

Ex Post evaluation of a sample of projects co-financed by the Cohesion Fund (1993-2002)

Synthesis Report

Final Report

Client: European Commission, DG Regional Policy

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Preface

This ex post evaluation has been carried out in the period February September 2004 by an evaluation consortium consisting of four country evaluation teams and an evaluation coordinator. The following companies formed these teams:

Portugal:	CISED
Spain:	Ecotec and Consultrans
Ireland:	Fitzpatrick Associates
Greece:	SIG Trademco
Coordinator:	ECORYS (NL)

A separate evaluation report has been produced for each country. The present report represents the synthesis report of the ex post evaluation.

This ex post evaluation would not have been possible without the support and co-operation of the different national authorities and project promoters in the Member States. Also the co-operation of the various geo-units of DG REGIO and the members of the Steering Committee has been essential in supplying the building block on which this evaluation is founded. We would therefore like to thank all those who have shared their insights and knowledge on the working of the Cohesion Fund. A special word of thanks we would like to express to the two external experts of the Steering Committee, Professor Florio and Professor De Rus, who have provided valuable methodological support in the evaluation.

When interpreting the findings of the ex post evaluation, the reader should keep in mind that the evaluation has mainly analysed completed projects from the first programming period of the Cohesion Fund (1993-1999). Lessons have been learnt from this first period and changes have been applied in the second programming period. As much as possible we have tried to put the result of this evaluation in the light of these recent changes.

We express our hope that our findings can be used to further strengthen the Cohesion Fund in the future.

Executive Summary

The Cohesion Fund

The Cohesion Fund was established in 1993 under the terms of the Treaty on European Union. It is intended to strengthen the economic and social cohesion of the European Union. Its aim is to help the least prosperous Member States of the European Union to be able to fully participate in the Economic and Monetary Union from 1999 onwards. The eligibility criterion is that the GNP per capita is 90% or less that of the EU average. During the period under evaluation four Member States benefited from the Cohesion Fund - **Ireland, Spain, Portugal and Greece**.

The Cohesion Fund has committed more than € 16 billion during the period 1993-1999. For the programming period 2000-2006 the European Council has agreed to invest an additional € 18 billion through the Cohesion Fund. The present report gives the results of the ex post evaluation of a sample of 200 project co-financed by the Cohesion Fund in the period 1993-2002.

The ex post evaluation

The ex post evaluation of projects co-financed by the Cohesion Fund is required according to Regulation 1164/94. The wider objective of the ex post evaluation is not only to fulfil the regulatory requirements, but also to learn from the experiences gained in the Cohesion Fund practice. The four Cohesion Fund countries (CF4), as well as the New Member States can benefit from these lessons.

The Terms of Reference (TOR) for this evaluation states the following objectives for the ex post evaluation:

1. To establish to what extent the objectives of the Cohesion Fund have been achieved, as well as their impact on the two relevant sectors – environment and transport – and on economic and social cohesion.
2. To assess the effectiveness and efficiency of the implemented projects.
3. To identify the lessons to be learned from the selection, design and implementation of those projects, in order to improve strategic planning and the modalities of their selection, design and implementation.
4. To identify the Community added value obtained at national and EU level, with particular regard to the contribution made tot the development of TEN-T.

To fulfil the objectives the following core evaluation criteria have been defined:

- a. *Appropriateness* of strategic planning, design and selection procedures
- b. *Effectiveness*
- c. *Efficiency*
- d. *Impact* at project and regional level
- e. *Management and implementation systems*
- f. *Community value added*

The following conclusions have been drawn on each of these criteria.

Appropriateness

Relevance

The relevance of the sample projects in relation to the national needs and EU policies is high. Nearly all projects are relevant in these respects and, with only a few exceptions, the reviewed projects were well within the national and EU policy framework.

Nevertheless, the project applications generally fail to assess the quantitative contribution of the project to these national needs. Also problem descriptions and analyses are sometimes lacking. Instead, solutions are presented embedded in the project for which financing is applied for.

Project selection and design

The Managing Authorities have been focusing primarily on timely commitment of the available funding, paying less attention to the (technical) contents and (economic) priority of projects. This attitude is stimulated by the organisation of the Cohesion Fund around annual commitments.

The evaluation team was generally not able to verify from the project applications whether the projects are technically sound. Technical feasibility studies were hardly or not at all available for the evaluators, despite the fact that any substantial transport and environment project normally requires the preparation of a proper feasibility study.

The lack of an adequate feasibility study may be the cause for various problems such as: (1) improper designs, (2) technical amendments after approval, but before the start of the construction, (3) late amendments to design/tender dossiers, (4) late start of implementation, (5) cost overruns due to additional activities for the Contractor, who is then in a good position to claim additional costs, (6) longer implementation periods than foreseen, (7) too many requests for extension of the implementation period, up to 10 years as is now sometimes the case.

As regards transport projects, the horizontal EU environmental directives, like the Habitat and Birds Directives, are sometimes being circumvented by requesting financing for the part of a corridor, which is not planned in a bird or habitat area.

The Spanish experience learns that smaller projects, or a project consisting of a large group of projects, are difficult to handle in the Cohesion Fund (CF), due to the inflexibility of the system and the long approval periods for amendments.

The time needed to get approval on applications is generally long (well above three months). This is partly due to improper preparation of projects. Also the time needed in Brussels is relatively long.

Use of Public Private Partnerships

Until now little use has been made of Public Private Partnerships (PPPs) in Cohesion Fund projects. In some cases this relates to the particular circumstances in the country (Spain, Greece). However, there might also be reluctance by applicants to submit PPP-projects, due to the complicated character of such projects, which might make financing from Cohesion Fund more difficult.

