381 Jerez-Los Barrios Motorway. In both cases, after the protests from

NGOs and lengthy discussions with the European Commission, Spanish authorities identified compensation measures and EU funding was approved. For the La Breña II dam, the European Commission set stringent contingents for the approval of the project (see Boxes 4.6 and 4.7).

In the case of Galicia, the example is wind farms in Natura 2000 sites. From the 135 wind farms existing in 2006, 35 were situated in sites proposed

Box 4.7 Biodiversity compensation measures for the La Breña II dam

The La Breña dam was built in the 1960s near Cordoba in Andalusia to harness the River Guadiato for irrigation, particularly in the summer. The La Breña II dam expands the existing infrastructure four-fold, but will inundate hillsides of cork oaks, almond trees and flowering rosemary habitats used by the lynx, considered to be the most endangered mammal in Europe. The Breña II dam would in particular flood one of the last corridors between the fragmented lynx populations in Spain, and environmentalists warned that it would create a threat of their extinction.

These hillsides are a Natura 2000 site within the Sierra de Hornachuelos natural park (about 1 % of the park will be flooded), and also a bird protection area and part of a UNESCO Biosphere Reserve. Rabbits had been introduced to provide prey for the lynxes, as a measure to conserve the felines.

In 1999, Spanish environmentalists petitioned the European Parliament and Commission to block the dam, arguing that the Cordoba area already counted about 15 dams and that significant amounts of water were lost through leakage: conservation measures could thus save the water that then could be supplied.

The European Commission opened proceedings against Spain for possible infringement of the Habitats Directive. Spanish authorities stressed that there were imperative reasons of overriding public interest for building the dam and eventually proposed a substantial package of compensatory measures, as per Article 6(4) of the Directive. In December 2004, the EC closed the infringement proceedings, approved the dam and agreed to Community co-financing for this project under the ERDF.

The total cost of the project is estimated at about EUR 292 million, 50 % of which is to be financed by EDRF and the remaining support to come from the user fees — mainly paid by farmers. Construction started in 2005. The mitigation measures are estimated to cost about EUR 30 million, 10 % of the total, include the following actions:

- improving habitats in 15 parcels totalling 2 000 ha in and around the Hornachuelos Natural Park to replace the flooded areas;
- strengthening the rabbit population in these areas to ensure adequate prey for the lynxes;
- scientific studies; and
- a visitors' centre and a plant nursery.

The funds for the compensatory measures will be used over 20 years, to ensure that the work and monitoring continue.

for the inclusion in the Natura 2000 network. Both Galicia and Andalusia are reviewing this issue, with the introduction of the 'wind farm' indicator in important bird areas.

4.6 Effectiveness of spending

In terms of inputs, in the 2000–2006 cycle, two Objective 1 regions in Italy appear to have dedicated a high level of resources to biodiversity protection. No monitoring data or indicators are available in Italy to link Structural Fund spending to biodiversity. Therefore, the analysis proposes to introduce an indicator of resources to support Natura 2000 sites, based on resources going to municipalities with 75 % or more of their territory covered by Natura 2000 sites. It is necessary to review this proposed indicator for its accuracy

in terms of assessing Structural Fund support for its biodiversity and its value for use in other countries.

The analysis shows that regions in Italy supported biodiversity, in particular through their Operational Programme-stipulated measures for 'ecological networks' and through Integrated Territorial Programmes (the PITs). The review of spending in Campania reveals two specific concerns. First, only a small share of budget planned for 'ecological networks' was geared towards biodiversity protection as such. The main share of these resources went to promote tourism, build facilities for visitors and stimulate the development of jobs and small enterprises linked to natural areas. However, in principle, these activities can support biodiversity by stimulating sustainable economic activities linked to the quality of protected areas.

The second concern is that only a small share of Campania's resources for 'ecological networks' was allocated by the end of 2006. This suggests that the region has had difficulties with the absorption capacity for this area of spending (see Chapter 6 for a further discussion of absorption capacity).

At the same time, the analysis shows that even if the Structural Fund support biodiversity protection in Campania was at a low level, it is still comparable to the level of support provided by the EU LIFE-Nature Programme.

The analysis does not allow any general conclusions regarding the effectiveness of Structural Fund spending in terms of biodiversity protection. Nonetheless, case studies in Andalusia show successful examples of biodiversity protection supported by the Structural Funds.

No similar case study examples were available in Campania. Moreover, the region has applied poor indicators for the outputs, outcomes and impacts of its 'ecological network' measures. In many cases, inputs (e.g. the number of projects supported) are used for outputs. Thus, the indicators do not track any impacts in terms of biodiversity.

4.7 Stocktaking

Spending in Italy carried out under the heading of 'ecological networks' and the PITs has sought to combine the conservation of natural, landscape and architectural heritage with economic development. The strategic goals, outlined for 'ecological networks' and for the PITs, mirror the recommendations of the EU 2006 Biodiversity Communication and Action Plan. These recommendations urge the users to integrate biodiversity into territorial development.

Most of Objective 1 regions in Italy have been slow in spending Structural Fund resources on 'ecological networks' and the PITs. The PITs create an additional layer of planning and coordination for an inflexible system of public administration. In slightly different terms, the effort to develop PITs essentially uses Structural Fund spending as a mechanism to undertake territorial planning and development. This effort apparently fills a need. Where it works well, synergies can be created with other planning exercises, such as the socio-economic plans that must be developed by national parks in Italy.

In the 2000–2006 cycle, Objective 1 regions in Italy faced difficulties in programming, planning and

launching the measures for 'ecological networks' and the PITs. Despite the difficulties, the investments made and the experience gained should not be abandoned in the new cycle: rather, these lessons should serve to strengthen the use of the Structural Fund resources to protect biodiversity, thus ensuring implementation of the Biodiversity Action Plan by Italy. In order to improve spending in the current cycle, Italian national and regional governments should co-operate with a detailed evaluation of the successes, difficulties and results obtained in the period of 2000–2006.

In Campania, Structural Funds provide at least as much financial support for biodiversity protection as the LIFE-Nature Programme, but more actions are thus launched. These two EU funding schemes have different goals: notably, the LIFE Programme focuses on innovative pilot projects. Nonetheless, the comparison shows that the Structural Funds have a potentially important role to play in terms of supporting biodiversity.

The resources allocated for nature conservation and biodiversity in the cycle of 2007–2013 reinforce this message, but it is not sufficient in itself: more emphasis must be put on quantitative targets and integrated goals, so that positive impacts on biodiversity could be also made by interventions not focusing on the environment.

The experience in Campania, where spending on 'ecological networks' has been slow, suggests that this region and other parts of the EU may face difficulties related to absorption capacity in this spending area. For example, projects aiming at nature conservation and biodiversity protection are typically small compared to infrastructure projects such as wastewater treatment plants, but nonetheless require careful preparation and, as a result, spending resources in this sector may prove more difficult.

To address these problems and to ensure that Structural Funds support high-quality projects in this area, ENEA plenary members and other agencies should consider launching a multi-year initiative to exchange best relevant practices between the Member States. The initiative should include Interreg and cross-border cooperation programmes, as these can also support biodiversity in addition to Objective 1 Programmes. The broad goal will be to assist Member States in implementing the recommendations for Structural and Cohesion Funds incorporated in the 2006 Biodiversity Action Plan.

An example for such an initiative seems to exist already: in the energy field, projects such as

BACCHUS and PromoScene have promoted effective Structural Fund spending for renewable energy and energy efficiency. These energy projects provide a possible model: they are run by public energy agencies and they seek to strengthen the use of the Structural Funds on innovative renewable energy and energy efficiency projects. The promoters will need to identify resources. One possibility is to use a mix of national resources, Structural Funds and LIFE support.

The case study of Campania demonstrates that the EU system of interventions codes used during the period of 2000–2006 is too broad and does not allow to monitor the impacts properly. It is necessary to consider a revision of this classification, or at least a system of sub-category codes, determined either at an EU or at national level. Campania's indicators for its 'ecological network' measures do not show outcomes and impacts related to biodiversity accurately. This suggests that further work is needed, in Italy at least, on identifying good indicators for the Structural Fund support of biodiversity.

Austria uses project-monitoring indicators for a series of potential environmental impacts, including biodiversity. Other Member States should consider this system. The approach is elaborate — but the process of gathering and reviewing the information will bring the EU goal of integrating environmental considerations into the Structural Fund spending down to the project level. Under Article 17 of the Habitats Directive, Member States are using a common set of indicators to report on the state of their Natura 2000 sites.

The Member States have undertaken commitments to expand Europe's transport networks, in particular through the TEN-T programme. Structural Funds are seen as one important source of financing for this work. The case studies presented here show that such projects can present significant risks to biodiversity. At the same time, project reviews undertaken by the European Commission have in some cases modified project designs in order to mitigate these risks.

On the one hand, Structural and Cohesion Funds support projects that are potentially damaging — on the other, this support provides a potential lever that may not otherwise exist.

The European Commission should consider ways of strengthening this lever. Three proposals could be considered:

- A small share of fund resources could be set aside to enable independent reviews, for the Commission, of the potential impacts of large projects.
- The Commission could prepare guidelines on good practice in mitigating the environmental impacts of transport and other infrastructure projects; these should provide criteria for the independent reviews.
- For infrastructure projects that are approved, the Commission should ensure that Structural Fund resources were available and used to support any additional costs incurred in preventing and mitigating negative impacts on biodiversity.

5 Energy

5.1 Introduction and context

This chapter focuses on energy efficiency and renewable energy. While the EU has little direct legislation in these two areas, it does have ambitious policy targets ⁽⁷⁴⁾.

The Gothenburg Strategy for Sustainable Development adopted by the EU in 2001 identified climate change and energy as one of its priority areas for action. The Sixth Environment Action Programme (6EAP) and subsequent policy documents ⁽⁷⁵⁾ set targets for the use of renewable energy and for energy efficiency:

- renewables should provide 22 % of electricity production and 12 % of total EU energy;
- energy efficiency should be promoted.

The Gothenburg Strategy and the 6EAP appeared after the start of the 2000–2006 spending cycle for the Structural and Cohesion Funds and after operational programmes had been prepared. Although previous EU policy documents called for greater use of renewable energy and energy efficiency, renewable energy and energy efficiency did not appear to be a core goal in that initial cycle.

In March 2007, the European Council agreed a series of ambitious targets for the year 2020 to combat climate change, complete with an Energy Action Plan for the period of 2007–2009. This decision builds on two key documents by the European Commission: the 2006 Green Paper on a European Strategy for Sustainable, Competitive and Secure Energy, and the 2007 Communication (COM(2007)1) on a new energy policy for Europe. The aim of the second document is to start a transition to a low-energy economy, whilst also focusing on security and sustainability of supply. The

Communication sets out a complete set of European energy policy measures ⁽⁷⁶⁾.

Key targets include:

- to create a competitive internal energy market and ensure security of supply;
- to reduce greenhouse gas emissions by at least 20 % by the year 2020 as part of the EU strategy for limiting climate change (COM(2007)2);
- to reduce energy consumption by 20 % by the year 2020, as set out in the Action Plan for Energy Efficiency (2007–2012);
- based on the EU Renewable Energies Roadmap, to increase, by the year 2020, the proportion of renewable energies in the overall energy mix up to 20 %;
- to develop new energy technologies.

While some of these targets appeared in previous Commission and EU policy documents, the Council endorsement gave a much higher priority to these EU policy goals.

The EU Member States vary considerably in terms of the share of renewable energy in their total primary energy supply. The three case study countries are, actually, at the high end of the scale: renewable sources provide over 15 % of energy supply in Austria and over 10 % in Italy and Spain (see Map 5.1).

Energy efficiency/renewable energy storyline

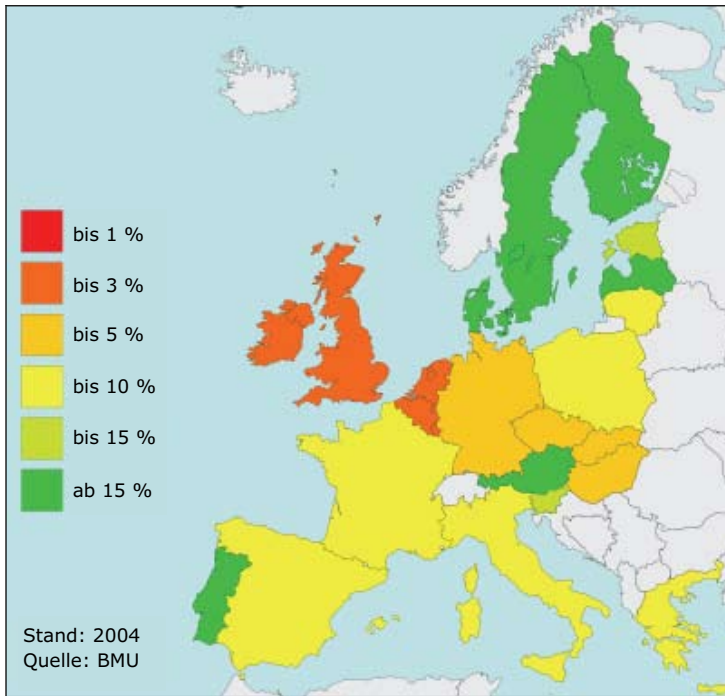
Financing renewable energy and energy efficiency was not a main priority for the Structural and Cohesion Funds in the cycle from 2000 to 2006. In Spain, commitments were only 0.2 % of the Structural Fund resources, under the Intervention Codes for renewable energy and energy efficiency.

⁽⁷⁴⁾ One important piece of legislation, in particular for the public support in this area, is Directive 2001/77/EC on the promotion of electricity from renewable energy sources in the internal electricity market.

⁽⁷⁵⁾ Key documents and legislation for energy efficiency include: Action Plans for Energy Efficiency 2000–2006 (COM(2000)247) and 2007–2012 (COM(2006)545); Green paper on Energy Efficiency (COM(2005)265); the Intelligent Energy — Europe programme 2007–2013; and the Global Energy Efficiency and Renewable Energy Fund (COM(2006)583). Four renewable energy policies and legislation include: Renewable Energy Roadmap (COM(2006)848); Directive 2001/77/EC on the promotion of electricity from renewable sources; Biomass Action Plan (COM(2005)628); EU strategy for biofuels (COM(2006)34); Directive 2003/03/EC on the promotion of the use of biofuels or other renewable fuels for transport; as well as the Intelligent Energy — Europe programme and the Global Energy Efficiency and Renewable Energy Fund, noted above.

⁽⁷⁶⁾ As one of the implementation measures, the European Commission launched in early 2008 a proposal for the development of a directive on the promotion of energy from renewable sources.

Map 5.1 Share of renewable energies in primary energy consumption in EU-25 Member Countries in 2004

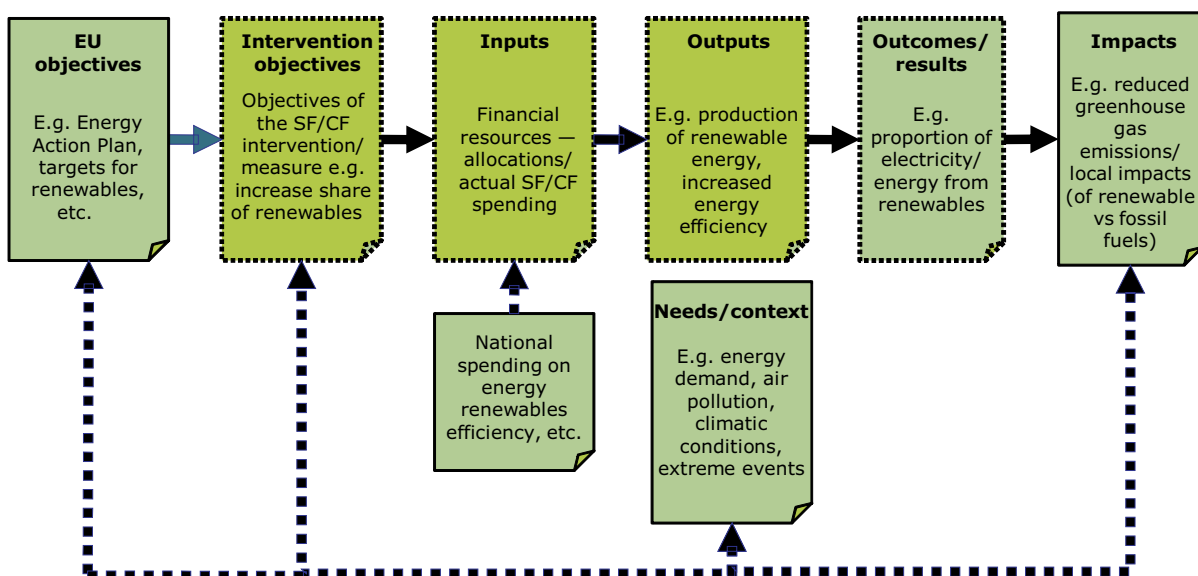


Source: BMU, 2007: *Erneuerbare Energien in Zahlen – nationale und internationale Entwicklung*, Berlin, 2007.

In Italy, the level was slightly higher – 0.7 %, while Austria committed over 1.1 %, making this a higher priority. Austria also allocated additional resources under the spending categories of assisting enterprises with environmental technologies.

In principle, a basic assessment of the effectiveness of spending in this area would compare spending with the results in terms of new generating capacity or in terms of energy efficiency. Figure 5.1 illustrates an ideal evaluation storyline for the renewable energy.

Figure 5.1 Renewable energy storyline



Source: EEA, 2008.

Data varied across the three case study countries: notably, only Austria had data on both spending on renewable energy and energy efficiency, and the projected results in terms of new capacity, and in particular, in terms of the reduction in greenhouse gas emissions.

The analysis of the situation in Austria starts with the data on spending in four categories of the EU intervention codes:

- 152 Environment-friendly technologies, clean and economical energy technologies (support for large firms);
- 162 Environment-friendly technologies, clean and economical energy technologies (support for small firms and craft businesses);
- 332 Energy from renewable sources;
- 333 Energy efficiency, co-generation and energy control.

Austria uses a significant share of resources under the first two spending codes to support energy efficiency and renewable energy at enterprises.

The spending data is compared to project results. In Austria, all Structural Fund projects provide data in several areas, including:

- production of solar and biomass energy in MJ/year;
- reduction in CO₂ emissions.

These data can be compared with the overall increase in renewable energy to derive an estimate of the share of new capacity supported by Structural Fund spending.

Structural Fund projects in Austria do not report their overall reduction in energy use. They do, however, provide the following data:

- reduction of use of fossil energy in MJ/year;
- reduction in CO₂ emissions.

The two indicators are closely related, as CO₂ reductions result from savings in the consumption of fossil fuels. The second indicator is particularly useful because it provides results in terms of the EU policy goal of reducing greenhouse gas emissions.

In Italy and Spain, financial data are available for the Structural Fund spending on renewable energy and energy efficiency:

- 332 Energy from renewable sources;
- 333 Energy efficiency, co-generation and energy control.

However, little data are available on such outputs, so a comparison with the overall increase in the Structural Funds spending is difficult.

Finally, some information was obtained from the PromoScene project that promotes the innovative use of the Structural Fund resources for renewable energy and energy efficiency. While this project is still ongoing, the initial results already provide some lessons regarding different approaches to supporting energy efficiency and renewable energy.

5.2 Austria case study

Policy context ⁽⁷⁷⁾

Austria has strongly supported renewable energy and energy efficiency. Since the 1980s, renewable energy providers have consistently covered more than 20 % of gross energy consumption. Most of this production was from two sources: hydropower and biomass, in particular for heating ⁽⁷⁸⁾. In 2006 in Austria, renewable sources provided 22 % of the country's energy, with hydropower and biomass each providing approximately half of this total.

65 % of Austria's domestic electricity production now comes from renewable sources ⁽⁷⁹⁾. As a result, Austria has one of the lowest levels of CO₂ output per GDP in Europe. In recent decades, Austria has set ambitious targets for renewable energy and energy efficiency.

Since 2003, the production of electricity from renewables has been supported under the national Green Electricity Act through feed-in tariffs that guarantee favourable returns ⁽⁸⁰⁾. The feed-in tariffs are financed by two sources: the electricity dealers and suppliers must purchase a certain quota of electricity from renewable energy sources for a fixed price ⁽⁸¹⁾ and consumers must pay a supplement

⁽⁷⁷⁾ Much of the information for this section has been provided by Gottfried Lamers, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management (personal communications: April and May 2008).

⁽⁷⁸⁾ www.advantageaustria.org.

⁽⁷⁹⁾ www.globe-net.com.

⁽⁸⁰⁾ Dr Andrea Jamek, Austrian Energy Agency, personal communication (March 2007).

⁽⁸¹⁾ Currently 0.0647 euros per kilowatt hour (EUR/kWh) for small hydropower and 0.1033 EUR/kWh for other renewable sources.

to the network tariff. The original subsidy was equivalent to approximately EUR 3 billion.

The Environmental Subsidy Scheme, for example, spent over EUR 75 million on climate-related projects in 2006 and over EUR 80 million in 2007.

The klima:aktiv programme supports climate goals by fostering the introduction of environmental technologies and services. It works in four main areas: energy efficiency and building, transport and mobility, local and regional activities, and renewable energy. This programme provided about EUR 7 million for 22 projects in 2007. For example, the klima:aktiv house programme has developed criteria for low-energy/high-comfort housing, aiding Austria's *länder*, which are responsible for the

housing sector, to improve their subsidy schemes for insulation.

Private resources also have an important role. In order to improve supply security, the Austrian electricity industry is planning to invest EUR 11.5 billion by 2015: renewable energy and energy efficiency form part of the investment plans. Austria's total energy consumption has increased steadily since the 1970s. This trend continued in the period from 2000–2006, which saw a further 18 % increase (see Table 5.1).

The production of renewable energy has largely kept pace with the increase in energy consumption: thus, it has remained slightly over 20 % of the total. In absolute values, the consumption of

Table 5.1 Share of renewable energies in total energy consumption during 2000–2006 in Austria (ktoe)

	2000	2001	2002	2003	2004	2005	2006	Average annual increase
Total energy consumption (national level)	29 323	30 927	31 403	33 068	33 289	34 396	34 598	
Consumption from renewable sources	6 941	7 052	7 115	6 618	7 135	7 335	7 758	
Share of renewable/total consumption	23.7 %	22.8 %	22.7 %	20.0 %	21.4 %	21.3 %	22.4 %	
Annual increase in consumption of renewable energies		111	63	- 497	517	200	423	136

Note: 1 ktoe = 1 000 toe; 1 toe = 0.041868 TJ.

Source: Austrian Energy Agency, 2007 (Annual Report 2006, Vienna).

Table 5.2 Structural fund support for renewable energy and energy efficiency by region (million EUR)

Region	EU funds	National co-funding	Regional co-funding	Total
Burgenland	0.6	0.8	0.0	1.4
Niederösterreich	4.2	4.7	0.3	9.2
Oberösterreich	1.4	1.8	0.6	3.9
Salzburg	1.0	1.3	0.0	2.4
Steiermark	4.5	4.3	0.3	9.1
Tirol	2.1	2.1	0.9	5.1
Vorarlberg	1.4	1.3	0.6	3.3
Niederösterreich	2.3	2.6	0.8	5.7
Oberösterreich	1.2	1.2	0.2	2.6
Salzburg	0.6	0.7	0.0	1.3
Steiermark	0.3	0.3	0.0	0.7
Tirol	0.5	0.4	0.3	1.2
Vorarlberg	0.4	0.4	0.0	0.8
Total commitments	20.6	22.0	4.0	46.6

Source: KPC, elaborated by EEA/ETC-LUSI.

renewable energies has increased from 2000 to 2006 by 136 kilotonne of oil equivalent (ktoe) (or 5 671 terajoules [TJ]) per year.

Whereas the overall consumption of renewable energies in Austria has increased since the 1970s, the shares of the individual sources have undergone some changes. In particular, the share of hydropower fell from over 60 % of all renewable sources to under 45 % in 2004, while the share of biomass and biogas has increased from less than 3 % in the 1970s to over 25 % in 2004.

Structural Fund spending on renewable energy and energy efficiency

Austria supported renewable energy and energy efficiency with four intervention categories. The total support from these categories is over EUR 45 million; national and regional co-financing provided more than half of this total (see Table 5.2), approximately EUR 5 per inhabitant. It should be noted that the financing for environmentally friendly technologies in enterprises included support for projects in other areas, including wastewater reduction⁽⁸²⁾. In total, Structural Fund support co-funded over 1 000 projects (the projects

in enterprises were co-financed by the recipients; other projects may have received other public and private co-financing).

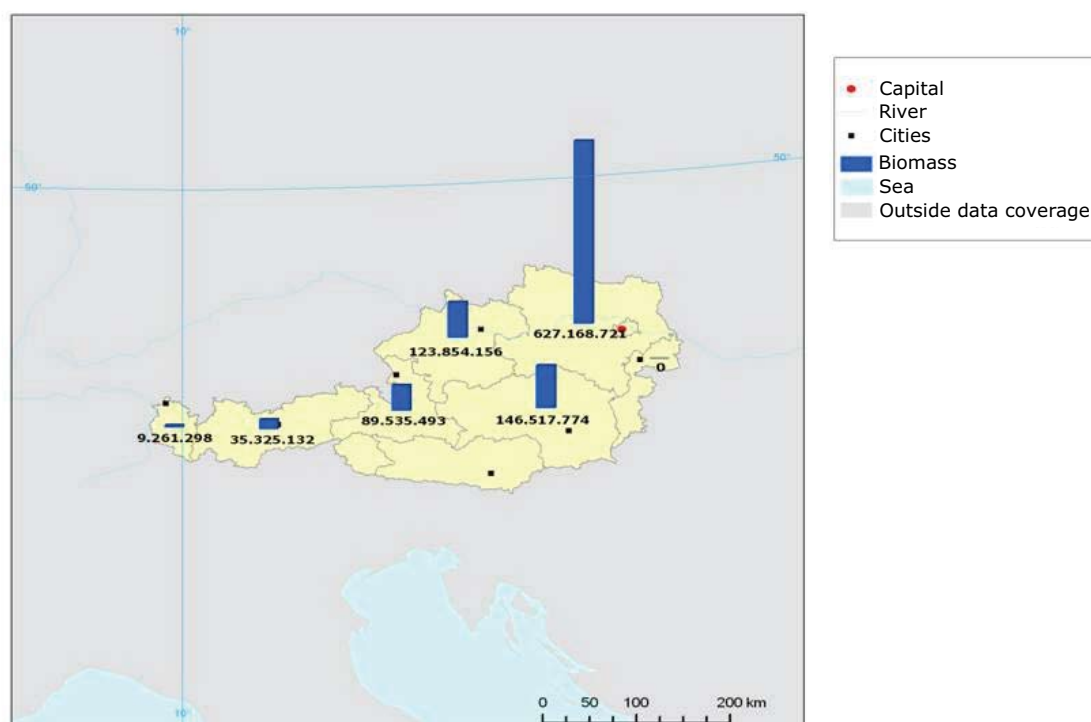
In comparison, Austria's national and regional sources (i.e. separate from national and regional co-financing of Community Structural Fund resources) spent approximately EUR 300 million to support projects on renewable energies and energy efficiency. Thus, financing from the Structural Funds is equivalent to approximately 15 % of Austria's domestic public financing in this area.

In most cases, both Structural Funds and national resources are used to co-finance projects, often in the private sector. On average, a 20 % subsidy for project costs is provided.

Increase in renewable energy generated

The main output in terms of renewable energy will be an increase in the use of biomass, including for heating. In energy terms, the increase in output of biomass accounts for about 98 % of the total new production. The projects supported by Structural Fund spending bring a total of almost 1 billion MJ per year in new biomass production (see Figure 5.2). One

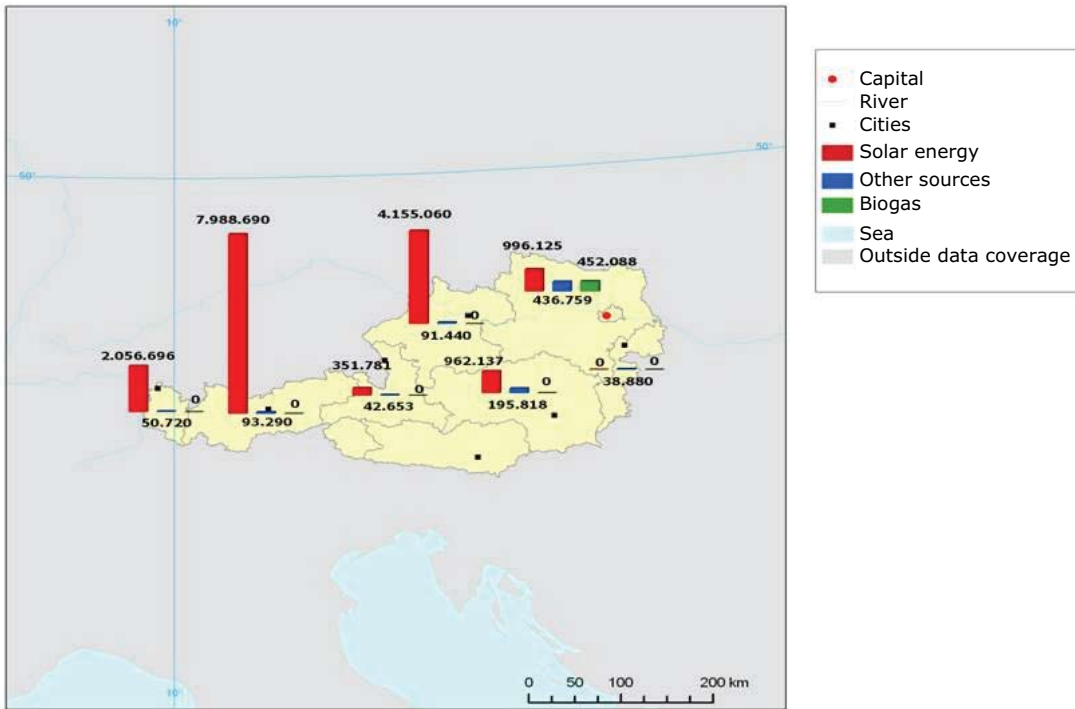
Figure 5.2 Increase in production of biomass from Structural Fund projects in Austria (megajoule/annually)



Source: KPC, elaborated by EEA/ETC-LUSI.

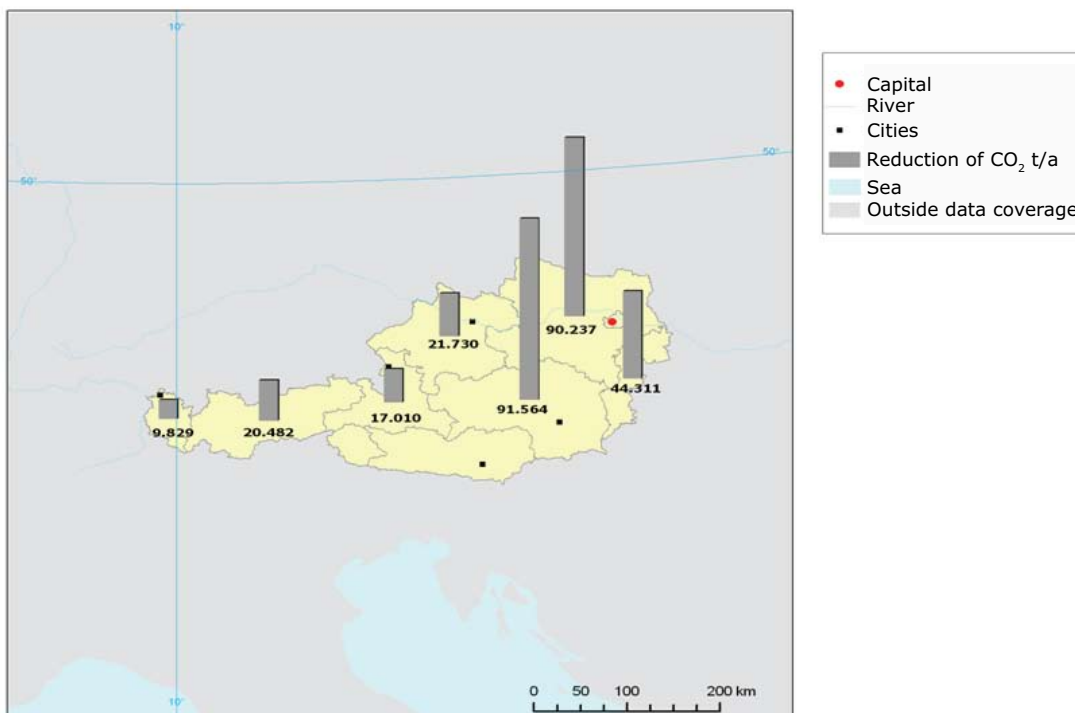
⁽⁸²⁾ Data are not available on the support solely for energy efficiency and renewable energy from these two categories.

Figure 5.3 Increase in production of solar energy, biogas and other energy sources from Structural Fund projects in Austria (megajoule/annually)



Source: KPC, elaborated by EEA/ETC-LUSI.

Figure 5.4 Results of Structural Fund spending: reduction in Austria's CO₂ emissions (tonnes/annually)



Source: KPC, elaborated by EEA/ETC-LUSI.

region, Niederösterreich, accounted for almost 60 % of the total new capacity.

In comparison, new production from the next renewable source is far lower: approximately 16 million MJ per year of solar energy (see Figure 5.3). For this source, production increased in particular in Tyrol and Oberösterreich.

The third area of new renewable production is biogas. Here, the results are only about 0.5 million MJ per year. In sum, between 2000 and 2006 the Structural Funds supported the installation of new renewable energy production capacity with a total volume of 1 049 TJ. This represents approximately 18 % of the total new capacity for renewables in this period ⁽⁸³⁾.

Reduction in CO₂ emissions

The Austrian monitoring data does not provide separate results for energy efficiency projects. Considering both renewable energy and energy efficiency, however, the projects supported by Structural Funds resources led to a decrease in Austria's CO₂ emissions of almost 300 000 tonnes

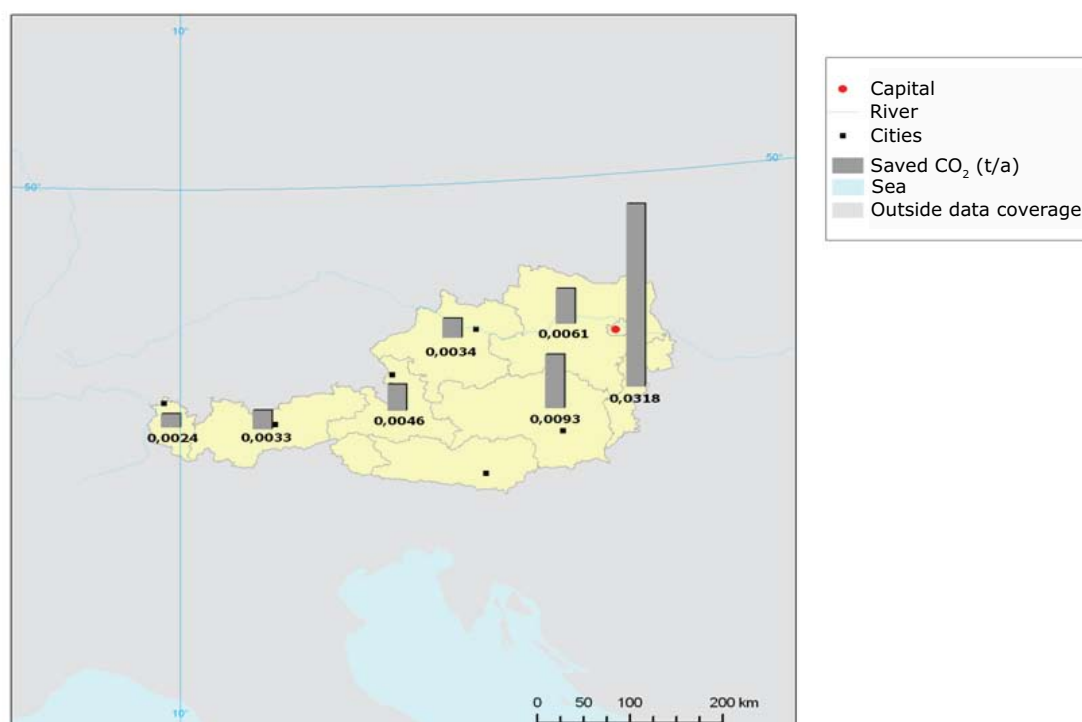
per year (t/a). The largest reductions were seen in two regions; Niederösterreich and Steiermark (see Figure 5.4).

The data also allow an overview of the CO₂ savings per euro of fund spending. Here, the results show that the cost of CO₂ emissions reduction (in tonnes per year) varies greatly across the regions (see Figure 5.5). The costs are lowest in Burgenland, Austria's only Objective 1 region.

One reason for these differences may lie in the fact that not all of the spending goes to energy efficiency and renewable energy projects: as a result, the share for energy investments and the share for other environmental technologies may vary across the regions. Other differences, such as the relative financing for biomass or solar projects, may also have an influence.

A further analysis of the spending programmes in the different regions would provide some further results. Notably, the International Energy Agency's (IEA) 2007 energy survey of Austria commented that investments for CO₂ reduction may be more effective

Figure 5.5 Cost-efficiency of Structural Fund spending in terms of reducing CO₂ emissions (tonnes/annually)



Source: KPC, elaborated by EEA/ETC-LUSI.

⁽⁸³⁾ Estimate by EEA/ETC-LUSI. This estimate was calculated indirectly, based on the increase in total renewable consumption.

Box 5.1 Structural Fund support for local energy autonomy

In the late 1980s the area around Güssing, in south Burgenland, was one of the poorest in the state and in Austria, with a high unemployment rate. In 1990, the municipality decided to become completely energy autonomous, a goal that it reached about a decade later, in part through support from Structural Funds. The town now supplies itself with renewable energy, mainly biomass from surrounding forests. In addition, this project created new local jobs.

in energy efficiency than renewable energy. A review of the relative share of the different projects across Austria's regions may help to test and corroborate the IEA's conclusion.

In comparison, Austria's national and regional public spending for renewable energy and energy efficiency in this period led to an estimated reduction of CO₂ emissions of 3 million tonnes per year. Thus, the Structural Funds contributed a further 10 % of Austria's total CO₂ reduction.

In addition, the Structural Funds supported innovative projects: for example, in Burgenland these resources helped both to promote jobs in one town and also to establish its energy independence (see Box 5.1).

Overall, according to Austrian authorities, spending has created about 2 600 jobs and over EUR 150 million in annual economic returns ⁽⁸⁴⁾.

5.3 Italy case study

Policy context ⁽⁸⁵⁾

Italy has one of the lowest energy intensities (measured in terms of energy used per unit of GDP) of EU Member States. The IEA reports that

while policies that promote energy efficiency — many of them implemented by regional governments — play a part, the main reasons include high prices for energy and a relative lack of heavy industry. Italy's energy intensity has declined steadily in recent decades — however, household energy consumption has grown steadily, about 1 % per year in the 1990s, while commercial energy use has grown rapidly, about 4 % per year.

In 2000, renewable energy sources provided just over 5 % of Italy's energy supply. Nearly all renewable energy came from two sources, hydroelectric and geothermal power. In 2002, Italy moved away from the fixed, feed-in tariffs for renewable power, a system that had been in place for a decade, to a system based on minimum quotas, which was expected to be more cost effective. Separately, the government provided subsidies for the development of some renewable sources, including about EUR 100 million for photovoltaics. Also, biofuels received an exemption from excise tax.

By 2005, renewable energy had increased slightly, to just over 6 % of total national supply. Sources such as wind energy, municipal waste incineration and biomass had become important new sources of electricity generation.

Table 5.3 Production of electricity from renewable sources in Italy in 2005

	Municipal waste	Industrial waste	Primary solid biomass	Biogas	Geothermal	Hydro	Solar photovoltaics	Wind
Gross electricity generation (gigawatt hours [GWh])	2 619	170	2 166	1 197	5 324	42 927	31	2 344
Share of renewable sources	4.6 %	0.3 %	3.8 %	2.1 %	9.4 %	75.6 %	0.1 %	4.1 %

Source: IEA energy statistics, www.iea.org (accessed July 2009).

⁽⁸⁴⁾ Gottfried Lamers, Austrian Federal Ministry of Agriculture, Forestry, Environment and Water Management, presentation to the April 2008 Italian National Agency for New Technologies, Energy and the Environment (ENEA) meeting (Ljubljana).

⁽⁸⁵⁾ The main source for this section is: IEA, *Energy policies of IEA countries: Italy 2003 review*, 2003.

Over the period 2000–2006, all of Italy's Objective 1 regions increased their total production of renewable energy. In total, the production of electricity from renewable energy increased at least 10 % in the six regions, from about 5 900 GWh/year in 2000 to over 6 600 GWh/year in 2006 (see Figure 5.6). Note that this data is not directly comparable with the data in Austria, which covers all energy: here, data is provided only on electricity production. Note that the actual increase is probably slightly higher, as data are not available for all sources in all regions.

Between 2000 and 2006, wind energy production increased significantly in several regions, including Campania, Apulia and Sardinia (2000 data on production were not available in Basilicata and Sicily). Biomass production increased sharply in Apulia and Calabria. In all regions but Apulia and Sicily, hydroelectricity production increased slightly.

Overall, solar energy provided only a tiny part of the mix: solar accounted for about 0.01 % of electricity generation in these regions in 2000. While 2006 data are available for only two regions, the increase appears to be small. The use of solar water heating is expected to be more widespread than solar electricity generation.

In 2000, renewable energy sources provided about 7.8 % of electricity production in the six regions. Although renewable energy increased over the period, its share of the total fell to about 7.1 % in

2006, due to an even faster increase in electricity generation from fossil fuels.

Among the six regions, renewable energy production grew most quickly in Calabria and Basilicata (see Map 5.2).

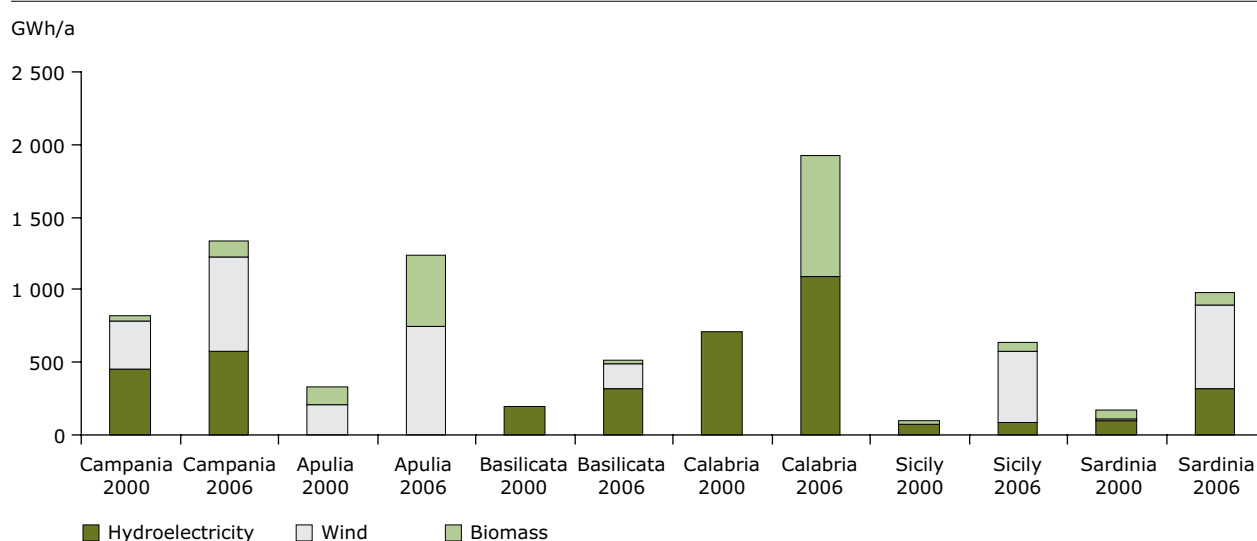
Structural Fund spending on renewable energy and energy efficiency

Italy's Community Support Framework for 2000–2006 identified two main goals in this sector: aid to investment in renewable energy; and support to improve energy efficiency and savings. The Framework notes that support will involve public–private partnerships.

In the 2000–2006 cycle, Italy committed about EUR 340 million of Structural Fund resources for renewable energy in Italy's six Objective 1 regions, and a further EUR 63 million for electricity network efficiency and energy savings. In total, this represents about EUR 20 per capita in the six regions. Table 5.4 shows a breakdown of these regional commitments.

Each region supported a different mix of energy fields. Solar energy received the largest share of the money, and all the Objective 1 regions except Sardinia supported solar projects. Most of these were small, with an average size of about EUR 20 000. Although only two regions, Campania and Sicily, supported wind energy projects, their funding made wind the second-largest renewable supported. One region,

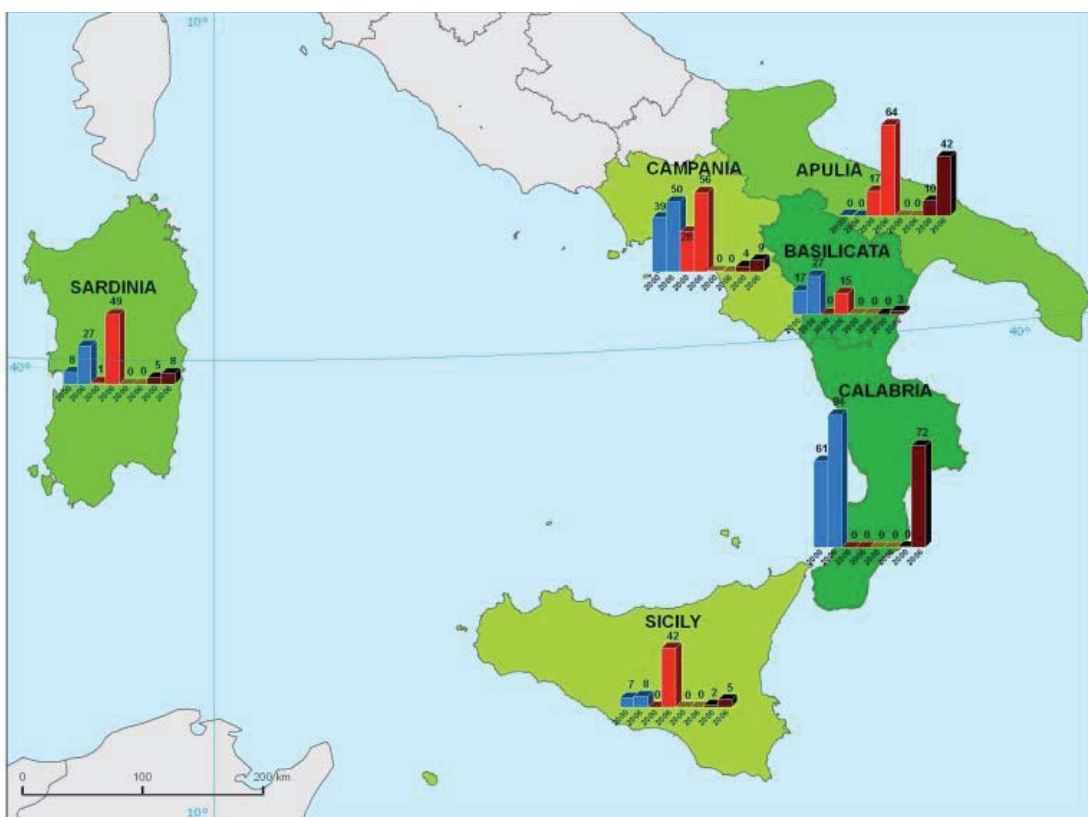
Figure 5.6 Production of renewable electricity in Italy's Objective 1 regions: 2000 and 2006 (gigawatt hours/annually)



Note: Production of electricity from solar power is negligible.

Source: Energy System Manager, elaborated by ISPRA.

Map 5.2 Increase in the share of renewable energy in Italy's Objective 1 regions: 2000 and 2006



Energy production from renewable sources in six Objective 1 regions, 2000 and 2006
 Increase of energy production from renewable sources (over demand) 2000–2006. The values over the bars are in Ktep.

Hydroelectric	Up to 3 %
Biomass	3–7 %
Wind	7–16 %
Solar	Outside data coverage

ETC LUSI
 European Environment Agency

Source: EEA/ETC-LUSI and Ministry of Health, Italy.

Table 5.4 Structural Fund spending for renewable energy and energy efficiency in Italy's Objective 1 regions (total budget commitments, 2000–2006 cycle, million EUR)

Region	Biomass	Wind	Solar	Hydroelectric (especially small hydroplants)	Network efficiency and energy savings	Total budget
Apulia	20.9		8.4		2.9	32.1
Basilicata			14.7		5.4	20.0
Calabria			29.6	1.8	43.7	75.0
Campania	27.5	71.8	20.2	0.5		119.9
Sardinia			20.2	19.9		19.9
Sicily	33.8	35.9	55.8		11	136.6
Total budget	82.2	107.7	128.6	22.1	63.0	403.5
Number of projects	14	19	6 303	5	282	

Source: IGRUE-MONIT database (at 31 December 2006), elaboration by Ministry of Economic Development Public Investment Evaluation Unit (UVAL) (data for intervention Codes 332 on renewable energy and 333 on energy efficiency).

Calabria, devoted the largest share of its energy support for network efficiency and energy-saving projects ⁽⁸⁶⁾.

The regions also followed different strategies in terms of the types of projects, according to the plans set out in their Operational Programmes. For example, Sicily's programme foresaw direct assistance to large enterprises and SMEs installing new capacity, both for connection to the grid and for direct use. Several regions, including Basilicata and Calabria, planned to use the money for information campaigns. In general, however, the original measures provided very broadly written spending plans.

Many Italian regions also used Structural Fund money to improve the efficiency of their electrical grid, for example with the modernisation of sub-stations. Calabria's programme also allocated resources for the improvement of the region's natural gas network.

Although Table 5.4 only focuses on intervention Codes 332 and 333 for renewable energy and energy efficiency, Italy's Objective 1 regions have also supported these projects through other spending lines. In Sicily, a measure providing support to small and medium-sized industrial enterprises

and consortia allowed financing for a variety of environmental investments, from waste water treatment to renewable energy. In Basilicata, a measure for waste management included waste-to-energy activities.

Public entities were among the recipients of funding. In Basilicata, the funds supported the installation of solar panels for municipal road lighting. In Calabria, solar panels were installed in schools.

In Sardinia, spending was only on small hydroelectricity projects. The funds are supporting a total of four projects, with a foreseen capacity of 44 MW. Separately, the region's much smaller spending to support environmental technologies in SMEs includes energy investments, such as the installation of photovoltaic panels.

Most of Italy's Objective 1 regions have been slow in spending the Structural Fund resources they have committed for renewable energy and energy efficiency: on average, the regions had spent only half of the total commitments by the end of 2006. Sardinia had spent less than 10 % of its resources, and Campania less than 20 %. Campania in fact re-allocated about 20 % of its original budget for renewable energy to other areas of Structural Fund

Table 5.5 Renewable energy capacity supported by Structural Funds in Calabria, 2000–2006 cycle

	MW installed (end 2006)	MW planned (end 2008)
Photovoltaic	2.4	0.03
Wind energy		4
Mini-hydroelectric	0.03	5
Biomass		15

Source: Calabria region, *Rapporto Annuale di Esecuzione 2006*.

Table 5.6 Renewable energy projects supported by Structural Funds in Campania, 2000–2006 cycle

	Projects foreseen	Projects completed (end 2006)	Projects underway (end 2006)
Solar	220	61	256
Wind	20	2	13
Hydroelectric	7	0	3
Biomass	18	1	6

Source: Campania Region, *Rapporto Annuale di Esecuzione 2006*.

⁽⁸⁶⁾ Note that the category of network efficiency includes modernisation of the electric grid, and it is not possible to isolate these projects from energy-saving measures (for example for households and firms).

spending. Only one region, Basilicata, had spent more than 60 % of the total (this region actually increased Structural Fund resources for the sector over the course of the spending cycle).

Renewable energy and energy efficiency results

Consolidated information on the results of spending on renewable energy and energy efficiency in Italy are not available, but annual reports provide some information. Calabria, for example, installed 2.4 MW of solar panels through 2006, and its Operational Programme (OP) foresees capacity in other areas as well (see Table 5.5). While these data, from the region's 2007 annual report, include the OP plans for wind and biomass capacity, by the end of 2006 the region had not committed any money in this area.

Thus, it appears that the Structural Funds did not lead to a significant increase in renewable energy capacity, at least in 2006. In contrast, however, Calabria's overall consumption of renewable energy increased markedly; consumption of biomass alone rose by approximately 800 GWh/a between 2000 and 2006.

Campania's annual reports provide data on the number of projects completed and under way, but not on their generating capacity (this does not appear to be a monitoring indicator for the region). While relatively few projects were completed by the end of 2006, many are reported under way (see Table 5.6). This is consistent with the region's low level of spending in 2006, as noted above. The data in Table 5.6 apparently refers mainly to small projects.

5.4 Spain case study

Policy context

Energy consumption in Spain increased by more than 3 % per year between 1999 and 2004 (see Figure 5.7), though in 2006 it saw its first decrease, by 1 % compared to 2005. Spain imports most of its fuel, mainly in the form of oil and natural gas.

Spain has developed several legal and policy documents on renewable energies and energy efficiency. Some of the most important are the Plan for Renewable Energies (2005–2010) and the Strategy for Power Saving and Efficiency (2004–2012), the National Plan of Allocation of Emissions (R. D. 1866/2004 and R. D. 60/2005).

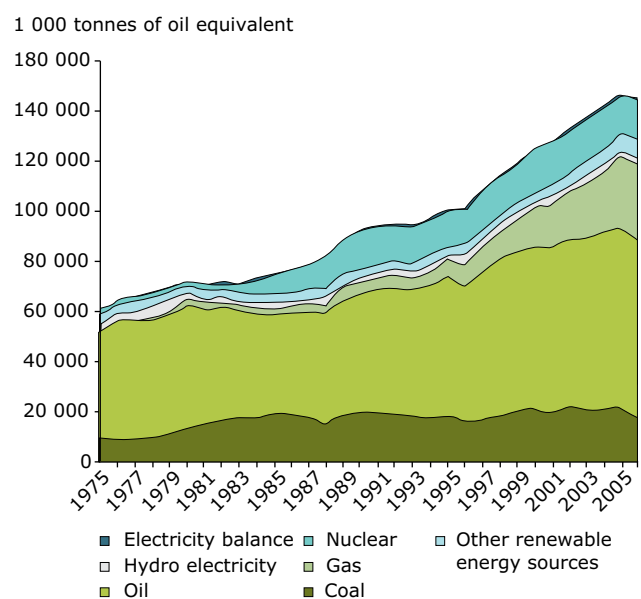
To stimulate energy efficiency and promote biofuels, Spain established a tax on several hydrocarbons in

2002 to address their environmental costs. In addition, incentives and regulated prices are used to encourage the development of renewable energy. One example is the 50 % reduction in corporate tax for companies located away from densely populated zones that use renewable energy or co-generation. According to the Renewable Energy Plan, fiscal incentives together with investment assistance have been effective in promoting the development of renewable sources such mini-hydro plants, wind turbines and biogas production. In other areas, however, incentives have been less effective in stimulating investment.

Despite an annual increase of 2 200 ktoe of renewable energy production from 1999 to 2004, the sector's contribution to primary energy supply only increased from 5 % to 6.5 % in this period. In 2006, renewable energy provided 19.1 % of total electricity consumption. Spain's 2005 Plan for Renewable Energies calls for these sources to provide 12 % of total primary energy supply and 30 % of electricity by 2010.

In the past, renewable energy production in Spain has been highly dependent on hydroelectricity, and thus on water availability. For example, production in 2004 fell about 7 % compared to the previous year due to water scarcity. As Spain diversifies its renewable sources, however, hydroelectricity is losing its central

Figure 5.7 Evolution of internal consumption of energy in Spain from 1975 to 2006



Source: Observatorio de la sostenibilidad en España, 2007, *Sostenibilidad en España 2007*, available at: <http://sostenibilidad-es.com/Observatorio+Sostenibilidad/esp/PubInd/InformeAnual/>.

role. In fact, renewable energy production increased in 2006, even though water supply was below average.

At the same time, production from only three new renewable energy sources: wind, biofuels and biogas, has increased to reach policy goals. Other sources like small hydro, biomass and solar plants have not reached the objectives of the National Plan for Renewable Energies ⁽⁸⁷⁾.

Even though renewable energy has grown, the rise in energy consumption has also brought a sharp increase in Spain's greenhouse gas emissions: in 2003, Spain's greenhouse gas emissions were 40 % above their 1990 levels, far higher than Spain's Kyoto limit of a 15 % increase.

The growth of renewable energy is projected to save 7 million tonnes of CO₂ emissions in 2010, and the Strategy for Power Saving and Efficiency (2004–2012) expects to save a further 190 million tonnes of CO₂ emissions.

Energy consumption has increased in both Andalusia and Galicia. In Andalusia, consumption per capita rose by 17 % between 1999 and 2006 (see Figure 5.8). On top of this, the region's population grew by about 8 %, to just over 8 million in 2006. In contrast, energy consumption is lower in Galicia, just under 0.5 ktoe/year per inhabitant in 1999, but it increased by 17 % between 1999 and 2006.

In Galicia, hydropower provided the largest share of renewable energy in 2000, but its production in 2006 fell by more than half, due to water supply problems (see Map 5.5). In contrast, wind energy generation increased by more than four-fold, to almost 500 ktoe/year, due mainly to new capacity. According to official data ⁽⁸⁸⁾, Galicia is the 6th most important region worldwide in terms of wind energy production. In 2005 Galicia produced about 50 % of the consumed energy, and discounting hydropower this percentage becomes 32 % ⁽⁸⁹⁾, corresponding mainly to wind and biomass. Energy from biomass also rose. In summary, total energy produced by renewable sources increased between 2000 and 2006, despite the sharp drop in hydroelectricity.

The generation of hydroelectricity also fell in Andalusia, though total production in 2000 was

less than one-tenth the level in Galicia. In contrast, biomass provides by and far the largest source of renewable energy, over 600 ktoe in 2006 (here too, production fell from 2000). Despite increases in wind and solar generation, the region's total production of renewable energy fell about by about 10 %.

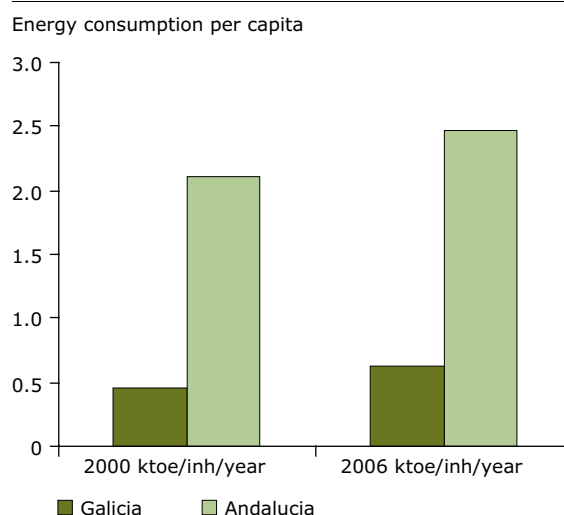
The data on solar energy only covers commercial production, not residential generation. In Andalusia, large solar energy plants have been installed in Tabernas Desert in Almería.

Structural fund spending on renewable energy and energy efficiency

In the 2000–2006 cycle, two measures of regional operational programmes supported renewables and energy efficiency. Both are part of Axis 6 (Transport and energy networks): Measure 6.9: Renewable energies, efficiency and companies energy saving, and Measure 6.10: Help to companies for efficiency and energy saving. Overall these measures represent 1.5 % of the POI ⁽⁹⁰⁾ total budget.

Andalusia committed EUR 18.7 million for renewable energy and EUR 19.6 million for energy efficiency, co-generation and energy control. For the same period Galicia committed EUR 16 million to renewable sources of energy; this represents a

Figure 5.8 Energy production from renewable sources in Andalusia and Galicia, 2000 and 2006



Source: INEGA (Galician Energy Institute) and IAE (Statistical Institute of Andalusia).

⁽⁸⁷⁾ According to the Strategic Evaluation on Environment and Risk Prevention under Structural and Cohesion Funds for the period 2007–2013, National Evaluation Report for Spain, 2006.

⁽⁸⁸⁾ Operative Programme for Galicia 2007–2013.

⁽⁸⁹⁾ Balance Enerxético Galicia 2005, INEGA.

⁽⁹⁰⁾ POI: Spanish acronym for the [regional] Operational Integrated Programme.

significant decrease in the region's original budget plans, which contained over EUR 40 million for renewable energy. Total commitments in each region were equivalent to about EUR 5 per inhabitant.

In Andalusia the focus has been placed on solar panels, photovoltaic systems on remote areas, use of energy resources of agriculture origin, the rehabilitation of hydroelectric plants, the promotion of wind energy and pilot plants for renewable energies (research and development). By the end of 2004 the installed renewable power-generating capacity and the renewable energy production had only reached about 1 % of the 2006 objective.

Regarding energy efficiency, actions have been directed to the improvement of the distribution networks as well as energy efficiency in the production context. By the end of 2004, 33 % of the foreseen companies had been involved in the projects.

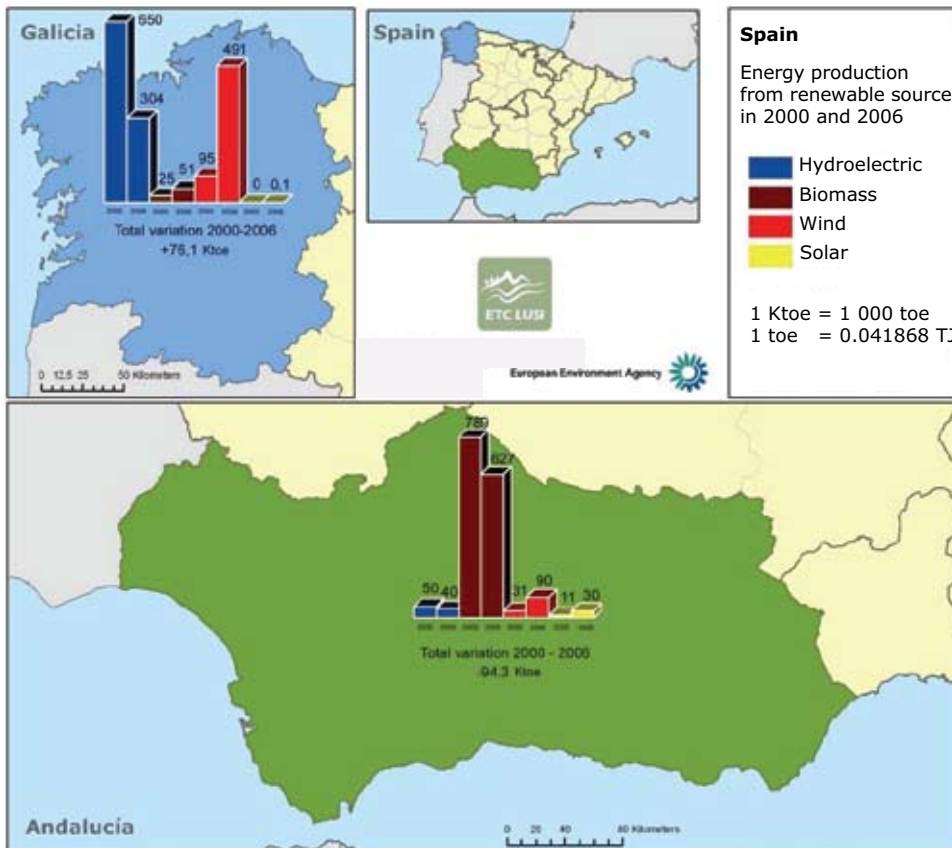
In Galicia the main focus has been on the implementation of the regional wind power plan.

Another priority was biomass. However, by 2004 the consumption of renewable energy was at about 24 % of the objective set for that year, while the installed power was only about 17 % of the target. Only the installation of solar panels had performed reasonably, reaching nearly 70 % of the objective. Due to this poor performance, the region removed more than half of its initial budget for renewable energy, shifting the resources to other measures and axes.

Regarding energy efficiency, the focus in Galicia was the support to SMEs to develop and buy efficient equipment for offices and other spaces. Another focus was investment in energy-efficient technology by industry, energy audits and training, and awareness training to encourage best practices.

While Spain has several public mechanisms to finance renewable energy and energy efficiency, including tax breaks, the Structural Fund resources are comparable to the level of direct support provided by the national government. Spain's Plan for Renewable Energies (2005–2010) foresees about EUR 20 million in direct

Map 5.3 Energy production from renewable sources in Andalusia and Galicia, Spain, 2000 and 2006



Note: Total production variation from renewable sources inbetween 2000 and 2006.

Source: Agenda Andaluza de la Energie; Instituto Enerxético de Galicia; EEA/ETC-LUSI, 2008

support over this period, approximately the same level as Structural Fund support in Andalusia from 2000 to 2006.

In 2004, Galicia had only three indicators above 50 % of those planned for the period: about 6 000 solar panels had been installed, corresponding to 68 % of those planned for the period, 80 % of the foreseen sub-stations had been built, and the amount of available renewable energy was about 76 % of that predicted. In turn, Andalusia at the end of 2004 had effectiveness indices of about 1 % regarding installed power and electricity production from renewable resources, and about 39 % of the predicted number of houses received power provided by renewable energies. This indicates the difficulties encountered in implementing plans for renewable energy projects.

5.5 The 2007–2013 spending cycle

Austria is greatly increasing Structural Fund spending for energy efficiency — matching a similar focus for domestic resources. Improving the efficiency of heat pumps is one priority.

In all three case study countries, the resources dedicated to renewable energy and energy efficiency have increased in the 2007–2013 cycle, both in terms of euros and share of total Structural Fund resources (see Table 5.7).

In Italy, the new spending plans foresee a more than six-fold increase in support for renewable energy and a 15-fold increase in support for energy efficiency. Moreover, Italy has established a national Operational Programme (OP) for energy in the new

spending cycle. This national programme provides a clearer set of objectives and actions for Italy's greatly increased Structural Fund resources in the sector. In particular, the national programme responds to three problems noted in the 2000–2006 spending cycle:

- a lack of shared programming among the regions;
- weak links with other actions for the environment;
- few economic and social impacts, and little attraction of private investment.

The new National OP for renewable energy and energy efficiency is intended to provide a common strategy for the sector across Italy's Objective 1 regions. The national strategy will focus on three goals: links with other Structural Fund interventions, in particular in protected areas; improving infrastructure; and raising awareness among citizens and in local administrations. Each region will develop its own energy plan in line with the strategy.

The OP identifies several impact indicators, two of which are currently used in Austria: consumption of fossil fuels avoided and reduction in CO₂ emissions.

Spain will use about 30 % of the EU funds on Objective 1 and Objective 2 regions on transport and energy in 2007–2013⁽⁹¹⁾. However, most of this will target the transport sector.

According to the OP documents for 2007–2013, Andalusia intends to use about 1 % OP funds

Table 5.7 Structural Fund resources for renewable energy and energy efficiency: comparing the two spending cycles

Category	Spain		Italy		Italy	
	EUR	% of Structural Funds	EUR	% of Structural Fund	EUR	% of SF
Renewable energy						
2000–2006 cycle (commitments)	56.9	0.12	161.8	0.53	15.9	0.97
2007–2013 cycle (budget allocations)	167.8	0.48	1 057.7	3.80	24.2	2.01
Energy efficiency						
2000–2006 cycle (commitments)	41.6	0.09	48.6	0.16	3.0	0.18
2007–2013 cycle (budget allocations)	147.6	0.43	793.8	2.85	5.9	0.49

Note: Community resources only.

Source: DG Regional Policy, April 2008.

⁽⁹¹⁾ Marco Estratégico Nacional de Referencia 2007–2013.

for renewable energy (0.6 % for solar and 0.3 % for biomass), 0.6 % for energy efficiency and co-generation, and 0.15 % in clean urban transportation. Galicia will use about 1.3 % of the OP funds for renewable energy (0.7 % for solar and 0.6 % for biomass), 0.64 % for energy efficiency and co-generation, and 1.15 % in clean urban transportation. The regions do not provide any sums for wind energy, which may be linked to fact that this is a mainly private market.

5.6 Effectiveness of spending

The three case study countries have quite different policy contexts for renewable energy and energy efficiency. Austria has long supported these areas with national funding, and has set ambitious goals in terms of increasing renewable energy and energy efficiency. Spain also has a clear policy framework, though it appears to devote significantly fewer public resources. In contrast, Italy does not appear to have a clear policy context.

The inputs in Austria (for the whole country) and Spain (for Galicia and Andalusia) were equivalent to approximately EUR 5 per inhabitant. Inputs were higher in Italy, approximately EUR 20 per inhabitant in the Objective 1 regions.

Austria has used its Structural Funds to co-finance projects in renewable energy and energy efficiency in enterprises, and also to launch innovative pilot projects, such as the use of biomass in Güssing.

In Italy, the Objective 1 regions have used their Structural fund resources in quite different ways — some to support projects in municipal governments, others to provide co-financing to large commercial wind farms (apparently the case in Campania), and others to promote mini-hydroelectric plants. Overall, Italy appears to have lacked a clear national strategy for Structural Fund spending in this category; moreover, the Operational Programmes do not contain clear priorities or goals for the sector.

In the Objective 1 regions of Spain, while the investment on renewable energies was directed towards the resource considered adequate in each NUTS2 — wind in Galicia, solar in Andalusia — according to regional plans, the results were not significant due to increase in overall energy consumption accompanied in Andalusia caused by a considerable increase in population. A significant portion of the energy efficiency was directed to industry and SMEs.

In Austria, Structural Fund resources have been used effectively to increase renewable energy production and reduce greenhouse gas emissions. In total, fund resources supported just under 20 % of new renewable energy generation in Austria, and led to a reduction of almost 300 000 tonnes of CO₂ per year.

In Italy and Spain, little information was found on outputs and outcomes. In Italy, these indicators vary from region to region. While one region in Italy, Calabria, tracks the new renewable energy capacity supported by Structural Funds, another region, Campania, has indicators that track the number of projects but not their capacity.

5.7 Stock-taking

The EU has given greater importance to achieving climate change objectives. Structural Fund spending is one instrument in this broader goal. With increased support for renewable energy and energy efficiency, Member States and the European Commission need to pay more attention to monitoring and evaluating the results of spending.

For the EU, support for renewable energy and energy efficiency has a key role in terms of supporting climate change goals. For this reason, the indicator used in Austria — reduction in CO₂ emissions — provides a key measure for all Structural Fund projects and programmes working in this area. Investments in renewable energy and energy efficiency should directly lead to reduction in CO₂ emissions, although the Operational Programmes may have other goals that they seek to achieve through these investments — for example improving enterprise technology and promoting economic development and jobs. Nonetheless, reducing CO₂ emissions should be a result of any investment in this area.

Innovative programmes have supported other goals, including innovation in SMEs, job creation and energy autonomy/security at local and national levels. Evaluation will need to adopt a sophisticated approach in order to assess results and impacts in terms of these wider areas.

In the three case study countries, biofuels were not an important area for Structural Fund spending in the 2000–2006 cycle. Evaluations of the 2007–2013 cycle should consider this sector.

Structural Fund support for renewable energy and energy efficiency can often involve co-financing projects with the private sector. While this study has

not analysed leveraging, this will be an important topic for future evaluations of effectiveness and cost-effectiveness.

Another topic that warrants attention is the durability of projects. This can be a concern, in particular for small-scale projects, such as those in rural areas and for households.

Finally, future evaluations should look for information on unintended impacts of spending, in particular for renewable energy sources. Promotion of biomass from forests can affect biodiversity; the development of biofuels may have an impact on food prices; some wind and solar projects have been questioned for their impacts on biodiversity and landscape values.

6 Absorption capacity

6.1 Introduction

Absorption capacity refers to the ability of Member States and regions to spend the funding resources they have been allocated. In the 1990s, absorption capacity was a concern across all areas of spending, as some Member States were not able to use all the Structural and Cohesion Fund resources at their disposal.

More recently the European Commission services have been concerned about absorption capacity, in particular for environmental spending. If regions do not have adequate capacity to programme, monitor and complete environmental projects, the money could be transferred to and used for projects in other areas — including projects in potentially environmentally damaging sectors such as road transport.

This section investigates whether such shifts have taken place in the 2000–2006 cycle, focusing on a case study of Structural Fund spending in Italy's Objective 1 regions. Absorption capacity was a concern in these regions in previous cycles. The analysis tests several indicators for measuring absorption capacity:

- a comparison of initial budget plans and actual spending, for environment as a whole and for specific measures under the environment axis;
- an analysis of re-allocations of Fund resources;
- a review of actual spending by year.

The section then briefly compares the results for Italy with data from Spain and Austria. The section uses these results and literature research to propose a methodology for the assessment of absorption capacity, which potentially should help to assess spending capacity in other countries, especially in new Member States, and pinpoint regions or programmes where capacity problems need to be addressed.

6.2 Absorption capacity for environmental projects in Italy

According to one estimate, some regions in Italy spent less than 70 % of the funds allocated in 1994–1999 and only slightly more in the previous cycle, 1989–93⁽⁹²⁾. Regions in several other Member States also had low spending rates in these cycles.

Table 6.1 Share of total Structural Fund budgets spent by Italy's Objective 1 regions, 1989–1993 and 1994–1996

	1989–1993	1994–1999
Abruzzo *	80 %	100 %
Apulia	64 %	77 %
Basilicata	92 %	100 %
Calabria	80 %	84 %
Campania	62 %	80 %
Molise	77 %	99 %
Sardinia	77 %	92 %
Sicily	57 %	75 %
Average	74 %	88 %

Note: * Abruzzo was phasing out Objective 1 in the 1994–1996 cycle.

Source: Milio, 2007.

⁽⁹²⁾ Milio, 2007.

In response to the spending problems seen in Italy as well as in other Member States, the European Commission established new procedures for the 2000–2006 cycle⁽⁹³⁾.

A review of spending in Italy, however, shows that Objective 1 regions had quite different spending rates: they vary from a low 57 % in Sicily in the 1989–1993 cycle to 100 % in Abruzzo and Basilicata in the 2000–2006 cycle. These differences suggest that absorption may not be simply due to the EU procedures.

The explanatory reasons for differences among Italy's regions and the difficulties in achieving full spending levels could be ascribed to problems in administrative capacity (Milio, 2007). Milio (2007) defines administrative capacity in terms of four functions in a cycle: management, programming, monitoring and evaluation⁽⁹⁴⁾. A series of indicators and measures has been developed for each one of these four functions⁽⁹⁵⁾. Based on

these measurements, Milio (2007) finds a close link between low administrative capacity and low levels of spending. For example, the analysis showed that Sicily — the region with the lowest level of spending in previous cycles — had a low level of administrative capacity, while Basilicata, one of the better-performing regions, had a much higher capacity level.

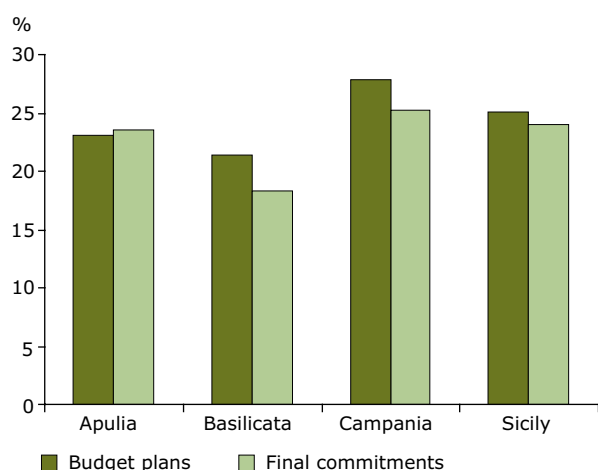
The European Commission reports that problems in absorption capacity diminished in the 2000–2006 cycle in comparison with previous cycles, both in Italy and in other Member States⁽⁹⁶⁾. One of the new developments in Italy is a national network that brings together regional fund management authorities and environmental authorities, as well as the national Ministry for Economic Development and other governmental authorities. This network helps to improve coordination, in particular on environmental projects. Another new requirement is the preparation of Plans for Systematic Cooperation in each region and for each sectoral programme. These plans aim to improve cooperation between environmental authorities and fund management authorities.

Despite the steps taken, does Italy still have an absorption problem — for environmental spending in particular? To understand this issue, the analysis looked at spending focused on the environment and natural resources.

Comparing the level of final budgetary commitments with original plans

All Italy's Objective 1 regions had an axis of spending for the environment, Axis 1 Natural Resources. The analysis considered the overall level of financial commitments for this axis, compared to the initial budget plans. Figure 6.1 shows this comparison in four Italy's Objective 1 regions; in particular, the figure shows final commitments in 2006 (all final commitments had to be made by the end of 2006, though money could be spent in 2007 and 2008). The final commitments thus provide a picture of the final Structural Fund budget, following any shifts among different spending areas (measures and axes).

Figure 6.1 Share of Operational Programme spending for environment in four Italian Objective 1 regions, 2000–2006



Sources: 2000 budget plans taken from Regional Operational Programmes and other documents; 2006 commitment levels provided by the Italian Ministry of Economic Development.

⁽⁹³⁾ These new procedures include the N+2 rule, by which the budget indicated in each financial year from 2000 to 2006 in the Operational Programme must be spent and reported to the European Commission by the 31 December of the second following year: Consequently, all spending in the 2000–2006 cycle must be made by the end of 2008.

⁽⁹⁴⁾ Milio (2007) cites a previous description of administrative capacity by Boijmans ('Building institutional capacity', paper presented at the *Annual Meeting of ISPA Partners, Brussels, Belgium, 9–10 April 2003*) who includes a fifth function, financial management and monitoring.

⁽⁹⁵⁾ For example, Milio's (2007) definition of management includes the extent of coordination among the regional offices working on different sectors. Programming includes the length of time needed to develop a regional Operational Programme. The analysis measures both elements.

⁽⁹⁶⁾ European Commission, *Mapping progress: key findings from the updates of the mid-term evaluations European Cohesion Policy 2000–2006*, February 2007, pp. 11–12 in particular.

The comparison of the initial budgets in four Italian regions with the final level of commitments at the end of 2006 shows that the share of funding for Axis 1 Natural Resources fell over the spending cycle in three regions, and increased slightly in the fourth ⁽⁹⁷⁾.

The data show that, even though the declines in spending are not significant, environmental sectors have lost resources — which presumably have been reallocated to other sectors. This analysis implies that there may be greater absorption capacity problems in this sector ⁽⁹⁸⁾.

To understand possible capacity issues further, the assessment then looked at spending across different environmental sectors.

Re-allocation of resources for key environmental themes

Figure 6.2 compares the initial fund allocations of two environmental sectors — wastewater treatment

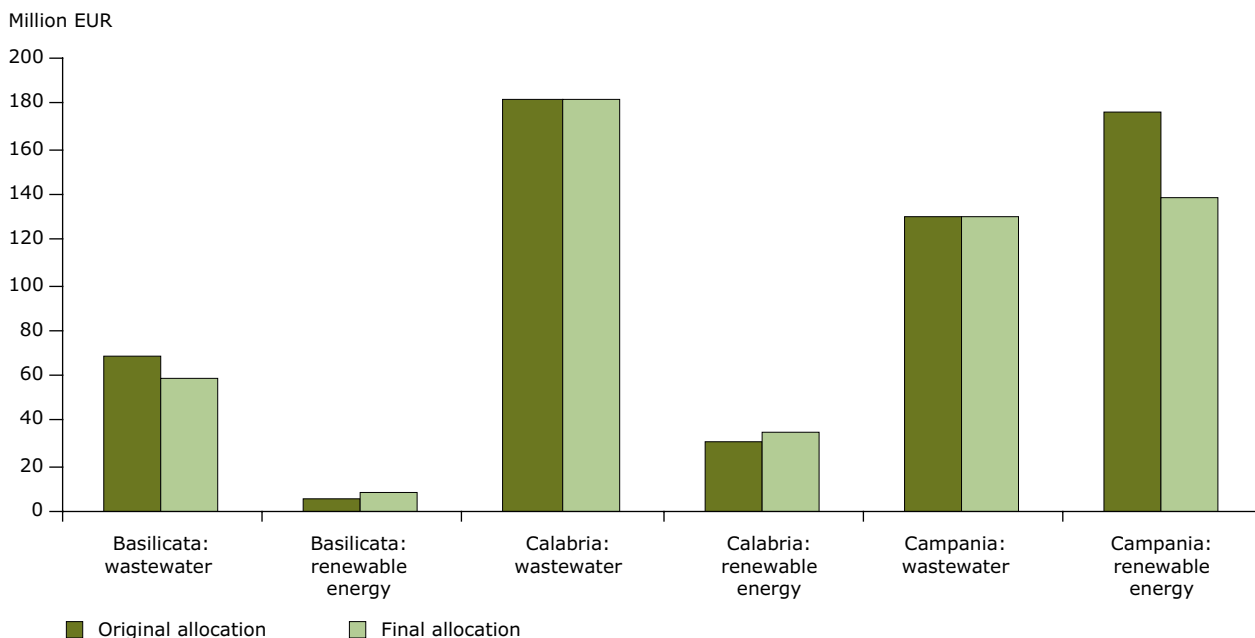
and renewable energy — to final allocations. The data covers three neighbouring regions: Campania, Basilicata and Calabria ⁽⁹⁹⁾.

Overall, this analysis shows a mixed picture for these two sectors. In Basilicata and Calabria, resources for renewable energy increased over the spending cycle. On the other hand, Campania cut its much larger resources for this sector. Basilicata slightly reduced its resources for wastewater treatment; the other two regions did not change their allocations in this sector.

Trends in actual spending for key environmental themes

Figure 6.3 reviews the share of fund resources actually spent by mid-2006 across specific measures under Axis 1 in Italy's Objective 1 regions. (While each Operational Programme defined its own measures, national guidelines ensured a common set of approaches across the different regions, and thus these measures are by and large comparable.)

Figure 6.2 Original and final fund allocations for wastewater treatment and renewable energy in three Objective 1 regions



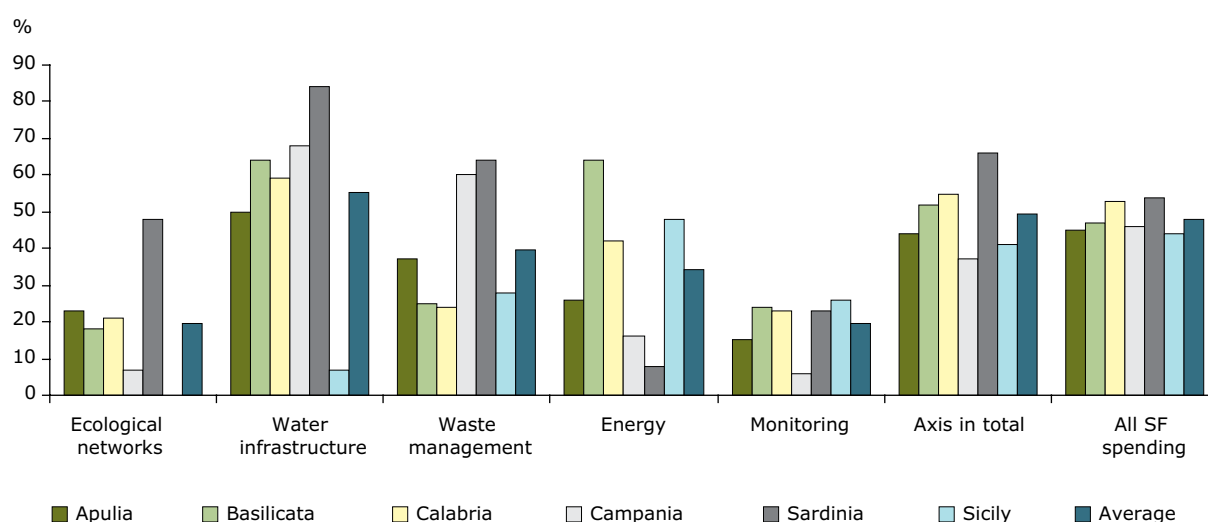
Source: European Commission (DG Regional Affairs).

⁽⁹⁷⁾ For Italy's other two Objective 1 regions, Calabria and Sardinia, the original 2000 budget plans were not available.

⁽⁹⁸⁾ The data are presented in terms of shares of the total rather than absolute amounts. This is because all four regions projected an important share of private co-financing in their total Structural Fund budgets, typically around 20 %. In their final commitments, the private contributions were far lower: for example, in Campania only about 1 %. As a result, the total amount of money fell, and thus the total funding for Axis I also fell even more sharply than foreseen. Part of the decrease in the environmental shares may be due to greater falls in private co-financing for projects such as wastewater treatment plants and waste management facilities.

⁽⁹⁹⁾ The data provided includes Community resources and national public resources, but not private sector resources, which were listed in the original budgets of the regions (see previous note).

Figure 6.3 Share of budget actually spent in Italy's Objective 1 regions for selected environmental measures (data till August 2006)



Notes: Averages are not weighted by the size of regional fund budgets. The specific titles and approaches for the measures are set by the regions and thus may vary. For Campania, 'ecological networks' is a sum of three measures.

Source: IGRUE/Ministry of Economic Development, Italy.

A review of available data shows that for five of the six regions, the share of money actually spent by mid-2006 in Axis 1 was comparable to the share spent in general for all interventions under the Structural Funds. In a couple of regions, most notably in Sardinia, a larger share of Axis 1 resources were spent. The only exception is Campania, which spent 46 % of its overall Structural Fund budget by mid-2006 but only 37 % of its Axis 1.

Moreover, for one traditional area of projects — water infrastructure — spending was well advanced in all regions (with the notable exception of Sicily): spending levels exceeded the average spending across regional programmes. The data is provided for the measure 'water systems': in most regions, this measure includes wastewater treatment, and also urban drinking water supply; in some regions, rural water supply is also included.

On the other hand, spending for another infrastructure-oriented theme, waste management, varies greatly. Here, the Italian national government required all regions to prepare Waste Management Plans before spending in this area. A strategy should be an important step in order to ensure that money is spent effectively and efficiently across a region. However, in some regions — Basilicata, Calabria and Sicily — this step may have significantly slowed programming.

With regard to spending on renewable energy and energy efficiency — a measure included under Axis 1 — the regions spent an average of only one-third of the budget by August 2006. However, three regions — Basilicata, Sicily and Calabria — were more advanced in their spending rate: for instance, Basilicata had spent almost two-thirds of the funding available. The low rate of spending in Campania echoes the fact that this region re-allocated some of its support for energy programmes to other areas.

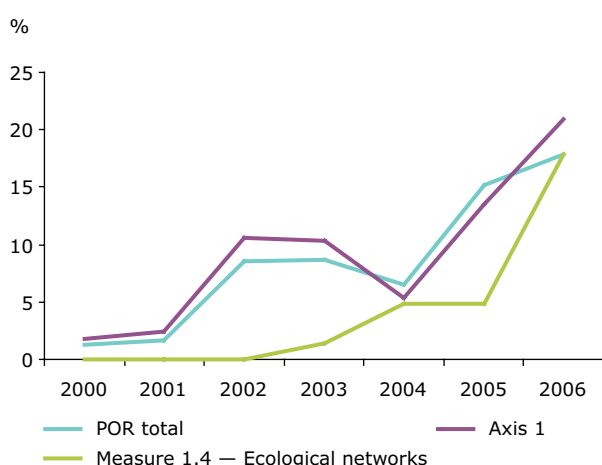
A key result of this analysis is that spending has lagged behind for a number of environmental measures. One of these is ecological networks, a spending measure for most Objective 1 regions, which combines environmental protection and economic development actions (these are described further in Section 6.5 on biodiversity). Under this measure, regions were to fund projects that combined rural development with biodiversity and landscape protection. By August 2006, the regions had spent an average of only 22 % of the budget for ecological networks (note that averages across the six regions are not weighted by the size of regional budgets). The only exception is Sardinia, which had spent almost half of its budget on ecological networks.

Another area where spending lags is environmental monitoring, a key need identified in Italy's *ex-ante* environmental assessment. Here, the average level

of budget spending by mid-2006 was even lower, only 20 %, and no region exceeded 30 %.

For all measures, the pace of spending in the remaining years, up to 2008, is expected to have increased strongly, as regions sought to use all their resources by the end of the N+2 period. The urge to spend a large share of resources in the final years creates a risk of losing efficiency and effectiveness: this concern should be considered in the *ex-post* assessments.

Figure 6.4 Structural Fund spending in Italy's Basilicata Region, 2000–2006



Source: Basilicata region, *Rapporto annuale di esecuzione 2006*.

Spending on environmental networks in Basilicata

An analysis of one region, Basilicata, helps to illustrate the slow pace of spending for one of the soft measures, ecological networks⁽¹⁰⁰⁾. Figure 6.4 shows actual spending from 2000 to 2006 of all Basilicata's Structural Funds budget, Axis 1 and the measure supporting the ecological networks.

Overall, Basilicata spent very little of its Structural Funds in 2000 and 2001. Spending increased in the next two years, but fell again in 2004, only to reach much higher levels in 2005 and 2006. Spending in Axis 1 follows the same trend as the overall budget — actually, spending on this axis, natural resources, slightly outpaces the average. By the end of 2006, the region had spent 60 % of the total budget and 65 % of the budget for Axis 1, leaving the remainder to be spent in the next two years.

Basilicata was much slower, however, in spending the resources budgeted for ecological networks. While spending for this measure increased in 2006, nonetheless by the end of that year over 70 % of the budget remained unused.

This trend — a poor rate of spending for ecological networks — was already seen in Italy's mid-term evaluations of the regional funds. For example, the 2003 mid-term evaluation reported that the rate of spending for strategically innovative measures such as ecological networks and monitoring systems faced the greatest delays⁽¹⁰¹⁾.

Table 6.2 Spending for environmental measures in Andalusia and Galicia, 2000–2004

Measure	Andalusia		Galicia	
	Budget million EUR	Amount spent %	Budget million EUR	Amount spent %
3.1 Drinking water	1 020	38	48	72
3.2 Improving effectiveness of infrastructure and of water	205	42	10	13
3.3 Sewerage and wastewater treatment	76	78	123	76
3.4 Integrated management of urban and industrial waste	9	83	8	50
3.5 Environmental interventions in shore lines	39	119	61	152
3.6 Protection and rehabilitation of natural surroundings	611	40	119	46
3.7 Monitoring, control and reduction of environmental pollution	357	92	5	95
3.8 Regeneration of soil and land areas	17	62	3	74
6.9 Renewable energy and energy efficiency *	21	56	27	91

Note: * This excludes Measure 6.10 Support to energy efficiency and saving in companies.

Source: Update of mid-term evaluation of Andalusia and Galicia. The figures on budgets and spending are rounded.

⁽¹⁰⁰⁾ The measures of ecological networks combine actions for rural development, tourism promotion and biodiversity protection.

⁽¹⁰¹⁾ IZI and ERM, *Ricerca Valutativa sul Tema dell'Integrazione degli Aspetti Ambientali per la Valutazione Intermedia del QCS Obiettivo 1 2000–2006* (Summary Report), November 2003, p. 4.

6.3 Absorption capacity for environmental projects in Spain

Fewer financial data were available for Spain than for Italy. The study of absorption capacity in Spain focused on two Objective 1 regions, Andalusia and Galicia. The mid-term reports for these two regions provide data on the share of the budgets actually spent over the period 2000–2004 (see Table 6.2). For example, both regions spent more than the originally allocated amount for environment on shore lines — in Galicia, this was due in large part to the 2002 *Prestige* oil tanker disaster, which contaminated beaches, cliffs and valuable marine ecosystems. In contrast, spending on water infrastructure effectiveness was low in both regions. Both regions spent about three-quarters of the resources planned for sewerage and wastewater treatment.

The results in Spain do not yield overall patterns similar to those in the Italian case above. In a number of cases, differences between the two regions predominate: Galicia spent far more of its resources for drinking water, while Andalusia spent a higher share of the budget for waste management.

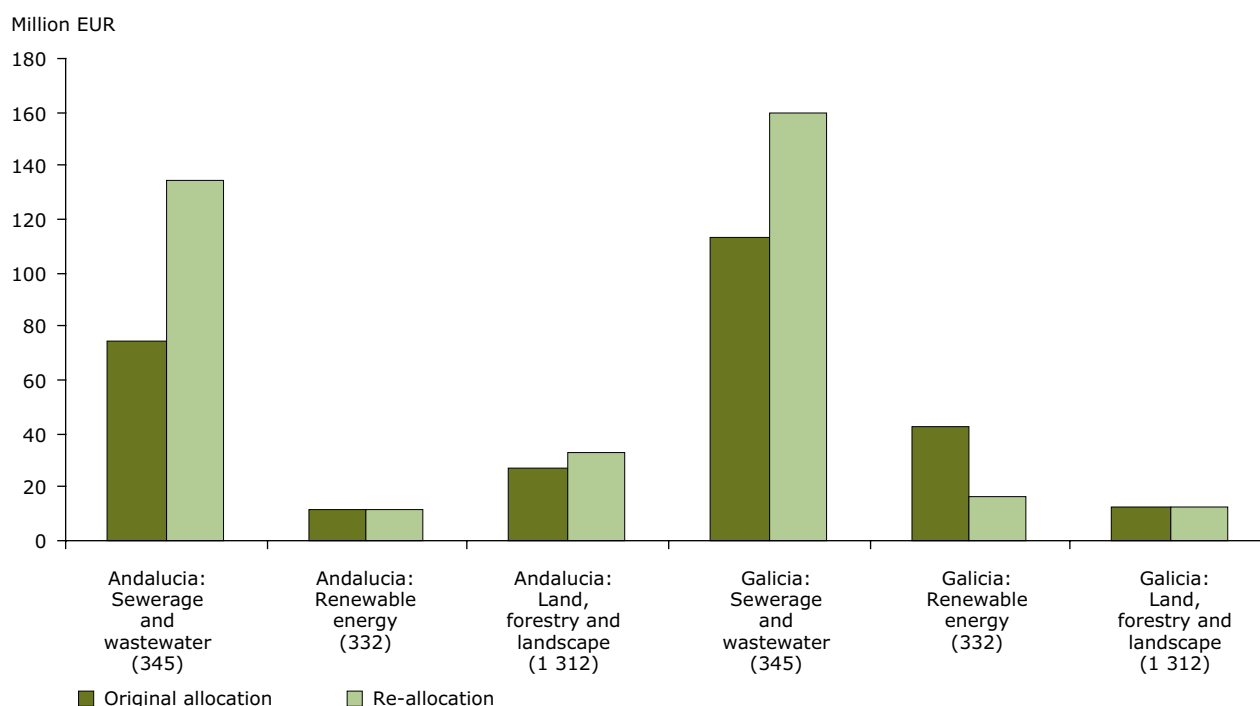
Spain's measures are different from those of Italy. Nonetheless, a few initial comparisons are possible.

Both regions spent a significant share of their budgets for monitoring, control and reduction of environmental pollution (Measure 3.7), an area where Italian regions had some difficulties regarding absorption capacity. However, the two Spanish regions have spent a relatively low amount of their resources in the measure of protection and rehabilitation of natural surroundings (Measure 3.6), an area where Italian regions had also some difficulties regarding absorption capacity.

Different management authorities showed very different levels of spending. Galician regional government had spent 80 % of its resources for 2000–2004 by the end of 2004, while the national authority had spent only 38 % of the budget allocated to this region. In Andalusia, resources from the both the National Ministry of Environment and the two river basin district authorities, were transferred to the regional government for Measure 3.1 (Drinking water) and Measure 3.6 (Protection and rehabilitation of natural surroundings), following a mid-term evaluation recommendation. These transfers indicate that Andalusia had the capacity to absorb additional resource in these areas.

Separate information on initial and final Structural Fund budget allocations provides some conclusions in the two case study regions (see Figure 6.5).

Figure 6.5 Andalusia and Galicia: initial and final allocations of Structural Fund resources for wastewater treatment, renewable energy and land, forestry and landscape protection (2000–2006 cycle)



Source: European Commission (DG Regional Affairs).

These data cover the whole period 2000–2006, and thus somewhat different patterns emerge — to take into account, for instance, that data from the European Commission are structured according to EU intervention codes that may differ from those used to identify the measures in the Operational Programmes in Spain.

Notably, both Galicia and Andalusia increased their Structural Fund resources for sewerage and wastewater treatment over the course of the spending cycle. In contrast, Galicia significantly cut its spending for renewable energy in spite of recommendations in the mid-term evaluations for further efforts to promote renewable energies, while Andalusia did not change its spending here. This does not necessary mean that the cut in spending in Galicia is due to problems in absorption capacity — it may reflect changes in political priorities. Andalusia slightly increased its spending on the protection of land, forestry and landscape (an intervention code that may include support to biodiversity projects).

6.4 Absorption capacity for environmental projects in Austria

A review of five Austrian regions shows that Structural Fund budgets for environmental

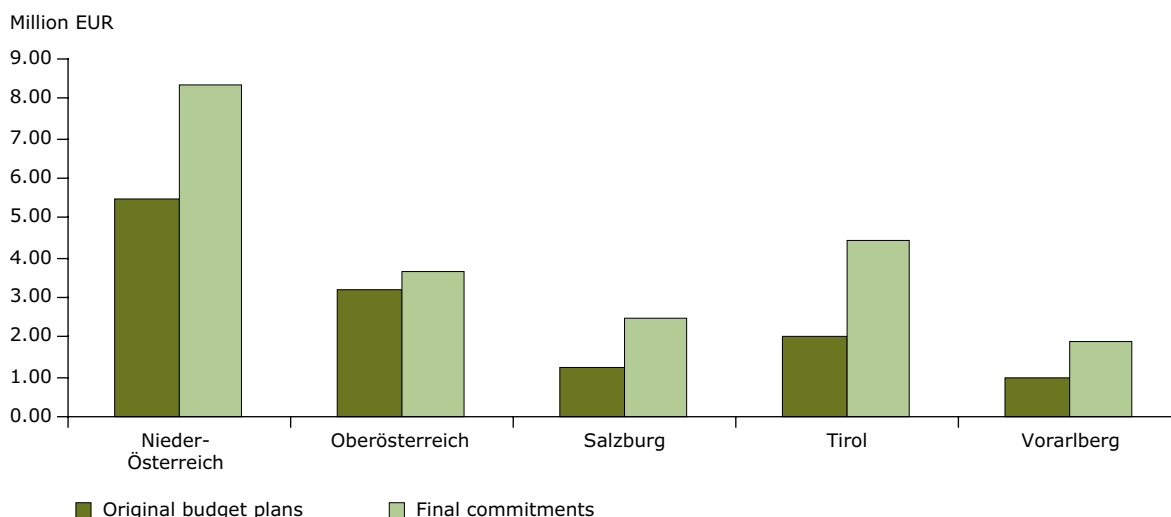
measures increased over the 2000–2006 cycle, due to re-allocations from other spending areas. The increases ranged from 14 % in Oberösterreich to over 100 % in the Salzburg and Tirol regions (see Figure 6.6).

The results in Austria are not directly comparable to those in Italy and Spain. The Austrian regions have a higher level of GDP/capita (actually, the regions were all in Objective 2), while the Italian and Spanish regions were designated as Objective 1. This fact accounts for the first difference in the total allocation of Structural Fund resources, which are substantially lower in Austria.

The most important difference, however, is that Structural Fund spending in Austria is used primarily as a supplement to national funding system, which provides greater resources. In this system, the national Environment and Water Management Fund receives a high number of applications for funding each year, due in part to an active communication with potential public and private beneficiaries⁽¹⁰²⁾. As a result, Austrian Structural Fund managers receive a large number of proposals for environmental projects potentially eligible for Structural Fund resources⁽¹⁰³⁾.

It should be noted that this data for Austria refers mainly to spending that promotes renewable

Figure 6.6 Structural Funds spending on environment in four Austrian regions, 2000–2006



Note: Spending for support to enterprises for environmental improvements, renewable energy and energy efficiency (i.e. spending Codes 152, 162, 332 and 333).

Source: KPC and EEA/ETC-LUSI.

⁽¹⁰²⁾ OECD, *Mechanisms for managing public environmental expenditure in selected OECD countries*, 2006.

⁽¹⁰³⁾ G. Lammers, personal communication (April 2008).

energy and energy efficiency, including investments in enterprises. While this is a sub-set of overall environmental spending, it is also an area where three of the Italian Objective 1 regions have been relatively slow in disbursing funds. One significant reason for the differences between these two countries may be Austria's long-standing policies that give high priority to these sectors. At the same time, these differences suggest that there are still important opportunities to share lessons and models across European countries and regions.

6.5 Developing a methodology to assess absorption capacity

On the basis of the information and results presented in the previous sections, an approach for assessing absorption capacity at regional level is proposed. The approach could also be used to assess spending for specific sectors, including via national programmes.

Background and assumptions

The approach considers that two main factors determine absorption capacity for environmental spending: first, administrative capacity (and in particular, the capacity devoted to administering Structural and Cohesion Fund resources); second, the policy context for environment and related fields, such as spatial planning. The policy context refers to key environmental sectors of spending (air, water, waste, etc.) and the relevant policy objectives, guidelines or legislation. In the case of biodiversity spending, the scope also embraces other related policy areas, such as agriculture and rural development.

Based on Milio (2007) and other sources, administrative capacity in relation to financial management consists of five major stages:

- management;
- programming;
- monitoring;
- financial management and control;
- evaluation and learning.

Administrative capacity is shaped by the administrative habits and traditions across these areas, apart from the legislative frame set by specific rules governing financial management at different administrative levels: national, regional and local. The performance of a region in previous spending cycles can provide an insight into these patterns — though administrations can improve and adapt

their working systems through capacity building and organisational improvements.

Furthermore, each area of environmental financing needs to be based on a clear policy framework. For example, in Italy, the national government required regions to develop strategies for solid waste management before spending Structural Fund resources in this field. Such a requirement — or conditionality — can help address problems in the policy framework.

A key element in spending resources effectively is the existence of a good project pipeline — a strong set of project proposals in which costs, methods and results have been analysed in detail (i.e. not simple project ideas) and which the implementing bodies are capable of managing. Effective communication with stakeholders can help elicit project proposals and help them understand how best to programme fund spending.

A final issue should also be mentioned. The methodology looks at absorption capacity, focusing on environment. Over the course of a spending cycle, national and regional governments may choose to re-allocate resources based on policy changes and political reasons, as well as a result of evaluation recommendations. Notably, national, regional or even local elections can shift political priorities and thus, re-programme public-funded investments. Thus, the resulting increases or decreases in support to environmental spending would not be tied exclusively to administrative capacity.

Quantitative indicators

Financial indicators can provide a key element of analysis. Indicators can describe the overall spending system as well as other quantitative measurements related specifically to absorption capacity.

- Context indicator: total expenditure in previous cycle vs original budget plans (overall and for environment).
- Context indicator: overview of spending in the current cycle by environmental sector; type of project; beneficiary (if possible, in comparison with previous cycle).

The first indicator presents absorption issues in the previous cycle, both overall and specifically for the environment. This provides the context for current spending.

The second indicator describes the overall approach for environment spending in the current cycle.

This will show whether spending focuses on more traditional projects, such as those for infrastructure, or instead on new project areas. These indicators will not capture all changes though; for example, within renewable energy, projects could simply support the installation of new capacity or alternatively they could promote new approaches for energy generation or use.

An analysis of the beneficiaries could complement this overview by showing whether resources are spent mainly for a small set of beneficiaries or whether they are widely distributed.

Finally, a comparison between the current cycle and the previous cycle for these indicators is valuable: it can help show whether spending has evolved in new directions over the course of time. Such an evolution might be expected, as spending resolves initial problems and authorities learn from the results of previous cycles.

Spending capacity

The following indicators focus on the level of spending in the cycle under study:

- expenditure per axis/measure (or EU intervention code) at the end of the programming cycle (N+2) compared with initial budget plan;
- total commitments per axis/measure (or EU intervention code) at the end of the programming cycle (N+2) compared with initial budget plan;
- actual expenditure per axis/measure (or EU intervention code) in each year compared to initial budget plan (environmental sustainability indicator of financial efficiency);
- number and size of financial re-allocations within an axis/measure (or EU intervention code) over the course of the cycle.

All four indicators were tested in the Italy case study and the final one was tested in the case studies for Spain and Austria. These indicators can be used for comparison at two levels. First, within a specific country or region, they can compare lines of spending, both for overall programmes and the measures within them. Hence they can be used to compare overall spending in, for instance, environmental infrastructure and transport infrastructure, or for environmental infrastructure with 'soft' spending lines, such as those for environmental monitoring.

Second, the indicators can compare spending between regions and programmes. This can identify

specific problems in one sector (for example if waste infrastructure has absorption problems in one country), or broader difficulties in terms of administration. All comparisons need to be undertaken with care. Moreover, they should take into account specific national and regional conditions. Indicator-based comparisons can be strongest among regions and programmes within a country, rather than across countries.

The overall goal should not be to rate regions, but to identify strengths and areas for attention in each region. Here, a series of qualitative elements should supplement the indicators.

Qualitative issues in assessing absorption capacity: proposal for a checklist

A close review should consider the factors and conditions that influence absorption capacity. The following checklist proposes a set of potential questions and issues to be addressed in an evaluation of absorption capacity and its interaction with fund spending.

6.6 Stock-taking

This review suggests that Italy's Objective 1 regions have had difficulties in absorption capacity in particular for innovative environmental projects, such as those for ecological networks (integrated spending on environment and development) and for monitoring. In contrast, the review has not identified problems in absorption capacity for traditional environmental infrastructure projects, such as wastewater treatment and sewerage, in either Italy or Spain. The picture is mixed for other spending areas, such as waste management and renewable energy.

Comparisons with Austria are difficult to draw, due to this country's very different circumstances. Nonetheless, the Austrian case study suggests that the effective spending of EU funds is closely linked to effective mechanisms to manage national public resources.

The review of data from Italy's Objective 1 regions shows that disbursements there on projects for ecological networks and for monitoring were much slower than in other environmental sectors: these innovative, 'soft' projects appear to be harder to programme, launch and carry out than environmental infrastructure investments. Similar conclusions cannot be made for Spain, where less-detailed spending information was available.

Box 5.2 Checklist for assessing administrative capacity and other qualitative issues influencing absorption capacity

Management

- Are the roles of the key public offices clearly defined?
- Is there good cooperation among offices, both within a single level of government and in different levels of government (for example local, regional and national)?

European legislation calls for a clear definition of the authorities in charge of fund spending ⁽¹⁰⁴⁾. However, the relationships between different public bodies responsible for developing and implementing environmental policy may not be clearly defined. Moreover, definitions on paper may not always be fully translated into practice. Management, and in particular cooperation among public offices, can be strongly influenced by the organisation model, which refers to the degree of hierarchy, the extent of formal requirements and the level of specialisation for individual employees. Human resource factors, such as the degree of flexibility and teamwork within public offices, may also play a part ⁽¹⁰⁵⁾.

Programming

- Date of approval of the Operational Programme (OP), and total length of the OP drafting period.
- Does the OP provide a clear policy framework (with concrete targeted goals) for each sector, or refer to one (for example to waste management plans)?

In terms of schedule, the planning and discussion to prepare an effective OP may take a long time. However, the late approval of a programme will delay spending. External factors — such as late approval of Community or national programming documents — may adversely affect preparations at the OP level.

The OP needs to provide a clear framework for spending. Ideally, this can be derived from sectoral policies (see below). If neither such policies nor the programme set clear priorities, managers may need more time to plan spending after the OP is approved.

Monitoring

- Can the monitoring system identify programmes and projects that encounter difficulties?
- Do officials have clear procedures for addressing problems?
- Have these been put in place and effectively used?

In all programmes, some projects will not succeed in terms of their original plans and goals. If the monitoring system identifies these and other problems at an early stage, correcting actions must be taken. Without such feedback mechanisms, higher management or political decision-makers may be tempted to cut spending for programme areas in trouble.

Evaluation and learning

- Does the administration have a system to learn from past evaluations?
- Does the administration have a system to train officials on new requirements (for Structural and Cohesion Fund spending on the one hand and for environmental legislation on the other)?

One key issue is that current evaluations are not always connected to the policy cycle — lessons from the previous spending cycle are not available before a new cycle starts. This hinders opportunities to improve spending. Ideally, evaluation should become an integral part of the policy cycle. In the 2007–2013 spending cycle for Structural and Cohesion Funds, this means an ongoing system, linked closely to the monitoring system that in principle supports actions to improve the use of funds during the same programming period.

⁽¹⁰⁴⁾ See, for example, Commission Regulation (EC) No. 483/2001.

⁽¹⁰⁵⁾ Fornez and KPMG, *Organisational and managerial models of European authorities operating in the area of EU programmes*, March 2007.

Box 5.2 Checklist for assessing administrative capacity and other qualitative issues influencing absorption capacity (cont.)

A further issue is that managers will need time to implement new requirements, both those at Community and national level. An effective system for training and learning within public administration can reduce such delays.

Participation

- Has the OP been prepared in a process with broad participation?
- Do officials managing Structural and Cohesion Fund resources have traditional beneficiaries with which they are accustomed to working (for example infrastructure, including environmental and transport)?

Broad participation is expected to improve the quality of an OP. Communication with stakeholders — in particular with potential beneficiaries — should also strengthen the project pipeline: participation can allow an exchange of information on possible project areas and difficulties; through discussion, stakeholders can learn of upcoming funding areas.

While existing beneficiaries may know the system well, overly close relationships can hinder entry for potential new beneficiaries — and, possibly, block more innovative programme areas and project proposals.

Project pipeline

- Do project proponents have resources for project preparation, for example support from Structural Funds or other public financing? Do they have the necessary project management skills?
- Have mechanisms been set up to catalyse project proposals (for example project advisory groups)?

A regular pipeline of fundable projects is needed to ensure that Structural and Cohesion Fund resources are spent. The Funds have spending lines (for technical assistance) that can be used for project preparation⁽¹⁰⁶⁾. Equally important appears to be having mechanisms to elicit project proposals and to communicate with potential applicants⁽¹⁰⁷⁾.

Sectoral issues

- Is there a sectoral plan or strategy in place?
- Does the sectoral plan indicate spending priorities?
- Does the plan identify a specific role for Structural and Cohesion Fund spending (and for other sources, such as local or regional budgets, private financing and others)?

Across different environmental sectors, from water to waste to biodiversity protection, a sectoral plan or strategy will provide the context, priorities and targets for spending. These questions are particularly important for assessments that review specific environmental sectors. The development of sectoral strategies is important not only for absorption, but also to ensure effectiveness of spending⁽¹⁰⁸⁾.

Political issues

- Have political decisions changed OP priorities over the cycle? Have these decisions resulted in changes in spending?

As noted previously, changes in spending patterns over the course of a cycle may be due to changes in political priorities, not only to absorption issues.

⁽¹⁰⁶⁾ Council Regulation (EC) No 1083/2006, Art. 45.

⁽¹⁰⁷⁾ The United Kingdom, for example, has set up a Project Advisory Group to communicate with stakeholders. Source: Robin Smal, 'Good practice for Implementing Structural Funds Programmes and Projects', European Institute for Public Administration, EIPAScope, 2007, No. 3 p. 16.

⁽¹⁰⁸⁾ A European Commission review of selected projects financed by the Cohesion Fund in the 1990s noted that in Greece, the lack of a strategy for wastewater treatment led to inefficient spending. For example projects that suffered from a mismatch between treatment plant capacity and sewerage network size. Ecorys and SGI-Trademco, *Ex-post evaluation of a sample of projects co-financed by the Cohesion Fund (1993–2002) — Country Report: Greece*, undated.

In contrast, the review shows that the two case study regions in Spain greatly increased their allocations for water projects over the spending cycle, while resources remained more or less constant in Italy's Objective 1 regions. For these traditional environmental infrastructure projects, regional authorities and contractors probably already have experience in the programming and implementation of spending plans.

For renewable energy the financial story is quite mixed: in both Italy and Spain, some regions increased their allocations for renewable energy while others cut resources in this sector.

This study does not look in depth at absorption capacity for waste management; however, the results indicate that further study is needed, in particular in Italy. Here, the national government required the development of regional management plans prior to spending in the 2000–2006 cycle, to ensure that money was used effectively. This requirement is an important step forward in better management: indeed, the new Waste Framework Directive (2008/98/EC) now requires Member States to develop waste management plans that singly or in combination cover all their national territories. The poor rate of spending in most of Italy's southern regions (together with recent waste management problems in Naples) suggests that this approach may have delayed spending – implying problems in public capacity to formulate and carry out environmental policy in this sector. This link would reinforce the premise that the absorption capacity (and the effectiveness of spending more generally) for environmental projects and programmes cannot be separated from the environmental policy context.

The difficulty that Italy's Objective 1 regions had in spending resources for innovative environmental projects in these areas is a concern for the current cycle. With the expected success of past and current investments in environmental infrastructure, particularly water supply and waste collection,

spending on the environment should shift away from infrastructure to 'softer' investments. The European Commission has indicated that the sectors where spending should increase include the development of renewable energies, preventative approaches, soil protection, integrated pollution control and awareness-raising⁽¹⁰⁹⁾.

On the basis of these results, ENEA and other bodies should consider follow-up work on this topic across several areas:

- The analysis presented here should be updated and reviewed, once data on the final spending years of the 2000–2006 cycle are available;
- Evaluations of Structural Funds should examine absorption capacity issues, and in particular in relation to environmental projects. These evaluations should examine whether there is a common difficulty across countries in financing 'soft' and innovative projects and spending areas (for example biodiversity);
- A specific evaluation and study could review how different Member States ensure a good pipeline of environmental projects, in particular for the 'soft' and innovative projects;
- It would be useful to review how Member States link monitoring and ongoing evaluation early in the 2007–2013 cycle, to identify examples of best practice as well as countries where the system may need strengthening.

ENEA and other bodies should consider launching initiatives to strengthen Structural and Cohesion Fund spending on the environment. Such initiatives could help Member States to draw lessons from evaluations and studies elsewhere in the EU, as well as to improve their project pipelines and planning across other areas of environmental spending. While these initiatives should focus on assisting the new Member States and others where administrative capacity can be improved, in general all Member States can benefit from the exchange of information and identification of best practices in financial management of environmental measures and projects.

⁽¹⁰⁹⁾ DG, Regional Policy, *Mapping progress: key findings from the updates of the mid-term evaluations European Cohesion Policy 2000–2006*, February 2007.

7 Conclusions and recommendations

The analysis has provided a rich source of information, from which some important findings and lessons can be drawn, including the following:

Spending in the light of the EU Sustainable Development Strategy

In the current spending cycle (2007–2013), the Lisbon Strategy provides a central element of the Community Strategic Guidelines for the Structural and Cohesion Funds. However, the Guidelines also cite the EU Sustainable Development Strategy. A brief review of spending plans shows that the Structural and Cohesion Funds have allocated much larger resources to one of the key areas of the Strategy — climate change and clean energy — rather than to other potential areas of interest, such as green public procurement. The Funds have also shifted their resources from transport infrastructure to, for example, rail projects — though the road projects across the EU continue to receive disproportionate funding compared to other more environmentally friendly investments. Moreover, while the Funds have relatively shifted their spending on transport infrastructure away from roads, neither the rules nor the Guidelines for the 2007–2013 cycle consider the Strategy's call to gradually eliminate environmentally harmful subsidies. Equally, potential negative side-effects of Structural and Cohesion Funds spending on the environment should be further considered in the early stages of programming.

Lesson from the case studies: the role of national and regional environmental policy

The case studies showed that national and regional environmental policy have a key role in terms of creating the framework for effective spending in environmental measures. The overall lesson from the comparison suggests that the most effective spending occurs when environmental policies are developed outside Structural Fund programming, and then fully and clearly incorporated into the programmes as guidance and framework for expenditure.

Evaluating the environmental aspects of Cohesion Policy

Cohesion Policy has spread an 'evaluation culture' throughout the EU, and in particular in many Member States where monitoring and evaluation were not systematically applied. Nonetheless, evaluations are not yet fully embedded into the spending cycle. The introduction of the Strategic Environmental Assessment Directive's requirements in the 2007–2013 cycle should result in greater emphasis on monitoring environmental outcomes and impacts over the programme's implementation. The case studies found a number of difficulties with data and indicators — in particular, those on the environmental impacts of Structural and Cohesion Fund spending. In addition, little information was found on the durability of the project outputs — i.e. whether projects and their results would remain in place after spending has been completed and European funding is over. This is a concern in particular for 'soft' projects, such as those supporting biodiversity.

Mitigating negative environmental impacts

Interventions financed with Structural and Cohesion Funds should avoid any negative impacts on the environment and respect thoroughly the policy objectives of sustainability in balance with socioeconomic objectives. While this may be difficult to ensure completely, the EU should endorse this as a general principle for Cohesion Policy in current and future programming cycles. The European Commission should strengthen its mechanisms for reviewing, among others, transport and infrastructure projects supported by the Structural and Cohesion Funds to ensure that their negative environmental impacts are minimised and compensated with adequate retaliation/restoration measures. In the case of those infrastructure projects that are already approved, the Commission should ensure that Structural and Cohesion Fund resources are available in order to support any additional costs incurred to prevent and mitigate negative impacts on the environment.

Supporting environmentally favourable projects

The review of Structural Fund support to biodiversity and the absorption capacity issues suggests that in a number of cases regions face some difficulties in programming and managing effective spending for biodiversity and other 'soft' areas of environmental protection. To address these problems and to ensure that Structural Funds support effective, high-quality projects, the ENEA members, together with management authorities in Member States and other stakeholders, should consider launching a multi-year initiative to exchange best practice in Structural Funding for key environmental sectors. Building on existing experience and research (as in the projects mentioned on renewable energy and energy efficiency) as well as making use of the possibilities derived from the Territorial Cooperation Objective, innovative ways and platforms for information exchange and benchmarking should be explored.

Improving accessibility to data

This study encountered several difficulties in obtaining appropriate data for analysis. Data available were, in many cases, not uniform in coverage and/or presentation (apart from the obvious linguistic difficulties) and not sufficiently detailed at the geographical level needed for the analysis. In other cases, the problems encountered were mostly related to limitations in data sets derived from national/regional annual reports, monitoring and evaluation documents and indicators, and last but not least, to some restrictions in accessing financial data. The data and information currently presented in strategic and programming documents, annual reports on spending, as well as the evaluation results (including indicators), could be presented in a uniform common web system, more easily readable and available for research, stakeholders and public interest in general.

Reviewing environmentally harmful subsidies

The Sustainable Development Strategy calls on the European Commission to 'put forward a roadmap for the reform, sector by sector, of subsidies

that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to gradually eliminating them'. This roadmap should look in particular at Structural and Cohesion Fund support for transport infrastructure, such as roads and airports. In terms of broader objectives, the Structural and Cohesion Funds should not only address infrastructure needs, but also do so through the promotion of new and more sustainable patterns of mobility within integrated strategies of spatial planning.

Introducing green public procurement

The Sustainable Development Strategy calls for the adoption of green public procurement throughout the EU: it sets the goal of reaching 'by 2010 an EU average level of Green Public Procurement (GPP) equal to that currently achieved by the best performing Member States'.

Cohesion Policy can and should play an important role in achieving this goal. A key first step would be to develop guidelines on green public procurement for the Structural and Cohesion Funds, identifying examples of current best practice in the Member States and promoting green public procurement in the spending by Operational Programmes.

Once these guidelines have been prepared and implemented, the European Commission should undertake a full evaluation of green public procurement in the current spending cycle, with a view to incorporating the guidelines into the Regulations for the next spending cycle.

The specific sectors

In the area of **water** infrastructure, the Water Framework Directive calls for adequate recovery of costs, including financial costs (and also environmental and resource costs). A move to greater cost recovery (where appropriate) may also improve the cost-effectiveness of investments, and thus ensure fast implementation of EU policies ⁽¹¹⁰⁾.

Structural Funds can play an important role in terms of supporting EU goals for **biodiversity**. However, some regional programmes face certain difficulties in terms of absorption capacity

⁽¹¹⁰⁾ See, for example, EEA Report No. 2/2005 *Effectiveness of urban wastewater treatment policies in selected countries: an EEA pilot study*.

for biodiversity and projects related to nature protection. For this reason, the suggested multi-year initiative of best-practice exchange should focus firstly in this area.

The EU is giving higher priority to its policy goals for climate change. Accordingly, in the 2007–2013 cycle, Structural Fund spending in **energy**, and in particular renewable energy and energy efficiency, has increased markedly. As a result, Member States and the European Commission need to pay greater attention to monitoring and evaluating the results of spending, in order to ensure that it effectively supports the EU policy goals.

Absorption capacity

A key issue is the administrative capacity of Member States and regions to spend the funds allocated, in particular in the area of environment. The analysis in the case study regions showed that some regions have encountered difficulties in spending resources in 'soft' areas, such as the measures for ecological networks, monitoring, control and reduction of pollution, and, to a lesser extent, energy and waste management. In contrast, other regions showed, in general, good spending rates in water infrastructure; while allocations to renewable energy followed diverse patterns in different regions. All in all, the analysis evidenced a wide variety of spending patterns and re-allocation of funds, influenced by a number of factors related to the management and programming stages, administrative culture, changes in policy objectives and priorities, etc.

The methodology developed for assessing the absorption capacity of environmental measures, proposed a number of indicators as well as a qualitative checklist for review. This checklist looks at key areas concerning administrative capacity, potentially relevant to management authorities in charge of Operational Programmes, related to the following stages: management, programming, monitoring, financial management and evaluation.

Territorial cohesion

The European Commission's 2008 Green Paper on Territorial Cohesion explains how this concept is linked to a more balanced and harmonious development of the European Union. However, the concept of territorial cohesion, as enunciated in the European Commission's recent Green Paper, makes little reference to the EU's environmental objectives. This appears to be an important shortcoming in the

concept. The environment is certainly part of the inherent features of regions and territories that the Green Paper refers to. Nonetheless, a more explicit reference to the opportunities, risks and needs related to the environment is needed. In this sense, current and future challenges related to adaptation and vulnerability to climate change deserve special attention.

Some areas of environmental spending reviewed in this report can contribute to territorial cohesion. For example, financing for wastewater treatment should reduce pollution spilled to rivers and other water bodies, with a final expected outcome of improving water quality — finally providing citizens with better-quality water to use and enjoy across all European regions. The Cohesion and Structural Funds aim to address territorial imbalances by financing these types of project especially in the less developed regions. Moreover, investments and support to environmental problems play a significant part in territorial cohesion. This is because such support requires substantial funding, which poorer regions often cannot afford without European support. Furthermore, given that potential positive impacts on the environment can only be seen in the long run and long-term multi-year investments are frequently required, it is important to ensure — all over Europe — the stability and continuity of EU political and financial support to the environment.

The evaluation methodology

Addressing cost-effectiveness — this study could not draw conclusions on the cost-effectiveness of spending. The European Commission and ENEA should develop further guidelines for assessing the cost-effectiveness of Structural and Cohesion Funds spending. Initial work should look particularly at environmental effects of infrastructure interventions in the new Member States, an area where high levels of spending are expected in coming years.

Improving indicators — the case study countries and regions varied greatly in terms of the monitoring indicators they track. The European Commission and ENEA should review current monitoring and evaluation systems and ensure that Member States and regions adopt effective approaches in this regard. Such systems should provide a complete set of robust indicators, covering quantitative and qualitative information, aimed at covering the full chain of causality from inputs to outputs, outcomes and

impacts. One important area for attention is the potential negative impacts on biodiversity of Structural Fund spending, in particular in areas such as infrastructure (transport, water, energy, etc.). The EEA should consider developing biodiversity-related indicators with regard to Structural and Cohesion Fund spending. The EEA should also consider the possibilities of mutual feedback between the improvement of the evaluation indicators of Cohesion and Structural Funds interventions and the development of territorial indicators in line with the Green Paper's proposals.

Improving intervention codes — the intervention codes for 2000–2006 were not well adapted for an evaluation of environmental spending, in particular in the area of biodiversity. The EU codes for 2007–2013 seem to provide a better insight; nevertheless, more detailed codes would be useful.

Recommendations for future evaluation topics

This study has only focused on three environmental issues: biodiversity, renewable energy and energy efficiency, and wastewater treatment. **Policy integration** is a key element of the EU Sustainable Development Strategy. A future evaluation should review more closely the extent to which environmental considerations have been integrated throughout Structural and Cohesion Fund spending, within overall programming stages, criteria for project approval, and monitoring and evaluation. Such an evaluation should in particular consider the highest areas of spending, i.e. economic development and job creation, big projects and infrastructures. On the other hand, integration with other EU funding instruments, both inside and outside the Cohesion Policy, would be of highest interest in future evaluations (the current study, for example, did not cover spending by the European Social Fund nor look in detail into the links with the Common Agricultural Policy financial instruments).

The European Council has called for a sizeable increase in **renewable energy** and energy efficiency in the EU ⁽¹¹¹⁾. Accordingly, Structural Fund spending in the sector has increased greatly in

the current 2007–2013 cycle, as shown in the case study countries. At the same time, Structural Funds are not the only source of spending in this area: private sector spending for renewable energy should become the most important source. Further analysis could seek to understand the role and importance of Structural and Cohesion Funds in terms of meeting EU policy energy and climate goals.

Several additional aspects could be considered in future studies. For example, many effective Structural Fund projects in the energy sector have combined energy goals with local development goals. Is this a viable approach for all spending allocated to the sector?

Another area of study is the effectiveness of Structural and Cohesion Funds financing of measures aimed at reducing emissions and other severe impacts on the environment derived from the generation and use of energy in Europe, in line with the relevant sectoral directives ⁽¹¹²⁾. In addition, renewable energy projects can have negative environmental impacts — this is a concern in particular for biofuels, but can also include the landscape and biodiversity impacts of wind energy and hydropower. Evaluation can assess how these potentially negative impacts are addressed ⁽¹¹³⁾.

Future evaluations of Structural and Cohesion Funds spending in the **water** sector should take into account the comprehensive policy and legislative structure set up by the Water Framework Directive. The broad approach of this legislation will require future evaluations, both in generic and specific aspects, within an integrated territorial approach from the point of view of different sectors and water users. Among other topics, work in this area could focus on the complex question of the causal relationships between new wastewater infrastructure and water quality. The results will be valuable both in terms of assessing the importance of Cohesion Policy for meeting EU requirements, and also for future reviews of Member State implementation of EU water legislation.

This study also reviews several reports and case studies dealing with negative impacts of Structural and Cohesion Fund spending on the environment, notably on **biodiversity**. Further and more systematic work is needed in this area.

⁽¹¹¹⁾ See *Second strategic energy review — securing our energy future*, European Commission, November 2008.

⁽¹¹²⁾ Mainly large combustion plants and those on the National Emissions Ceilings.

⁽¹¹³⁾ The EEA has carried out some analyses in this field. See for example: *Estimating the environmentally compatible bioenergy potential from agriculture* — Technical report No 12/2007.

This work should include, as suggested above, the development and improvement of indicators at both programme and project level, drawing on lessons from current indicators used to assess the implementation of the Habitats Directive.

This study makes an initial analysis of the links between spending on wastewater treatment and **urban sprawl**. A future evaluation could undertake a more detailed assessment of possible links between Structural and Cohesion Fund spending at regional level and the issue of urban sprawl, in a wider context of spatial territorial planning. The analysis should look at spending in other highly related areas, in particular transport, considering

socioeconomic factors together with environmental concerns.

Finally, additional evaluations could look at urban **waste** management — another key area of environmental infrastructure that is indirectly related to urban sprawl and spatial planning. The evaluation could envisage first, how can countries and regions better use Structural and Cohesion Funds to support innovative waste management investments; and second, how policy measures in this area, including waste management investment plans and market-based instruments, can be effectively combined with other sectoral measures within spatial planning strategies.

Annex 1 *Ex-post* evaluation framework

Overview of the approach

In considering what an overall analytical framework for undertaking *ex-post* evaluation of the environmental implications of Cohesion policies might look like, and the approaches that can be used to support it, it was important in this study to consider a number of factors, including:

- existing data availability and the potential data needs to support the framework and/or methodology(ies);
- the information and approaches used in existing environmental evaluations of Structural and Cohesion Funds (including *ex-ante*, mid-term and *ex-post*), and the use of these to support aspects of the proposed evaluation framework; and
- the practicality of any framework and/or methods that had been tested and developed within the case study countries.

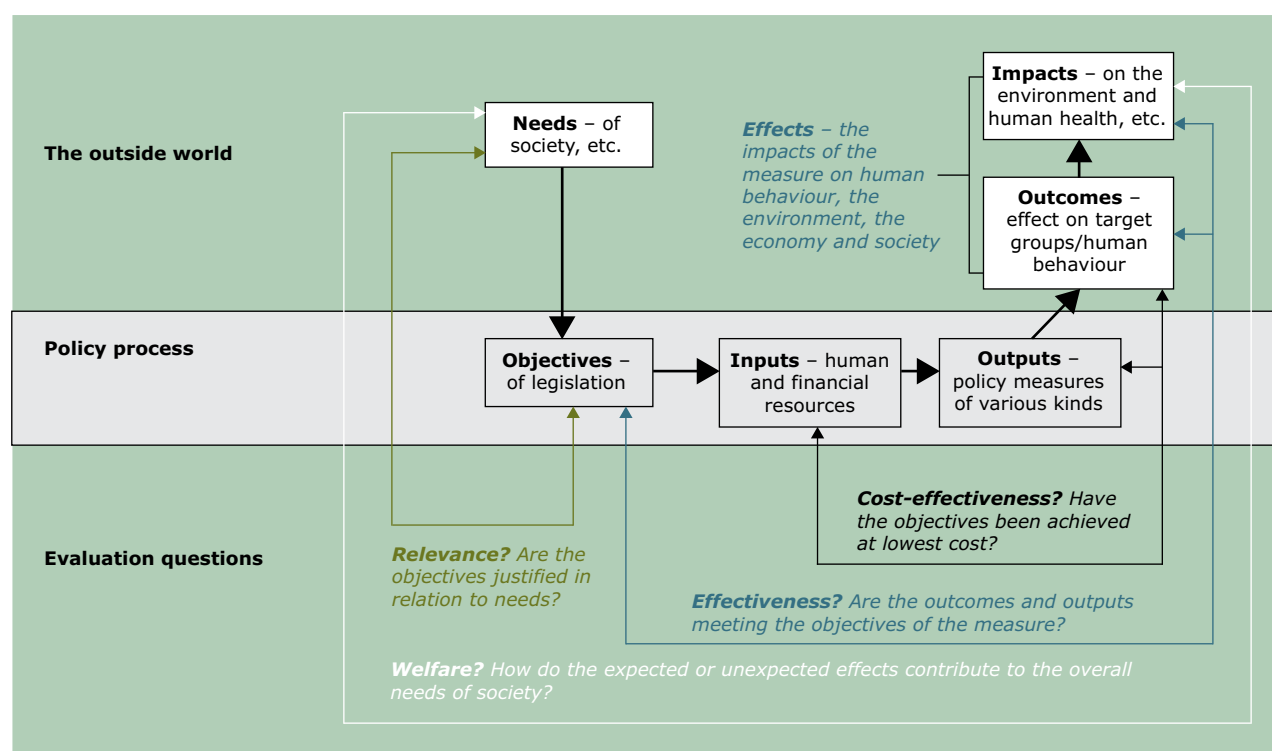
In addition, it was also important to consider:

- the ideas and approaches to evaluation provided by the ENEA country representatives, as well as EEA/ETC-LUSI and EEA experts; and
- the existing literature, to further understand current approaches and critiques already undertaken of the evaluation of Cohesion Policy, particularly in relation to the environment.

Context to evaluating effectiveness, efficiency and effects

Before considering in detail the evaluation framework to be developed and adopted by the study, it is also useful to consider the broader context and approaches to evaluation and some key definitions. As a starting point, this section considers the policy cycle — the process within which evaluation needs to integrate and inform.

Figure A.1 Generic policy evaluation framework



Source: EEA, 2001.

Figure A.1, taken from the 2001 EEA report, depicts the relationship between a basic policy development and implementation process and the key evaluation criteria or questions and illustrates how a measure may ultimately impact on human behaviour and/or the environment.

The collection and analysis of information related to the different elements within this process allow various evaluations to be undertaken related to the implementation of a measure. This illustrates the importance of ideally considering the whole chain of effects through the policy process and the need to collect information at each stage along this chain. Evaluations of effects should therefore ideally identify a chain of causation linking the outputs, outcomes and final impacts of a measure (EEA, 2001). These considerations are key to the development of an overall *ex-post* evaluation framework for Structural and Cohesion Funds of environmental policies.

Developing an overall *ex-post* evaluation framework for this study

In the context of this study, an evaluation framework has the potential to include a variety of elements with the overall aim of improving the robustness of the evaluation of effectiveness in particular, but also efficiency and effects. For example:

- **principles** for the more effective and practical use of existing forms of evaluation and assessment, including the information their outputs contain;
- **illustrations** of how existing data and information could be processed and analysed to be useful in evaluating effectiveness;
- **examples of the use of evaluations at different scales**, both in terms of the interventions (for example plan, programme, axis, measure, project levels) and spatial levels (EU, national, regional, how they interrelate/inform one another, how results/analysis are aggregated/disaggregated, etc). The potential of a top-down and bottom-up approach to evaluation;
- **examples of existing good practice** and recommendations on how these could be operationalised and applied more widely;

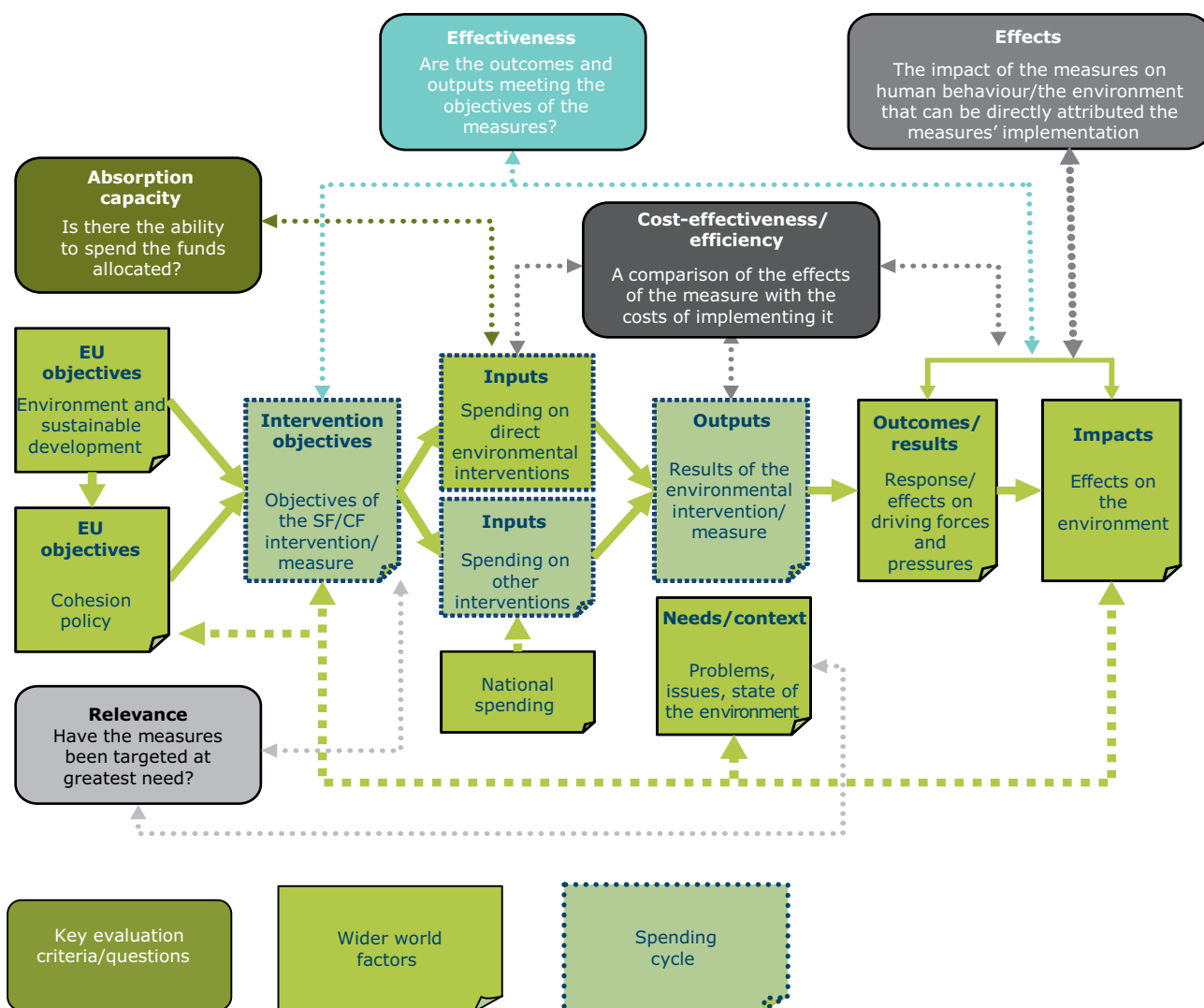
- **examples of additional data/indicators** that could be collected and illustrations of how this could enhance the usefulness of the evaluations; and
- **additional tools and/or methods** that could be used to support further analysis or understand different aspects, both as part of existing evaluations and assessments and *ex-post* to provide evidence as part of an external auditing or review process.

Even though the focus of this study is on evaluating effectiveness, it was still necessary to try to understand the whole chain of effects through the spending cycle and collect information about each element along this chain. Therefore, as a first priority this study needed to consider what was possible in terms of the collection of information related to each of these elements within the spending cycle for the three topics being considered (i.e. wastewater treatment, biodiversity and energy efficiency/renewable energy) within the case study regions — i.e. intervention/measure **objectives, inputs and outputs** — and where possible the ultimate effect of implementation of a programme or measure, i.e. **outcomes/results and impacts**.

Obviously this study had time and resource constraints. The collection and analysis of information had to work within these constraints, and in some cases these limitations meant that detailed work could not be undertaken at this stage. Given the focus of this study on spending for direct environmental interventions, the inputs in Figure A.2 are shown in two separate boxes — 'Spending on direct environmental interventions' and — 'Spending on other interventions' — with non EU spend (for example national spending and loans) in a separate box. Similarly, the EU objectives are split between Cohesion Policy and environment and sustainable development.

Information on all these elements allows an evaluation of the various evaluation criteria and questions related to effectiveness, efficiency and effects, as well as others relating to relevance and absorption capacity, for example. This is illustrated in Figure A.2.

Figure A.2 The spending cycle and evaluation framework



Source: EEA, 2008.

Annex 2 An overview of spending

Overview of the main instruments used and spending levels

This study focuses on the 2000–2006 cycle, though it also looks at the 2007–2013 programme cycles, and draws on information from three case study countries: Italy, Spain and Austria. The figures for the two cycles are not directly comparable: for the earlier cycle, the tables show funds committed for specific spending areas; for the current cycle, the tables show budget plans.

Table A.1 sets out headline data on the allocation of funds to the case study countries for the 2000–2006

cycle. It is worth noting that over the 2000–2006 programme cycle, of the three countries in this study only Spain was eligible for Cohesion Fund resources (EUR 12 357 million).

The three case study countries received over 40 % of the total spending for the EU-15. Spain received the highest share of any Member State, 27 %. Italy's share was matched by that of Germany, where most of the funds went to its eastern Länder.

In contrast, Austria received only about 1 % of the EU-15 total. In terms of using Structural Fund resources, Austria has taken a very different

Table A.1 Structural Funds and instruments for the case study countries, 2000–2006 — million EUR 2004 price

Member State	Objective 1	Objective 2	Objective 3	Financial instrument for fisheries guidance	Cohesion Fund	Community initiatives	Total	Share of EU-15
Austria	288	740	585	0	0	395	2 008	1 %
Italy	24 424	2 749	4 129	110	0	1 294	32 707	14 %
Spain	42 061	2 904	2 363	221	12 357	2 162	62 067	27 %
EU-15 and EUR-25 after 2004	150 104	24 367	26 554	1 226	19 717	11 361	233 328	100 %

Source: Adapted from table included in Working for the regions, EC, 2004.

Table A.2 Indicative allocation of funds 2007–2013 — million EUR 2007 prices

Member State	Convergence objective			Regional competitiveness and employment objective		European Territorial cooperative on objective	Total	Share of EU-15 total	Share of EU-27 total
	Cohesion Fund	Convergence	Phasing out	Phasing in	Regional competitiveness and employment				
Austria	0	0	177	0	1 027	257	1 461	1 %	0.4 %
Italy	0	21 211	430	972	5 353	846	28 812	17 %	8 %
Spain	3 543	21 054	1 583	4 955	3 522	559	35 217	21 %	10 %
EU-15	10 300	86 611	13 955	8 978	42 687	5 511	168 044	100 %	49 %
EU-12	59 277	112 712	0	2 430	868	2 765	178 053	-	51 %
EU-27	69 577	199 323	13 955	11 408	43 555	8 276	346 097	-	100 %

Source: Adapted from table on the Inforegio website: http://ec.europa.eu/regional_policy/policy/fonds/pdf/annexe-recto.pdf (accessed July 2009).

approach to that taken in Italy and Spain. The Austrian allocation is small, both overall and also compared with national funding means. From accession, Austrian policy has used these resources to promote the visibility of the EU in Austria. For this reason, support to SMEs and small projects received top priority. Infrastructure projects, including environmental infrastructure, has not been a priority.

Ten Member States joined the EU in May 2004 and were included in Cohesion Policy. As they joined mid-way in the 2000–2006 spending cycle, they are not included in Table A.1. For the 2007–2013 programme cycle the funds are to be allocated under three main funds: the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the Cohesion Fund, against the three headline objectives of Convergence, Regional Competitiveness and Employment, and European Territorial Cooperation. Due to the fact that the 2007–2013 cycle has only recently commenced, the level of data available on allocations is more aggregated (however the categories have been extended and enlarged — see sections on the 2007–2013 cycle below). This is presented in Table A.2.

In the new cycle, the absolute amount of funds has fallen for all three case study countries compared to 2006–2013, and most drastically for Spain, where the difference is over EUR 25 billion⁽¹¹⁴⁾. In contrast, spending has fallen only slightly for Italy — and this country's share of the EU-15 total actually increased. The total level of allocations among Member States was decided in Council negotiations. Nonetheless, the differences between Spain and Italy may reflect in part the rise in income in the former country and

the lack of economic growth in latter, in particular in Italy's Objective 1 regions.

Structural and Cohesion Fund spending and the environment

A preliminary review of cohesion spending for the Sustainable Development Strategy priorities

The review of Cohesion spending allows an initial comparison with the EU's renewed Sustainable Development Strategy (SDS). This comparison is preliminary. Moreover, any discussion of these two areas of EU policy needs to take into account the fact that both are quite broad. The Structural and Cohesion Funds support projects across a wide range of spending categories. The SDS covers many areas, and its objectives encompass environmental protection, economic prosperity and social cohesion. These factors make it difficult to draw definitive conclusions here.

This brief review covers the challenges identified in the SDS (see Table 24), with the exception of public health and global poverty, which are not areas of spending for the Structural and Cohesion Funds. The topic of social cohesion is not covered either, given the scope of this study, although this is also an objective of Cohesion Policy, in particular in terms of providing better jobs in lagging regions.

Climate change and clean energy

This priority is identified in both the 2001 Gothenburg Strategy as well as the 2006 SDS. In principle, the Gothenburg Strategy should have influenced spending in the 2000–2006 spending

Table A.3 Comparison of sustainable development challenges in EU strategies

2001 Gothenburg Strategy	2006 renewed Sustainable Development Strategy
<ul style="list-style-type: none"> • Climate change and clean energy 	<ul style="list-style-type: none"> • Climate change and clean energy
<ul style="list-style-type: none"> • Threats to public health 	<ul style="list-style-type: none"> • Public health
<ul style="list-style-type: none"> • Use natural resources more responsibly 	<ul style="list-style-type: none"> • Sustainable consumption and production
<ul style="list-style-type: none"> • Sustainable transport systems and land-use management 	<ul style="list-style-type: none"> • Sustainable transport • Conservation and management of natural resources
<ul style="list-style-type: none"> • Poverty and social exclusion 	<ul style="list-style-type: none"> • Social inclusion, demography and migration
<ul style="list-style-type: none"> • Economic and social implications of an ageing society 	<ul style="list-style-type: none"> • Global poverty and sustainable development challenges

Source: EEA, 2008.

⁽¹¹⁴⁾ Please note that this table uses 2007 euros, which have a slightly lower value than the 2004 euros found in the previous table due to inflation.

cycle; however, the case study countries gave varying priority to renewable energy and energy efficiency. While Austria allocated a higher share of resources to this sector, renewable energy and energy efficiency received lower priority in Italy and in Spain.

In contrast, budget plans for the 2007–2013 cycle clearly allocate greater resources to these two spending areas. In addition, climate change mitigation has been added as a spending category for the new cycle. The SDS identifies mitigation as an important area of attention under climate change. Only Italy has allocated a significant share of its Structural Fund budget to this category, almost EUR 100 million of Community resources.

Sustainable consumption and production

The SDS identifies several areas of action, two of which are potentially valid for the Structural and Cohesion Funds: the promotion of green public procurement and of environmental technologies.

The first is a cross-cutting theme ⁽¹¹⁵⁾. The Structural and Cohesion Funds, due to their large volume of spending and co-financing with national and regional funds, could potentially play a major part in promoting green public procurement. However, neither the EC Regulations governing the funds nor the Community Support Guidelines for 2007–2013 mention this topic.

On the other hand, the promotion of environmentally friendly technologies is a spending area in both spending cycles. In Austria, this area received over 3 % of all Structural Fund resources, and thus was one of the largest areas for environmental spending. Moreover, spending for this category included support for energy efficiency and renewable energy in enterprises, in addition to the energy spending. In contrast, this category was only a minor area of spending in Italy and Spain.

Sustainable transport

The SDS calls for 'where appropriate... a shift from road to rail, water and public passenger transport'. In the 2007–2013 cycle, both Spain and Italy increased the share of Structural Fund resources going to the potentially more environmentally favourable types of transport infrastructure. In Austria, the

Structural Funds provide little resources for transport infrastructure. The funds also support intermodal transport, an area cited in the renewed SDS.

At the same time, the Structural and Cohesion Funds continue to provide significant support for areas that may have negative effects on the environment, notably transport infrastructure (see Box A.1).

Natural resources

For this category, the EU SDS identifies areas such as agriculture, forestry and fisheries. As these areas are not financed by the ERDF and the Cohesion Fund, they have not been a focus for attention in this study.

The SDS also refers to the management of biodiversity. The 2007–2013 cycle, for the first time, dedicates a spending code to this area — Promotion of biodiversity and nature protection (including Natura 2000). In the 2007–2013 cycle, Spain allocated an important share of resources to this category — almost 2 % of total Structural Fund spending. In contrast, Italy allocated a much lower share.

The SDS also calls for integrated water resources management and better management of marine and coastal zones.

Spending on potentially environmentally favourable infrastructure

A large share of Structural and Cohesion Fund resources goes to supporting infrastructure, including environmentally friendly categories. This is compatible with the EU Sustainable Development Strategy, which identifies environmental protection as one of its four main objectives. Preventing and reducing pollution is an important part of this goal.

The latter can include: expenditure for water, waste and other infrastructure for environmental protection; environmentally friendly transport (i.e. rail, ports and public transport); renewable energy and energy efficiency and other infrastructure (see Table A.5).

Overall, these different types of potentially environmentally more favourable infrastructure account for almost one-quarter of total Structural Fund resources in Spain and almost one-fifth of the resources in Italy.

⁽¹¹⁵⁾ The EU has extensive legislation on public procurement; however, while green public procurement has been identified in the SDS and in other policy documents, there is no European legislation specifically on green public procurement. Recent cases decided by the European Court of Justice, however, have affirmed that environmental issues can be included in the award criteria for public procurement. See DG Environment, in particular: http://ec.europa.eu/environment/gpp/legal_framework_en.htm (accessed July 2009).

Box A.1 Environmentally harmful subsidies

The Sustainable Development Strategy (SDS) calls on the European Commission by 2008 to 'put forward a roadmap for the reform, sector by sector, of subsidies that have considerable negative effects on the environment and are incompatible with sustainable development, with a view to gradually eliminating them'.

Structural and Cohesion Fund support in areas such as road infrastructure and airports could be seen as subsidies that could have considerable negative effects on the environment ⁽¹¹⁶⁾. At the same time, some areas of road infrastructure in particular form part of the TEN-T (trans-European transport network) programme, supported by the EU Council and also referenced in the SDS.

The renewed SDS does not call for ending all financing in these areas — rather to end subsidies. This could be compatible with a move away from Structural and Cohesion Fund support towards other forms of financing for these areas, such as European Investment Bank (EIB) loans.

The table also compares the three case study countries with the EU-25 average, provided in the 2006 ENEA/ISFE report (ENEA, 2006b). Admittedly, the data are not fully comparable, as the earlier report used budget allocations at that time. Nonetheless, the results indicate that Spain and Italy spend higher shares of their Structural Fund budgets on environmentally favourable infrastructure than the EU-25 average.

In Italy and Spain, Cohesion Policy provides a large amount of resources for support for environmental infrastructure. One key question is how this support compares with national resources for environmental investment.

All three case study countries increased the share of Structural Fund resources for environmentally favourable infrastructure. All three increased their support for renewable energy and energy efficiency; in Italy in particular, spending in this area rose sharply.

In the new cycle, Cohesion Policy has placed great emphasis on the Lisbon Strategy, in particular on growth, jobs and competitiveness. In the three case study countries, it appears that this new focus has not come as a detriment to environment. A follow-up review of cohesion spending in light of the EU SDS might review this further in these and other studies — and in particular, assess the extent to which the Structural and Cohesion Funds have followed the Strategy's call to integrate economic, social and environmental considerations.

Structural and Cohesion Fund spending compared with national public sector investments for the environment

The spending data also allows a preliminary analysis of Fund resources in comparison with national resources. This analysis contrasts fund commitments in 2000–2006 for environmental infrastructure (using the data in this section) with

Table A.4 Structural Fund commitments for environmentally favourable infrastructure, 2000–2006 cycle (as a share of total infrastructure)

	Spain	Italy	Austria
Environmental infrastructure	9.1 %	6.3 %	0.6 %
Environmentally more favourable transport infrastructure: rail, port and public transport	9.1 %	6.4 %	0.2 %
Energy infrastructure: renewable energy and energy efficiency	0.2 %	0.7 %	1.2 %
Other potentially environmentally friendly infrastructure	5.4 %	5.3 %	1.6 %
Total	23.8 %	18.7 %	3.6 %

Note: EU-25 shares based on planned expenditure as calculated in 2005 (ENEA, 2006b).

Source: ENEA, 2006b.

⁽¹¹⁶⁾ Indeed, the paper by ENEA's ISFE Working Group classified only a few transport areas as sustainable, including rail, ports, waterways and urban transport.

Table A.5 Structural Fund budget plans for environmentally favourable infrastructure, 2007–2013 cycle (as a share of total infrastructure)

	Spain	Italy	Austria
Environmental infrastructure	13.2 %	3.8 %	0 %
Environmentally more favourable transport infrastructure: rail, port and public transport	14.1 %	10.7 %	0.48 %
Energy infrastructure: renewable energy and energy efficiency	0.91 %	6.65 %	2.50 %
Other areas of environmental spending	4.75 %	4.16 %	1.48 %
Total	32.96 %	25.31 %	4.46 %

Source: DG Regional Affairs, December 2007.

Eurostat's estimates of public sector environmental investments. The analysis is preliminary ⁽¹¹⁷⁾.

The initial results suggest that in Spain, the EU contributions exceed national public sector resources by over 40 % (see Table 27). In Italy, the EU contributions are a smaller share of national public sector environmental investments, 13 %. Fund spending was concentrated in Italy's Objective 1 regions, where it is likely that it provided a much higher share of public sector environmental investments. In Austria, as noted, the Structural Funds have a very different and smaller role compared with those in the other two pilot countries.

This comparison provides only a broad-brush set of results. It should be noted that the two categories — public sector environmental investment and Structural/Cohesion Fund spending on environmental infrastructure — are similar but not identical. Moreover, a more detailed analysis should focus on spending in Objective 1 regions. And, as noted, the Eurostat data in particular needs review.

The results nonetheless touch on the issue of additionality, a key principle of Structural and Cohesion Fund spending. The most recent regulations define additionality as follows: 'Contributions from the Structural Funds shall not replace public or equivalent Structural expenditure by a Member State' ⁽¹¹⁸⁾. In practice, the Regulations apply this principle to mean that national resources in each Objective 1 region should not fall over the course of the programming cycle. These basic rules were in place for the 2000–2006 cycle as well, although the method of calculating and monitoring additionality has changed slightly in the new period. Moreover, in the 2007–2013 cycle, the European Commission can reduce its contributions if the additionality rule is not met.

A further financial question is leveraging: whether fund resources can bring in financing from other sources, such as loans from the European Investment Bank or, more importantly, private financing. The most recent regulations address this by requesting a detailed financing plan for large projects, including EIB financing.

Table A.6 Structural and Cohesion Fund spending compared with national public sector investments for the environment

	Public sector environmental investments (2005 estimate)		Structural and Cohesion Fund spending on environmental infrastructure	
	Share of GDP	Million EUR	Annualised EU contribution (million EUR)	Share of public sector investment
Spain	0.11 %	999.3	1 433.31	143 %
Italy	0.15 %	2 135.1	276.99	13 %
Austria	0.04 %	98.2	1.3	1 %

Source: Public sector environmental investments based on Eurostat data (accessed March 2008).

⁽¹¹⁷⁾ For example, discussions in the ENEA working group questioned Eurostat's estimates of national public environmental investments. This data requires further review in all three countries.

⁽¹¹⁸⁾ Council Regulation 1803/2006, Art. 15.

These issues will be important when assessing the cost-effectiveness of Structural and Cohesion Fund spending. While this pilot study has not been able to provide a detailed analysis of cost-effectiveness due to resource and data constraints, this is potentially a key issue for future evaluations.

Stock-taking

This brief review shows that Cohesion Policy has increased its support for several of the challenges identified in the renewed Sustainable Development Strategy (SDS) in the three case study countries. At the same time, Austria, Italy and Spain have quite different spending profiles in these areas.

A broader review of Structural and Cohesion Fund spending across other Member States in light of the Sustainable Development Strategy should be considered. In particular, such a review should cover several EU-12 countries, if not all Member States.

Such a review might also consider the extent to which spending in the new cycle incorporates the guiding principles listed in the SDS. These include

the precautionary principle, the polluter pays principle, and policy integration.

In the new cycle, Cohesion Policy has placed great emphasis on the Lisbon Strategy, in particular on growth, jobs and competitiveness. In the three case study countries, it appears that this new focus has not come as a detriment to environment. A follow-up review of Cohesion spending in light of the EU SDS might review this further in these and other studies — and in particular, assess the extent to which the Structural and Cohesion Funds have followed the Strategy's call to integrate economic, social and environmental considerations.

In contrast, budget plans for the 2007–2013 cycle clearly allocate greater resources to renewable energy and energy efficiency. In addition, climate change mitigation has been added as a spending category for the new cycle.

Lastly, it is worth noting that neither the EC Regulations governing the funds nor the Community Support Guidelines for 2007–2013 mention green public procurement. The Structural and Cohesion Funds could potentially play a major part in promoting this topic.

Annex 3 Available instruments in Cohesion Policy

Policy cycle	Funding instruments	Priority objectives: classification of eligible areas
2000–2006	ERDF ESF EAGGF-Guidance FIGF CF Pre-accession: ISPA	Objective 1: catch-up for regions lagging behind in development Objective 2: socio-economic conversion of industrial, urban or rural zones or zones which are dependent on fisheries Objective 3: improved training and job opportunities And four Community Initiatives: <ul style="list-style-type: none"> – INTERREG III encourages cross-border, trans-national and interregional cooperation throughout the EU; it included ESPON and INTERACT (knowledge and evidence base for territorial development); – URBAN II supports the regeneration of cities and neighbourhoods in crisis; – EQUAL encourages equality in the labour market; – And LEADER+ supports the diversification and development of rural areas. The innovative actions support experimental regional programmes.
2007–2013	Funds: ERDF ESF CF New financial engineering instruments: JESSICA JEREMIE JESPER Pre-accession: IPA	Convergence is to promote growth-enhancing conditions and factors leading to real convergence for the least-developed Member States and regions. Regional Competitiveness and Employment aims at strengthening competitiveness and attractiveness, as well as employment, via a two-fold approach. First, development programmes will help regions to anticipate and promote economic change through innovation and the promotion of the knowledge society, entrepreneurship, the protection of the environment and the improvement of their accessibility. Second, more and better jobs will be supported by adapting the workforce and by investing in human resources (integrates the former URBAN II and EQUAL initiatives). European Territorial Cooperation will strengthen cross-border cooperation through joint local and regional initiatives, trans-national cooperation aiming at integrated territorial development, and interregional cooperation and exchange of experience. It draws on the experience acquired by INTERREG.

ERDF: European Regional Development Fund

ESF: European Social Fund

EAGGF-Guidance: European Agriculture Guarantee and Guidance Fund — Guidance section

FIGF: Financial Instrument for Fisheries Guidance

CF: Cohesion Fund

ISPA: Instrument for Structural Policies for Pre-accession

JASPER: Joint Assistance in Supporting Projects in European Regions

JEREMIE: Joint European Resources for Micro to Medium Enterprises

JESSICA: Joint European Support for Sustainable Investment in City Areas

IPA: Financial Instrument for Pre-accession Assistance

For further information, visit http://ec.europa.eu/regional_policy/index_en.htm (accessed July, 2009).

Rural development measures, under the Common Agricultural Policy, in 2007–2013 are to be financed by the new European Agricultural Fund for Rural Development (EAFRD). Further information is available at http://ec.europa.eu/agriculture/index_en.htm (accessed July 2009).

Annex 4 Annotated bibliography

Reference	Notes
Andrews, K., 2001. <i>Study on the impact of community environment – water policies on economic and social cohesion</i> , WRc	This study identifies the linkages between Water and Cohesion Policies, particularly the mechanisms through which water-related policies may impact on social and economic cohesion. The report presents a quantification of the first-order and final effects of environmental policies that affect water (i.e. not only water-specific directives) on economic and social cohesion.
Armstrong, H. and Wells, P., 2006. 'Structural Funds and the evaluation of community economic development initiatives in the United Kingdom: a critical perspective', <i>Regional Studies</i> 40, pp. 259–272.	This paper focuses on the manner in which community economic development (CED) is evaluated within European Union (EU) regional policy. Since their inception within UK Structural Funds programmes in the 1990s, community economic development (CED) initiatives have experienced a rapid expansion. Evaluation methods have struggled to adapt to what was a radically new type of policy. This paper charts the rise of CED in the United Kingdom's Objective 1 and 2 programmes, and it examines the main problems posed by CED for Structural Funds monitoring and evaluation. Whilst progress in adapting the monitoring and evaluation methods to CED has been good, a number of key challenges remain to be faced by the eventual <i>ex-post</i> evaluations of the 2000–2006 programmes and for the 2007–2013 programming period. The key challenges are identified and possible ways forward are discussed in this paper.
Bachtler, J. and Michi, R., 1995. 'A new era in EU Regional Policy Evaluation? The appraisal of Structural Funds', <i>Regional Studies</i> , Vol. 29.8, pp. 745–751.	The paper reviews and discusses the effectiveness and quality of evaluation of Structural Funds in the programming period 1988–1993 and the changes to the regulatory framework for the period 1994–1999. The paper also looks at the <i>ex-ante</i> evaluation of the latter period and how it reflected new EC regulations.
Bachtler, J., Polverari, L., Taylor, S., Ashcroft, B. and Swales, K., 2000. <i>Methodologies used in the evaluation of effectiveness of European Structural Funds: a comparative assessment</i> , Study of the European Policies Research Centre and Fraser of Allander Institute, University of Strathclyde, Glasgow.	<p>The study reviewed the different approaches and evaluation methodologies, used in evaluations of the Scottish Structural Funds. A review of evaluation approaches in other Member States and case studies were also included as part of the international review. The study also looked at organisational and management aspects of undertaking evaluations.</p> <p>The study examined Scottish Structural Fund programme documentation and evaluation studies, starting from the 1989–1993 programmes through to the latest interim evaluations of the 1997–1999 programmes. Some <i>ex-ante</i> appraisals from the 2000–2006 programmes were also examined. The study also collected extensive information on evaluation practices and methods in other EU Member States.</p> <p>The critique of the Scottish approach and the review of international good practice were used to produce a series of recommendations for undertaking evaluations of Structural Funds under the following headings:</p> <ul style="list-style-type: none"> • approach; • partnership; • capacity; • methods; • use of results.
Bachtler, J. and Wren, C., 2006. 'Evaluation of European Union Cohesion Policy: research questions and policy challenges', <i>Regional Studies</i> , Vol. 40.2, pp. 143–153, April 2006.	<p>This paper begins by tracing the evolution of Cohesion Policy evaluation from 1988 to the present. It then discusses the concepts and methods of evaluation, the credibility of the results obtained, and the organisational and cultural differences in evaluation practice across the EU. It concludes with some questions on the way forward for evaluation.</p> <p>It is an introductory paper to a special issue of <i>Regional Studies</i> and seeks to set the context for the other papers in the issue, many of which have been included in this review.</p>
Bachtler, J. and Taylor, S., 1999. <i>Objective 2: Experiences, lessons and policy implications</i> , European Policies Research Centre, Glasgow, July 1999.	<p>The objective of the study was to assess Objective 2 interventions under the Structural Funds in the period 1989–1999 in order to input into future programmes. The study focuses on the process of Objective 2 programming, examining both commonalities and contrasts between countries and regions as well as changes over time. The report aimed to provide better understanding of the long-term evolution of programme interventions, including plan preparation, strategy development, programme management, partnership, programme delivery, monitoring and evaluation.</p> <p>The report includes chapters on environmental integration in Objective 2 programming and on monitoring and evaluation. The evaluation section includes a section reviewing and comparing <i>ex-ante</i>, mid-term and post-event evaluations undertaken across the EU in the context of Structural Funds.</p>

Reference	Notes
Balfors, B. and Schmidtbauer, J., 2002. 'Swedish guidelines for strategic environmental assessment for EU Structural Funds'. <i>European Environment</i> , 12, pp. 35–48.	This paper examines the Swedish Strategic Environmental Assessment (SEA) guidelines developed by the Swedish Environmental Protection Agency for applications made to the EU Structural Funds for financial assistance for regional development plans and programmes.
Barca, F., 2006. 'European Union evaluation between myth and reality: reflections on the Italian experience', <i>Regional Studies</i> 40, pp. 273–276.	The paper examines the role of European Union Cohesion Policy evaluation in a new strategic approach to the design and implementation of the Structural Funds in Italy, launched in 1998. Models were used to establish benchmarks for policy, evaluation guidelines were produced, and investment in evaluation capacity was undertaken at national and regional levels. These initiatives have improved the knowledge base for decision-making and contributed to a more rigorous and open debate on policy choices in both the current Structural Funds period and for the National Strategic Reference framework for 2007–2013.
Basle, M., 2006. 'Strengths and weaknesses of European Union policy evaluation methods: <i>ex-post</i> evaluation of Objective 2', 1994–99, <i>Regional Studies</i> 40, 225–235.	The paper considers <i>ex-post</i> evaluation of Objective 2 at the regional level, focusing on the experience of France over 1994–1999. These evaluations were ambitious, and when looking at the reports it identifies both strengths and weaknesses. The paper considers issues that are problematic in the case of the Structural Funds — such as adjustment lags, causality, measurement and 'cross-checking' of results using national data — which are explored both through a case study of an <i>ex-post</i> evaluation for the Brittany region, and through examination of the mid-term evaluations for France in 2003. While the paper does find some improvements in the quality of evaluation in the recent mid-term reports, it also identifies continuing problems. These include a weakness in the 'logical diagram of impact', tracing the chain of causality from actions to impacts, so that the paper argues for a more detailed model of intervention.
Batterbury, S.C.E., 2006. 'Principles and purposes of European Union Cohesion Policy evaluation', <i>Regional Studies</i> 40, pp. 179–188.	This paper provides a critical assessment of the evaluation of European Union Cohesion Policy, focusing on the current regulatory framework, and the difficulties this poses for achieving rigorous and useful evaluation outputs. The paper argues that the evaluation framework for Cohesion Policy is limited to three core purposes: accountability, improved planning, and quality and performance, but that it would benefit from widening this to include other functions. The decentralisation of evaluation to the Member States means the evaluation of Cohesion Policy relies on the presence of a pre-existing evaluation culture and skills base in the regions. Further, obstacles to effective evaluation arise from the lack of data comparability, rigidity of time scales and a focus on performance approaches.
<i>Birdlife International</i> , 2003. 'An analysis of the effects of Structural Fund spending on the environment for the mid-term evaluation and review of Structural Fund interventions 2000–2006'.	This report was timed to coincide with the 2004 mid-term evaluation and review of Structural Fund plans and programmes. It includes a seven case study analysis of Structural Fund spend in Italy, Portugal, Spain and the United Kingdom. The projects included in the case studies were either in preparation or carried out in the programming period 2000–2006. The focus of the analysis is the interpretation and implementation of environmental and sustainable development themes in the Structural Fund programmes with particular attention to the Natura 2000 Network. The case studies include individual projects' contribution to environmental, social and economic development, the programming strategy and factors that affect the implementation. The case studies cover both good and bad examples of the effect of Structural Fund spending on the environment. The report identifies both positive and negative factors that affect the environmental performance of Structural Fund programmes and makes recommendations to improve the environmental performance of Structural Funds particularly in relation to Natura 2000 sites.
Blazek, J. and Vozab, J., 2006. 'Ex-ante evaluation in the new Member States: the case of the Czech Republic', <i>Regional Studies</i> 40, pp. 237–248.	This paper gives a critical analysis of evaluation culture in one of the new Member States of the European Union: the Czech Republic. It examines the experience of drafting the first generation of programming documents for the EU Cohesion Policy and of <i>ex-ante</i> evaluation, focusing on the National Development Plan (NDP), which is the basic strategic document for the Republic, around which programmes are framed. It considers the nature of the Czech support programmes, and the procedures and organisation of the <i>ex-ante</i> evaluation of the NDP. It investigates the main weaknesses and benefits arising from this evaluation, including methodological, organisational and strategic problems. Finally, it draws implications for the next generation of programmes.
Bougas, A., 2001. 'Progress and challenges in the evaluation of European structural policies' <i>Informationen zur Raumentwicklung</i> , vol. 6/7, pp. 311–314.	This paper gives an overview of the progress of evaluation of Structural Funds from the period 1988–1993 to the present. The second part of the paper reviews evidence of the impact of evaluation on different levels, including policy and programme levels. The final section looks at future challenges, including increasing evaluation capacity in the institutions of several Member States.
Coalition of environmental NGOs, 2004. <i>Strategic environmental assessment and Cohesion Policy</i> .	This brief (briefing note) recommends a series of amendments to the draft regulations for Structural Funds and Cohesion Fund in relation to strategic environmental assessment and <i>ex-ante</i> evaluations.
Consejería de Medio Ambiente, Junta de Andalucía, 2006. <i>Good Practices European Funds and Environment in Andalucía</i> .	This report reviews the contributions to environmental protection and improvements of European Funds including Cohesion and Structural Funds in Andalusia, Spain for the period 2000–2006. The report includes a series of good practice case study examples covering various environmental interventions, including biodiversity protection and wastewater treatment.

Reference	Notes
Danish Technological Institute, 2005. 'Thematic evaluation of the Structural Funds' Contributions to <i>the Lisbon Strategy, Synthesis Report</i> .	<p>The report looks at the contribution of Structural Funds to the implementation of the Lisbon Strategy's objectives. In terms of objectives and fields, there is a high degree of congruence between those initiatives including the premise that growth should not be achieved at the cost of environmental degradation. However, whilst the Strategy focuses on EU-wide economic growth the Structural Funds have an explicit spatial dimension and aim to reduce regional economical disparities.</p> <p>The study included the development of an analytical framework for the evaluation of the contribution of the Structural Funds to the Lisbon Strategy. The analytical framework included the development of a typology of the main interactions between the Strategy and the Structural Funds and the development of evaluation criteria to assess the contribution of Structural Funds. The methodology was then applied to 15 case studies.</p>
Darmstadt University of Technology, Institute WAR, 2002. <i>The contribution of the Structural Funds to sustainable development – case study Objective 2 SPD 2000–2006 North Rhine Westphalia, Germany</i>	<p>This case study presents the evaluation of the contribution of Structural Funds (2000–2006) to sustainable development in the German region of North Rhine-Westphalia. An evaluation methodology was developed: criteria and indicators were chosen for different aspects of sustainable development (defined as combination of Four Capitals: manufacturing, human, social and natural), key trade-offs and key win-wins. The positive or negative contribution of Structural Funds to achieving the selected criteria was then assessed and presented in an impact matrix. In a second step, an attempt was made to assess the significance of the contribution of Structural Funds, for example compared to other existing policies and funds. The study also looked at institutional barriers and facilitators to the promotion of sustainable development by Structural Funds.</p>
DG Environment, 2007. <i>Stimulating innovation through the cohesion and environmental policies</i> .	<p>This 'ideas paper' presents DG Environment's environmental funding priorities of Cohesion Policy for the period 2007–2013. The document examines how environmental investments through Cohesion Policy can contribute to implementing the environmental requirements of the Renewed Lisbon Strategy (2005) and the EC Sustainable Development Strategy (2006).</p>
DG Regional Policy Multi-annual Evaluation Plan. 2007. <i>European Commission, Directorate-General, Regional Policy – thematic development, impact, evaluation and innovative actions – evaluation and additionality</i> .	<p>This document lists the evaluations and other related activities that DG Regional Policy will undertake between 2007 and 2009. A significant number of evaluations will be <i>ex-post</i> evaluation of the 2000–2006 Structural Funds.</p>
ECORYS Transport, 2005. <i>Ex-post evaluation of a sample of projects co-financed by the Cohesion Fund (1993–2002) Synthesis Report</i> Final Report, Client: European Commission, DG Regional Policy	<p>The relevant objectives of this <i>ex-post</i> evaluation of Cohesion Funds include establishing to what extent the objectives of the Cohesion Fund have been achieved and their impact on the environment (and other sectors) and assessing the effectiveness of a sample of projects. Effectiveness was one of the core evaluation criteria defined for the study, which covered examples in the four Cohesion countries.</p>
ECOTEC, 2003. <i>Evaluation of the added value and costs of the European Structural Funds in the UK</i> . Final Report to the Department of Trade and Industry (DTI) and the Office of the Deputy Prime Minister (ODPM).	<p>This report presents the findings of the evaluation of 'added value' and cost of EU Structural Funds in the United Kingdom compared with domestic initiatives. The study defined added value as: 'The economic and non-economic benefit derived from conducting interventions at the Community level rather than at the regional and/or national level'.</p> <p>The study draws on evidence of the effects of Structural Funds from four sources:</p> <ul style="list-style-type: none"> • A review of evaluation and academic literature, focusing primarily on the experience of the 1994–1999 programming period; • Mid-term evaluations of 2000–2006 Structural Fund programmes; • An Internet survey of Structural Fund stakeholders conducted as part of the study; • A public opinion survey designed to explore the political effects of the Structural Funds. <p>The study developed an evaluation framework and detailed assessment criteria, which have been included in Annex 1 of the report.</p>
ECOTEC, 2005. <i>The territorial impact of EU research and development policies – ESPON Project 2.1.2</i> .	<p>The overall aim of the ESPON 2.1.2 project was to assess the territorial impacts of EU research and development policy. The objectives of the study included developing a typology of regions in terms of their capacity of undertaking research and development and innovation, assessing the spatial distribution of research and development policy interventions with a view to assess whether or not these policy interventions support the concept of territorial cohesion and assessing the impact that these interventions are having on regional development.</p>

Reference	Notes
EEA (European Environment Agency), 1999. <i>Defining criteria for evaluating the effectiveness of EU environmental measures.</i>	<p>This paper arises from a discussion at the REM (Reporting on Evaluation of Measures) Steering Group meeting on 10 November 1999 concerning the criteria that should be used for judging the effectiveness of EU environmental measures.</p> <p>Starting from the assertion that discussions about evaluation often cause confusion, for two important reasons: different types of evaluations ask a wide variety of different questions, and use widely differing methodologies; and, the terms that are employed — for example 'effectiveness', 'effects', 'efficiency', 'output', 'impact' etc — are often used inconsistently. The paper seeks to distinguish between the different sorts of evaluative questions, and to clarify the terms that are used, as the basis for the considering the criteria that should be used to judge whether a measure is 'effective'.</p>
EEA (European Environment Agency), no date ~2000. <i>Towards a new EU framework for reporting on environmental policies and measures (Reporting on environmental measures — 'REM') Paper I: Defining criteria for evaluating the effectiveness of EU environmental measures.</i>	<p>This paper looks at different types of evaluation frameworks for environmental policies and the main questions that they seek to answer. The paper then looks in more detail at the evaluation of effectiveness and utility of environmental policies.</p>
EEA (European Environment Agency), 2001. <i>Reporting on environmental measures: are we being effective?</i> Environmental Issue Report No. 25.	<p>This report provides a synthesis of the findings and conclusions of the REM (Reporting on Environmental Measures) project commissioned by the EEA in 1999. It provides an overview of the issues and examples of good practice, as well as suggestions on ways forward. The REM project focused on assessing how far the reporting contained in EU environmental legislation can (and in the future, could) help in the evaluation of the effects and effectiveness of EU policies in Member States. The project terms of reference were to:</p> <ul style="list-style-type: none"> • produce an awareness-raising paper showing practical examples of how much or how little is actually known about the links between environmental policy measures and their impact on the environment; • review the scope and contents of reporting requirements in all major items of EU environment-related legislation; • develop methodologies for monitoring and reporting on policy measures and for evaluating their effectiveness; • identify practical options for a new EU reporting regime in relation to policy measures. <p>The report seeks to answer the following key questions:</p> <ul style="list-style-type: none"> • Why is it important to evaluate the effects and effectiveness of EU environmental policies? • How far do reporting obligations in current EU legislation help to assess effects and effectiveness? • What information and methodologies do we need for evaluating effects and effectiveness? • How can the evaluation of effects and effectiveness be built in to legislation? • Are there alternative mechanisms other than through reporting obligations, for assessing effects and effectiveness?
EEA (European Environment Agency), 2005a. <i>Environmental policy integration in Europe — state of play and an evaluation framework.</i>	<p>Environmental policy integration (EPI) involves a continual process to ensure environmental issues are reflected in all policy-making. This paper presents a framework for evaluating progress with EPI. The framework focuses on six main areas: political commitment, vision and leadership; administrative culture and practices; assessments and information for decision-making; policy instruments; monitoring progress in integration; and the environmental context of EPI. The framework aims to help understand how environmental integration can be promoted and to provide a single framework for undertaking evaluations of EPI in a consistent manner.</p>
EEA (European Environment Agency), 2005b. <i>Environmental policy integration in Europe — administrative culture and practices.</i>	<p>The EEA framework to evaluate EPI (see EEA, 2005a) includes 'administrative culture and practices' as one of the main criteria. This paper presents an overview of administrative culture and practices for EPI in Europe (including EU-25, candidate and applicant countries, and others) and investigates some of the main institutional issues to achieve EPI.</p>
EEA (European Environment Agency), 2005c. <i>Policy effectiveness evaluation — the effectiveness of urban wastewater treatment and packaging waste management systems.</i>	<p>This paper reports on the findings of two EEA pilot studies on <i>ex-post</i> evaluation of the effectiveness of policies based on the evaluation framework developed by the REM project (see Guedes Vaz <i>et al.</i>, 2001). The first case study examined the effectiveness of urban wastewater policies in six Member States, including Spain. The second study focused on the effectiveness of packaging waste management system in five EU Member States, including Austria and Italy. The approach of the study was to look at the countries' institutional and policy context in order to examine how Member States implement certain EU policies.</p>

Reference	Notes
EEA (European Environment Agency), 2005d. <i>Effectiveness of urban wastewater treatment policies in selected countries: an EEA pilot study.</i>	<p>This is a case study report on the effectiveness of wastewater policies in six Member States, including Spain, in order to identify successes and shortfalls in the implementation of the Urban Waste Water Treatment Directive. This case study is part of a wider study, see EEA 2005c. The study found that Spain has not achieved compliance with the Urban Waste Water Treatment Directive (UWWTD) despite EUR 3.8 billion Cohesion funding received between 1993 and 2002. This funding covered about half of Spain's investment in sewage control and up to 85 % of individual sewage treatment plant investments.</p> <p>The report made some recommendations made on the findings of the case study. Wastewater treatment improvements have absorbed more than 50 % of all environmental investment in recent decades. A key recommendation was that there should be more emphasis on initiatives that reduce wastewater at source, for example by applying the 'polluter pays principle' and giving incentives to industries to reduce pollution at source. The authors concluded that otherwise there is a serious risk that EU funding will lead to excess investment in sewage treatment plant capacity and not enough in prevention.</p>
EEA (European Environment Agency), 2008a. <i>Effectiveness of environmental taxes and charges for managing sand, gravel, and rock extraction in selected EU countries.</i>	<p>Environmental taxes and charges are market-based instruments that should help realise environmental and economic policy objectives in a cost-effective way. The central focus of the study is to evaluate the effectiveness of environmental taxes that have been applied to sand, gravel and rock in selected countries to promote sustainable resource management and hence reduce environmental impacts.</p>
Ekins, P. and Medhurst, J., 2006. <i>The European Structural Funds and Sustainable Development, Evaluation</i> , Vol. 12, No. 4, pp. 474–495	<p>This paper explores how to evaluate the contribution of EU Structural Funds to sustainable development. The paper suggests using a four-capital model of sustainable development, i.e. human, social, natural and manufactured as a conceptual framework for evaluating sustainable development. The authors also developed a set of indicators to assess the extent to which Structural Funds had in fact promoted sustainable development or not. Indicators were developed for human, social and natural capital.</p>
ENEA (European Network of Environmental Authorities), 2006a. <i>Making the Structural and Cohesion Funds water positive</i>	<p>This report looks at how the Cohesion Funds and Structural Funds can be used to enhance environmental protection and support the implementation of the WFD and other water policies. The document gives an overview of water-related funding needs and opportunities for the period 2007–2013. The document is targeted to those responsible for designing Cohesion Funds and Structural Fund strategy and programmes and particularly at the regional and municipal levels.</p> <p>The document reviews the water and cohesion policies context and the links between them. The document also includes several examples of water policy related projects that can be funded by Cohesion Funds and Structural Funds.</p>
ENEA (European Network of Environmental Authorities), 2006b. <i>The contribution of Structural and Cohesion Funds to a better environment, Working Group ISFE: impact of Structural and Cohesion Funds on environment.</i>	<p>This report looks at the impact of the Structural and Cohesion Funds on the environment and also at their contribution to sustainable development. A second objective was to share ideas and good practice to inform the new cycle of Cohesion Policy (2007–2013). This project aims to build on the findings and key gaps in information identified by this ENEA working group.</p> <p>The report includes useful background on cohesion, environmental and sustainable development policy in the EU. It then looks at the relationship between environmental and Cohesion Policy and direct investments in several sectors including water and wastewater.</p>
ENEA (European Network of Environmental Authorities), no date ~2006c. <i>ENEA Capacity-Building Working Group.</i>	<p>This document summarises the work undertaken by the ENEA capacity building working group. This group was created to investigate capacity-building needs for integration of environment into Structural Fund and Cohesion Fund programmes and projects. The work includes the identification and prioritisation of capacity-building issues and needs and <i>The ENEA anthology</i> (both below).</p>
ENEA (European Network of Environmental Authorities) Capacity Building Working Group, 2006d. <i>The ENEA anthology.</i>	<p>List of documents relevant to environmental integration of Structural and Cohesion funding, for example case studies, guidance, training materials, best practices, etc. The list contains information on the documents: title, country, year of issue, relevant sections/purpose of document, language and web links. This anthology is a result of work undertaken by ENEA to pull together resources to address capacity-building issues identified by ENEA members (see <i>ENEA Identification and prioritisation of capacity-building issues and needs for integration of environment into Structural Funds and Cohesion Fund</i>).</p>
ENEA (European Network of Environmental Authorities) Capacity Building Working Group (no date) <i>Identification and prioritisation of capacity-building issues and needs for integration of environment into Structural Funds and Cohesion Fund.</i>	<p>List of capacity-building issues and needs for environmental authorities and/or countries with regard to integration of the environment into Structural Fund and Cohesion Fund identified by ENEA Members. Three main types of issues identified:</p> <ol style="list-style-type: none"> 1. Human resources; 2. Institutional issues; 3. Structural Fund/Cohesion Fund project cycle.
Eser, T. W. and Nussmueller, E., 2006. 'Mid-term evaluations of Community Initiatives under European Union Structural Funds: a process between accounting and common learning', <i>Regional Studies</i> 40, pp. 249–258.	<p>This paper presents an actor-centred analysis of the mid-term evaluation (MTE) of the Structural Funds, based on research on the mid-term evaluations of the Community Initiatives. Actors define their roles and interests with regard to the perceived functions of the evaluation — accountability and/or learning — leading to conflicts because of differences in understanding and interpretation. The analysis identifies the conflicts that occur regarding the purpose of the mid-term evaluation. Key issues are the trade-offs between the functions of the mid-term evaluation; the influence of administration 'policy style' on the mid-term evaluation; the potentials and limits of mid-term evaluation as an external evaluation; and the philosophical foundations of the mid-term evaluation.</p>

Reference	Notes
EU-25, 2005. <i>Planned Expenditure on Environment from the Structural Fund summary 2000–2006</i> .	Including expenditure on environmental infrastructures, nature conservation, soil rehabilitation, sustainable energy, sustainable transport, sustainable fisheries and environmental technologies.
EU Court of Auditors, 2007. <i>Special Report No 1/2007 concerning the implementation of the mid-term processes on the Structural Funds 2000–2006</i> together with the Commission's replies.	The Court examined whether the three 'tasks' undertaken halfway through the 2000–2006 period, the mid-term evaluation, allocation of the performance reserve and the mid-term revision of expenditure, were carried out effectively. The Court also examined how these tasks affected spending from the Structural Funds. One of the conclusions was that although mid-term evaluation provided a check on the progress made on implementing the Structural Fund programme, it was often too early to assess the effectiveness and the impact of programmes. The document also provides other conclusions and recommendations to increase the usefulness of the mid-term review and revision for the 2000–2013 period.
EU Environment & Structural/ Cohesion Funds Expert Group (no date). <i>A common understanding paper/opinion. Cohesion Fund 3rd Pillar Environmental Expert Working Group</i> .	This paper presents recommendations of Ministers for Environment on the new sustainability priority of the Cohesion Fund for the period 2007–2013. The 'third pillar' covers energy efficiency and renewable energy and sustainable transport. The paper provides an overview of key issues evaluation to these areas in order to inform future EC guidelines that will translate the new Cohesion Fund regulations into action.
European Commission (EC), 2000. <i>The New Programming period 2000–2006: methodological working papers, Working paper 3, indicators for monitoring and evaluation, An indicative methodology</i> .	This document includes guidance on several topics related to the monitoring and evaluation of Structural Funds, including: <ul style="list-style-type: none"> • how the programme objectives are set and relationships with inputs, outputs, results and impacts; • indicators for different programming levels, for example output indicators are quantified at the measure level only; • programme indicators: inputs, outputs, results and impacts; • indicators of effectiveness, efficiency and performance; • using indicators for evaluation (<i>ex-ante</i>, mid-term and <i>ex-post</i>). The working paper also includes lists of indicators by sector, including environmental and example indicators for evaluations.
European Commission, DGXI, Environment, Nuclear Safety and Civil Protection, 1998. <i>A handbook on environmental assessment of regional development plans and EU Structural Funds programmes</i> .	This handbook sets out an approach to meeting EU requirements for the environmental assessment of regional development plans and programmes in the context of the Structural Funds.
Farrell, F., 2004, 'Regional integration and cohesion —lessons from Spain and Ireland in the EU'. <i>Journal of Asian Economics</i> 14, pp. 927–946.	This article considers the role of the EU Structural Funds in Spain and Ireland, of which both countries were major beneficiaries, in facilitating the regional economic adjustment and reducing regional disparities. The article suggests that there were positive redistributive effects, as well as growth effects, but concludes that national, institutional and political configurations determine the distinctive outcome in the two cases. Finally, it considers the wider lessons for regional integration in The Association of Southeast Asian Nations (ASEAN), a regional community of countries with diversity in the levels of regional development.
Florio, M., 2006. 'Cost-benefit analysis and the European Union Cohesion Fund: on the social cost of capital and labour', <i>Regional Studies</i> 40, pp. 211–224.	This paper discusses simple rules for the calculation of financial and economic discount rates, and of shadow wages, i.e. the opportunity costs of capital and labour, in the context of the appraisal of infrastructure projects part-financed under the Cohesion Fund. It is argued that for the 2007–2013 programming period, the European Commission should adopt a unique financial discount rate of 3.5 % in real terms, social discount rates of 5.5 % for the Convergence regions and 3.5 % for Competitiveness regions, and a region-specific shadow wage rate.
GHK, 2002. <i>The contribution of the Structural Funds to sustainable development Annexes to the Synthesis Report (Volumes 1 and 2) to DG Regional Policy</i> , EC.	The aim of the study was to understand the contribution that Structural Funds have made and can make in the future to sustainable development. The project used a case study approach. The evaluation used and developed a number of tools and methods to assess sustainability, including developing criteria and indicators against which to examine policies or projects. The contribution of Structural Funds to sustainable development (defined as four capitals human, social, natural and manufactured) was examined with reference to their influence on regional trends and particularly in relation to specified trade-offs. The criteria and indicators reflected the local variations in the significant characteristics of different types of capital. The following case studies are part of the main study: Andalusia, Calabria; Campania; Vastra Gotaland; and West Midlands.

Reference	Notes
GHK, 2006. <i>Strategic evaluation on environment and risk prevention under Structural and Cohesion Funds for the period 2007–2013</i> , National Evaluation Report for Spain.	This study is part of a project aiming to provide the strategic evaluation of the needs and priorities for environmental investment under the Structural and Cohesion Funds for the period 2007–2013. It covers five fields of environmental investment: water supply, wastewater treatment, municipal solid waste, renewable energy sources and natural risk management. In order to identify and evaluate the needs in those fields and to select investment priorities for the 2007–2013 period, the project analyses the situation in each field and the financial allocations during the 2000–2006 period. The study then assesses the priorities across the five study fields using a 'point score allocation' and multi-criteria analysis (MCA). (methodology included in evaluation guidance report)
Gorlach, B., Interwies, E., (Ecologic) Newcombe, J. and Johns, H. (eftec), 2005. <i>Cost-effectiveness of environmental policies. An inventory of applied ex-post evaluation studies with a focus on methodologies, guidelines and good practice</i> . Specific Agreement No 475/B2004. EEA Final Report, April 2005.	The findings of the study related to methodology and practice of <i>ex-post</i> cost-effectiveness analysis (CEA) evaluation can be more widely applied to other <i>ex-post</i> evaluations of other policies' effectiveness, even if they do not include a cost-effectiveness analysis.
Government Office for the East of England, 2007. <i>Strategic environmental assessment for the east of England ERDF Operational Programme 2007–2013</i> — draft environmental report, January 2007 and final report non-technical summary, May 2007	(Draft) environmental report of the strategic environmental assessment of the ERDF (European Regional Development Fund) Operational Programme for the east of England, which sets out how European Union Structural Funds will be spent within the region in the period 2007–2013.
Greening Regional Development Programmes Network, 2006. <i>Handbook on SEA for Cohesion Policy 2007–2013</i> , February 2006	The SEA (Strategic Environmental Assessment) Directive will apply to plans and programmes prepared for Cohesion Policy funding in the period 2007–2013 for the first time. The aims of the handbook include providing a practical methodology for undertaking strategic environmental assessment and clarification of the purpose and role of strategic environmental assessment within the Cohesion programming process.
Guedes Vaz, S., Martin, J., (EEA), Wilkinson, D., (IEEP) and Newcombe, J., (IEEP), 2001. <i>Reporting on environmental measures: are we being effective?</i>	This is a synthesis report of the findings of the EEA commissioned project on Reporting on Environmental Measures (REM). The project aim was to assess how far the reporting obligations contained in EU environmental legislation can help evaluate the effects and effectiveness of EU policies on the ground. The project objectives included reviewing the scope and contents of reporting requirements of environmental legislation in order to assess how useful these are for evaluating effects and effectiveness of policies and to develop methodologies for monitoring and reporting on environmental policy measures and for evaluating their effectiveness. The report includes a framework for undertaking effectiveness evaluations.
Hegarty, D, 2003. 'Framework for the evaluation of the Structural Funds in Ireland'. Paper prepared for <i>Fifth European Conference on the Evaluation of the Structural Funds, Budapest, 26–27 June 2003</i> .	This paper describes the development of the framework used for the evaluation of Structural Funds in Ireland. The evaluation framework has been developed over the periods 1989–1993, 1994–1999 and 2000–2006. The approaches to <i>ex-ante</i> , ongoing, mid-term and <i>ex-post</i> in each period are described. The paper also examines how evaluation has influenced the formulation of investment strategies and the allocation of Structural Fund resources.
Huber, W., 2006. 'Evaluation of European Union Cohesion policy: window-dressing, formal exercise or coordinated learning process?' <i>Regional Studies</i> 40, pp. 277–280.	This paper contrasts the formal evaluation obligations of European Union Cohesion Policy with the voluntary learning processes, based on informal networks, built in to regional development policies in Austria. The evaluation requirements of European Union Structural Funds have brought about a clear value-added for Austrian regional policy, particularly with regard to evaluation methods. However, the European Union approach suffers from bureaucratic prescription, notably an over-reliance on indicators at the expense of 'tacit knowledge'. Successful learning requires cooperation and trust if a willingness to address both successes and failures is to be achieved.
Iglesias-Campos, A., 2007. 8.2.3. <i>Territorial cohesion analysis of environmental aspects of cohesion policy — working document proposal</i> .	This document includes some maps and other data which may be relevant to the Spain case study.

Reference	Notes
Institute for Development Policy and Management (University of Manchester), Overseas Development Institute, British Institute of International and Comparative Law, Cordah Ltd., 2003. <i>Sustainability impact assessment of proposed WTO negotiations: sector studies for market access, environmental services and competition.</i>	This is part of series of studies undertaken by the EC relating to the development and application of sustainability impact assessment (SIA) to World Trade Organisation (WTO) trade negotiations. The project covers sustainability impact assessments for three sectors: market access, competition and environmental services. The section on environmental services looks at the sustainability effects of trade liberalisation in environmental services, particularly in the areas of water and wastewater management and waste management. This information is then used to suggest mitigation and enhancement measures to assist those countries or groups that might be disadvantaged by further liberalisation of trade in environmental services.
Jakoby, H., 2006. 'Evaluation as part of the regional policy life cycle: the example of North Rhine-Westphalia', <i>Regional Studies</i> 40, pp. 281–284.	The paper considers how European Union evaluation requirements have been used in North Rhine-Westphalia, Germany, as a catalyst for changing programmes and management systems at different stages in the policy life cycle. The experience of North Rhine-Westphalia indicates the potential of evaluation for initiating a learning process in regional economic development that involves a wider range of partners and stakeholders. Interregional benchmarking on evaluation issues, as used between North Rhine-Westphalia and Scotland, the United Kingdom, has the potential to provide an additional dimension of self-assessment and policy learning, but it needs to be used with caution.
Kober, E., 2004. 'National Co-financing in Austria, EU-Period 2000–2006'. <i>EU Interact, presentation Riga</i> 6–7 May 2004.	This presentation includes the following information: <ul style="list-style-type: none"> • an overview of 2000–2006 EU funding programmes in Austria; • the institutional framework at the local, regional and national level; • the INTERREG and Structural Fund management; • structure of financial flows of EU funding in Austria.
Leonardi, R., 2006. 'Cohesion in the European Union', <i>Regional Studies</i> 40, pp. 155–166.	This paper presents a review of the initial rationale and subsequent impact on socio-economic conditions in the EU of the EU's Cohesion Policy after 16 years of implementation. During the last decade and a half, not only have the peripheral and less-developed regions and countries not fallen behind the developed countries of the core, but they have grown at faster rates than the core areas. The policy has helped to reduce the socio-economic disparities between core and peripheral areas. For the less-developed countries that have recently (or are expected to join in the near future), the real attraction for entering the EU is not limited to full access to the Single Market, it is also tied to the goal of participating in the Cohesion Policy as a means of spurring a sustainable pattern of economic growth in the medium to long term.
Maier, A. (ÖROK) and Gruber, M. (convelop), 2006. 'Ex-ante evaluation 2007–2013 in Austria with focus on the NSRF: an interactive process', Presentation for the <i>Evaluation Network Meeting, 30 November–1 December 2006, Brussels.</i>	This presentation includes an overview of the institutional framework in Austria and the financial resources allocation for the 2007–2013 period. The presentation then focuses on the National Strategic Reference Framework (NSRF), including the process of drafting the framework and the organisations involved. The presentation then describes the <i>ex-ante</i> evaluation and strategic environmental assessment of the National Strategic Reference Framework, which were carried out as interactive and complementary processes.
Maier, A. (ÖROK) and Schinner, R. (Carinthia), 2004. 'Use of evaluations in Austria, a coordinated and ongoing approach', Presentation at the <i>Seminar on Mid Term Evaluation in Objective 1 and 2 Regions, 8 October 2004, Brussels.</i>	This presentation looks at the process of embedding mid-term evaluation in an ongoing evaluation process and using evaluation as a learning process. The presentation uses the case study of Carinthia, an Objective 2 area with 260 000 inhabitants.
Mairate, A., 2006. 'The 'added value' of European Union Cohesion Policy', <i>Regional Studies</i> 40, pp. 167–177.	As part of the wider debate on financing the European Union, the notion of Community 'added value' is being used to justify expenditure on Cohesion Policy. Broadly, this is defined as the increased value resulting from Community action, and the extent to which intervention adds 'value' to the interventions of other administrations, organisations and institutions. <p>This paper provides an assessment of the added value brought about by European Union regional policy on the basis of the past experience across Member States and regions. It discusses different aspects of added value with respect to impacts, economic integration, policy-making and programming, institutional developments, implementation, learning, and political awareness. It concludes by commenting on the proposed reform of the Structural Funds.</p>
Manteiga, L. and Sunyer, C., 2000. 'Quantification for environmental impact: methodology and practical aspects', <i>IV European Conference on Evaluation of the Structural Funds, 18–19 September 2000 Edinburgh.</i>	The authors reviewed different approaches to environmental assessment in order to develop a methodology for <i>ex-ante</i> environmental assessment and monitoring of the Structural Funds 2000–2006 programme period. The paper also defines environmental indicators for the evaluation and monitoring of Structural Fund programmes.

Reference	Notes
Martin, R. and Tyler, P., 2006. 'Evaluating the impact of the Structural Funds on Objective 1 regions: an exploratory discussion', <i>Regional Studies</i> 40, pp. 201–210.	<p>This paper makes the assertion that evaluation evidence on the impact of the Structural Funds on employment in Objective 1 regions remains elusive.</p> <p>The authors seek to make a contribution to this task by evaluating the impact of European Union regional policy on cumulative job creation in the least prosperous Objective 1 regions (at the NUTS 2 level). It adopts an evaluation methodology pioneered originally by Moore and Rhodes in 1973 in the United Kingdom. While tentative, it estimates that the cumulative effect of European Union Cohesion Policy is around 1 million jobs as at 2002, which is a significant contribution. Despite the considerable methodological and measurement problems, this paper aims to encourage further research to be undertaken in this important area.</p>
Mendez, C., Bachtler, J., Gross, T. and Yuill, D. (European Policies Research Centre), 2006. <i>The final year of the 2000–2006 period: review of programme developments: winter–summer 2006</i> , IQ-NET Thematic Paper No. 18 (1).	<p>This paper presents a six-month review of the final year of the 2000–2006 programme progress. The paper includes an overview of financial performance at the EU-25 level and the commitment and expenditure figures. The main implementation and absorption challenges, for example size of projects, co-finance, institutional, etc. and activities and tasks undertaken in order to speed up absorption and the priorities for the programme closure are also discussed.</p> <p>The report also examines the current status of the <i>ex-ante</i> evaluations for the 2007–2013 round of programmes.</p>
Milio, S., 2007. 'Can administrative capacity explain differences in regional performances? Evidence from Structural Funds implementation in Southern Italy', <i>Regional Studies</i> 41, pp. 429–442.	<p>Why do some regions, after 15 years of receiving Structural Funds, still have difficulties in spending their allocated resources? Empirical evidence shows that Funds implementation rates have been very poor in Italy. However, by investigating individual Italian Objective 1 regions, it appears that not all follow this general trend.</p> <p>This paper identifies the administrative capacity of regional governments as an independent variable accounting for Structural Funds implementation variation. It introduces a novel definition of administrative capacity, and by using two regions as case studies it measures the degree of the existing capacity. The investigation provides evidence to suggest that administrative capacity is positively correlated to implementation. Furthermore, the factors that might account for the different degree of capacity between these regions are indicated.</p>
Molle, W., 2006. 'Evaluating the EU Cohesion Policy; Is the system appropriate? Has the policy delivered the results it was supposed to do? Has it done so without wasting money? What can be done to improve it?' Paper for the RSA conference Leuven; 8–9 June 2006.	<p>This paper seeks to answer the questions set out in its title, namely, to what extent after the long period of experience with EU Cohesion Policies can the policies be said to have achieved their objectives? Has tax payers' money been well spent? It therefore seeks to present a thorough policy evaluation, and present the results of this evaluation to shape better future policies. It does this by:</p> <ul style="list-style-type: none"> • a discussion of theoretical frameworks that have been elaborated for making policy evaluations; • a structured survey of studies made to evaluate EU Cohesion Policy; • discussion of over-arching aspects; • conclusions on (in)adequacy of past performance of cohesion policies and proposals for improvement.
Nychas, A., 2007. <i>Strategic Environmental Assessment and SFs Operational Programmes: an assessment</i> , European Commission presentation to ENEA, Brussels, 28 November 2007.	<p>A preliminary review of the strategic environmental assessments for 2007–2013 Structural Fund programmes identified several problems in Member States. In several countries, it appears that environmental authorities were not properly consulted in the process and their views not fully considered. In a few cases, the strategic environmental assessment (SEA) procedure was not completed when an Operational Programme was formally submitted and in others, the strategic environmental assessment did not cover all the elements in the programme. Moreover, several assessments did not carry a clear statement of how the study and the consultations had been taken into account and how they were used in deciding on alternatives, requirements of the EU's SEA Directive.</p>
Oñate, J. J., Pereira, D. and Suárez, F., 2003. 'Strategic environmental assessment of the effects of European Union's Regional Development Plans in Doñana National Park (Spain). <i>Environmental Management</i> Vol. 31, No. 5, pp. 642–655.	<p>This paper presents a methodology and results of an informal strategic environmental assessment of the effects of the Andalusia Regional Development Plan on the Doñana National Park and its area of influence. Regional development plans are the means of implementing EU Structural Fund. The regional development plans are subject to environmental assessment but as the assessment takes place at the regional level, the authors argue that this approach is deficient when sub-regional areas of high value such as this National Park are involved. The informal strategic environmental assessment was carried out by WWF independently of the Spanish authorities.</p>
Prettenhalter, F. and Veters, N. (editors, InTeReg), 2005. <i>Executive summary of environmental report, strategic environmental assessment (SEA) of the National Strategic Reference Framework for Austria, (STRAT. AT) 2007–2013</i> .	<p>Summary of the findings of the strategic environmental assessment of the national strategic reference framework for Austria for the period 2007–2013.</p>

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Prettenthaler, F. and Vettors, N. (Editors, InTeReg), 2006. <i>Umweltbericht im Rahmen der Strategischen Umweltprüfung des Einzelstaatlichen Rahmenplans für Österreich (STRAT. AT) 2007–2013.</i>	Final environmental report of the strategic environmental assessment of the National Strategic Reference Framework for Austria, 2007–2013. Note: in German.
Raines, P., 2006. 'The 'Trojan Horse' effect and the evaluation of Structural Funds', <i>Regional Studies</i> 40, pp.285–288.	This paper considers the extent to which Structural Funds evaluation has features that differ from domestic policy evaluation and whether they could contribute to the continuing development of the evaluation of national policies. Based on the experience of Structural Funds evaluation in Scotland in the 2007–2013 period, the paper discusses the so-called 'Trojan Horse' effect and identifies four distinctive elements in Structural Funds evaluation: the importance of evaluation in policy development; its programmatic nature; the role of policy learning; and the approach to assessing macroeconomic effects from diverse microeconomic interventions.
Rodriguez-Pose, A. and Fratesi, U., 2004. 'Between development and social policies: the impact of European Structural Funds in Objective 1 regions', <i>Regional Studies</i> 38, pp. 97–113.	This paper assesses, using cross-sectional and panel data analyses, the failure so far of European development policies to fulfil their objective of delivering greater economic and social cohesion by examining how European Structural Fund support is allocated among different development axes in Objective 1 regions. We find that, despite the concentration of development funds on infrastructure and, to a lesser extent, on business support, the returns to commitments on these axes are not significant. Support to agriculture has short-term positive effects on growth, but these wane quickly, and only investment in education and human capital — which only represents about one-eighth of the total commitments — has medium-term positive and significant returns.
Schremmer, C. et al., 2002. <i>Methods for the evaluation of the environmental impacts of the Structural Funds programme. Study commissioned by ÖROK</i>	This study developed a methodology for mid-term evaluation of environmental improvements from measures in the regional objective programmes. The study focused on projects co-financed by the European Regional Development Fund (ERDF) and used data available in Austria. The method was developed in order to find out whether the Structural Funds programmes (Objective 1 and Objective 2) can contribute to the improvement of economic structures whilst contributing to issues such as lowering energy consumption, reducing emissions and maintaining biodiversity.
Original title: Schremmer, C. et al (ÖIR), 'Methode zur Evaluierung von Umweltwirkungen der Strukturfondsprogramme: Studie zur Ermittlung geeigneter Vorgangsweisen zur Bestimmung des Beitrages der Interventionen im Rahmen der regionalen Zielprogramme Österreichs in der Periode 2000–2006 zur Förderung der Umwelt und nachhaltigen Entwicklung' Raumplanung ÖROK, Schriftenreihe Nr. 164; Wien, September 2002	The study developed different environmental evaluation indicators based on the size of the projects as defined by the cost, on the assumption that larger projects will have a bigger environmental impact. Short English summary also available: www.oerok.gv.at/Publikationen/schriftenreihe/schriftenreihe164_summary_en.pdf
Strategic environmental assessment guidelines for INTERREG programmes and projects, 2006.	The aim of the guidelines is to facilitate the application of strategic environmental assessment to INTERREG programmes and projects. The guidelines include background on strategic environmental assessment, INTERREG initiatives and their potential contribution to SD. A framework for implementing strategic environmental assessment in INTERREG programme and projects is then presented, including indicators, best practice, etc. The guidelines also show how to integrate strategic environmental assessments into INTERREG project design and recommendations. The guidelines also include a Core Set of environmental Indicators proposed by the EEA.
Spanish Environmental Authorities Network, 1999. Common basic methodology for: strategic environmental assessment of regional development plans: 2000–2006.	The aim of this document is to establish a common basic methodology for the strategic environmental assessment of regional development plans for the programming period 2000–2006 for Spain. The methodology is based on and adapts the EC document <i>Handbook on environmental assessment of regional development plans and European Union Structural Funds programmes</i> .
Stame, N., 2001. 'The quality of evaluation in the context of the European Structural Funds', <i>Informationen zur Raumentwicklung</i> , vol. 6/7, pp. 311–314.	This paper reviews the issues that should be considered in order to undertake better evaluations of Structural Funds. These issues include: <ul style="list-style-type: none"> • who should be the responsible authority for evaluations (currently the EC is responsible for ex-post and local authorities for mid-term); • evaluation methods should be participative and shared between the evaluator and the commissioning authority; • scarce use of evaluation results, which can be a reflection on the quality of the evaluation; • how the evaluators should be selected.

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Strohmeier, G. and Holzinger, E., 2006. <i>The coordination and work platform KAP-EVA — a learning process in the evaluation of the EU Structural Funds programmes in Austria.</i>	The KAP-EVA is an instrument developed to improve the communication and coordination of the evaluation process for the mid-term evaluation of the 2000–2006 period. This paper includes an introduction on why evaluation should be carried out and an overview of evaluations carried out by the EU at the project, programme and policy levels. The paper then presents an overview of the development of evaluations in Austria from the 1995–1999 period before focusing on the mid-term evaluation of the 2000–2006 period and the KAP-EVA process. The process aimed to extend evaluation beyond the obligations set by the EC and to turn it into a learning process.
<i>The territorial state and perspectives of the European Union, towards a stronger European territorial cohesion in the light of the Lisbon and Gothenburg Ambitions.</i> Based on the Scoping Document discussed by Ministers at their informal Ministerial meeting in Luxembourg in May 2005. A background document for the Territorial Agenda of the European Union.	This report presents an analysis to extend the Lisbon Strategy to include a territorial dimension. This document aims to be the basis for the Territorial Agenda of the EU.
Unión Europea, 2007. <i>Marco Estratégico Nacional de Referencia 2007–2013 España.</i>	National Strategic Reference Framework for Spain for the funding period 2007–2013. This document includes the regional and cohesion funding allocated to Spain and the funding strategy for the period.
WEFO (Welsh European Funding Office), 2005. <i>Monitoring and evaluation guidance for Structural Funds projects and partnerships.</i>	This paper includes guidance on monitoring and evaluation and how to incorporate these to a project from the planning stage. The guidance covers different types of evaluation that may be needed, for example at different times of a project, to answer different questions.
WWF, 2003. <i>Structural Funds in an enlarged EU.</i>	This paper contains a series of recommendations to strengthen the environmental dimension of Structural Funds over the 2004–2006 period and in the next programming period (2007–2013). The paper was timed to influence the mid-term evaluation and review of the funds' performance for the 2000–2006 period and the future funds.
WWF, 2007a. <i>Environmental sustainability check-list.</i> To be used for projects submitted under EU Regional Funding	<p>This checklist consists of a series of questions to assess how far a proposed project complies with the environmental and sustainable development requirement of EU Regional Funding. The checklist is aimed at all stakeholders in the implementation process and can be used in project development, project management and project evaluation.</p> <p>The checklist consists of a general set of questions on sustainability that can be applied to any project or measure plus a series of topic/sector-specific questions. The specific questions cover various topics, including water infrastructure and nature protection. The answers to the questions can be added to give a global score that can be translated into a traffic light format in order to provide a quick assessment of the sustainability of a project.</p>
WWF, 2007b. <i>How green is the future of the EU Cohesion Policy? A WWF score-card analysis of the Regional Funds programming for 2007–2013.</i>	<p>This report looks at programming for the 2007–2013 funding period. This 'score-card' evaluation seeks to examine to what extent Member States implement several legally binding principles of environmental integration, sustainable development and partnership. The scoring exercise was conducted in 11 Member States (including Italy) and describes the programming process and the content of documents up to January 2007. The objectives of the examination included: analysing the horizontal and vertical integration of environmental and sustainable development in the national strategic reference framework and key operational programmes.</p> <p>A key general result of the scoring exercise is that there seems to be no systematic integration of lessons learned from previous programming periods, including lessons from <i>ex-ante</i> evaluations and monitoring.</p>

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Abbreviations

ATO	ambiti territoriali ottimali
BMU	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
BOD	biological oxygen demand
CAP	Common Agricultural Policy
CEA	cost-effectiveness analysis
CF	Cohesion Fund
CO ₂	carbon dioxide
CSF	community support framework
DG	Directorate General
DPS	The Department for Development Policies
DPSIR	drivers, pressures, state, impact and responses
EAGGF	European Agricultural Guidance and Guarantee Fund
EAP	Environment Action Programme
EC	European Commission
EEA	European Environment Agency
EIA	environmental impact assessment
EIB	European Investment Bank
ENEA	European Network of Environmental Authorities
ERDF	European Regional Development Fund
ESF	European Social Fund
ETC-LUSI	European Topic Centre on Land Use and Spatial Information
EU	European Union
EUR	euro
FIFG	Financial Instrument for Fisheries Guidance
GDP	gross domestic product
IAE	Statistical Institute of Andalusia
ICZM	integrated coastal zone management
IEA	International Energy Agency
IGRUE	Ispettorato Generale per i Rapporti Finanziari con l'Unione Europea (General Inspectorate for Financial Relations with the European Union)
INEGA	Galician Energy Institute
IPA	Financial Instrument for Pre-accession Assistance
ISFE	impact of Structural and Cohesion Funds on environment
ISPA	Instrument for Structural Policies for Pre-accession
ISPRA	Italian Environmental Protection Agency
ISTAT	The National Statistical Institute
ISTAT-DPS	The National Statistical Institute – The Department for Development Policies
JASPER	Joint Assistance in Supporting Projects in European Regions

Abbreviations

JEREMIE	Joint European Resources for Micro to Medium Enterprises
JESSICA	Joint European Support for Sustainable Investment in City Areas
KPC	Kommunalkredit Public Consulting GmbH
ktoe	kilotonne of oil equivalent
MONIT	Financial database held by IGRUE
MTE	mid-term evaluation
NAP	national action plan
NGO	non-governmental organisation
NSRF	National Strategic Reference Framework
NUTS	Nomenclature Des Unités Territoriales Statistiques
OECD	Organisation for Economic Co-operation and Development
OP	operating programme
p.e.	person-equivalent
PIT	Integrated Transport Programme
REM	reporting on environmental measures
REP	Working group on reporting
ROP	regional operating programme
SAC	special area of conservation
Sapard	Special Accession Programme for Agriculture and Rural Development
SDS	Sustainable Development Strategy
SEA	strategic environmental assessment
SF	Structural Fund
SME	small and medium size enterprises
SOP	sectoral operating programme
SWOT	strengths, weaknesses, opportunities and threats
TEN-T	trans-European networks for transport
UN	United Nations
UVAL	The Public Investment Evaluation Unit
UWWT	urban wastewater treatment
UWWTD	Urban Waste Water Treatment Directive
WFD	Water Framework Directive

European Environment Agency

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2009 — 128 pp. — 21 x 29.7 cm

ISBN 978-92-9213-007-7

EEA Technical report series: ISSN 1725-2237

DOI 10.2800/12634

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