Complementarity

Funding of projects in CF countries is in an administrative way co-ordinated between Cohesion Fund and Structural Fund (SF) sources. The reasons for applying for CF funding (instead of for SF funding) are usually pragmatic and relate to the eligibility, co-financing rate, type of project, the region in which it is carried out, etc.

Effectiveness

Generally, the projects reviewed have in qualitative terms achieved their outputs, results and goals. Also in the majority of projects the utilisation of the infrastructure and the beneficiary population was largely in line with the ex ante expectations. However, in the case of project results, project goals and, to a lesser extent, beneficiary population, a quantitative assessment was hampered by lack of ex ante quantification of indicators and/or lack of quantified ex post indicators. Quantified indicators for output (both ex ante and ex post) are generally available.

In all CF4 countries there is a lack of ex ante quantification of project results and goals to be achieved. Only general objectives are mentioned. The final reports of the projects reviewed do not include this information and an adequate quantitative assessment of their effectiveness in these areas is not possible.

The use of suitable effectiveness indicators is not very developed. Frequently objectives, outputs and results are being mixed up, despite that the MEANS Collection has provided a structure for this.

It is also found that for similar projects within the same sub-sector, different indicators for outputs, results and goals are being used. This makes it very difficult to assess the level of impact of the various projects in comparison to each other.

The Regulation contains an obligation for the Member State to produce a final report for each project. However, in the past the Regulation did not prescribe a minimum content, reason why many final reports reviewed contain little information. For instance, sometimes the final report contains only a statement that the envisaged amount of concrete and iron has been used, or similar statements.

Further, very often the final report focuses mainly on technical indicators, planning and costs and much less describes issues concerning impacts, effects or wider influences. One of the consequences is that, if ex ante goals have not been set in a quantitative way, there is no need to explain ex post the reasons for not realising this.

This has partly been repaired in the Council Regulations 1164/94 and 1386/2002. These Regulations improve the contents of the final report.

Although there is some indication on the requirement to report on the “polluter-pays principle” this is not a strong requirement.

The reporting on implementation risks and external factors influencing the project implementation is often not elaborated much upon in the final reports. As the ex ante set objectives are not described in a quantitative way, it appears that project authorities do not feel a need to explain the impact of external factors on deviation from the objectives.

There is presently neither an obligation for the Member States, nor for the beneficiaries, to operate or maintain the infrastructure. The infrastructure and land may even be sold after completion of the project. This is also the case when Cohesion Funds have been used to purchase land and/or real estate.

Efficiency

Time and cost overruns

The analysis shows that time and costs overruns are main weaknesses of the reviewed projects. On average, the sample projects show a cost overrun of some 17.5%. Although cost overruns are not uncommon in infrastructure projects and the Cohesion Fund does not perform worse than international experience elsewhere, this still is an important issue to address.

The four most important reasons for cost and time overruns are:

- *Ill preparation of projects.* Projects are submitted when they are technically not mature enough; detailed technical feasibility studies are lacking. This does not only result in delays in the approval procedure, but also in changes in design, changes in the scope of work and in additional administrative procedures. Delays and scope changes are one of the main factors influencing the costs.
- *External factors.* External factors as archaeological findings, unexpected geological conditions and meteorological conditions are also indicated as causes for delays. The discovery of protected habitat areas can also be categorized as an external factor. To a certain extent these external factors could have been foreseen through more detailed preparatory studies.
- *Community involvement.* This is mainly related to opposition from local communities. Improvements in this field could be realised by more extensive public consultation.
- *Lack of managerial capability.* This holds especially for the smaller municipal bodies, which are faced with more complex infrastructure works and

administrative procedures than they were being used to before the start of the Cohesion Fund.

A number of actions have been undertaken already within the Cohesion Fund that provide incentives for improved preparation of projects and help to avoid very long delays. Examples are the M+24 rule and the decision to allow only one major modification. Also the practice not to co-finance cost increases provides a stimulus in this respect. These actions have the effect of making Managing Authorities more cautious and will presumably lead to applications with better-prepared projects.

Unit costs

There is no clear indication that “gold plated” projects have been co-financed under the Cohesion Fund. There is some evidence, though, that a few projects have been financed with too high capacity in relation to (future) utilisation of the infrastructure.

Co-financing rate

Although the rules for determining the co-financing rate do not appear to form a specific problem, the evaluators have found only pragmatic criteria for the application of the 80 or 85% co-financing rate. The difference in maximum co-financing rates between ERDF and CF creates incentives to prepare a portfolio of projects that maximizes total support given by the Community.

In addition, some basic dilemmas exist between general policy objectives and the rules applied for calculation of the co-financing rate. Especially the application of the polluter-pays principle would merit another approach. In general, this principle is only partially adopted as in most cases depreciation and interest costs (in practice some 60-70% of all costs) are not systematically recovered from user charges. Increasing user charges to cover such costs is discouraged by the present system of determining the co-financing rate.

Project impact

Cost benefit analysis

The quality of the Cost Benefit Analyses (CBAs) as used in the reviewed application forms is generally weak. In particular for environmental projects the quality of the CBA varies considerably, as does the methodology applied. In many cases environmental benefits (non priced benefits) are insufficiently documented and in various cases such benefits are high by any standards. The found quality is such that general conclusions on the socio-economic impact of environmental projects are in many cases hard to draw. Even the use of the CBA instrument for project selection in this field is questionable.

In transport projects the quality of the CBAs is generally higher. In these projects a problem can emerge if they are part of a wider (road, rail) corridor and no specific CBA is available (or could be made) for the particular section.

In addition, Consultants have the following observations on the methodologies applied in the ex ante CBAs:

- There was no clear guidance as to how the Economic Rate of Returns (ERR) should be calculated in the 1993-1999 period.
- There is a need for more defined and uniform methodology to assess the benefits from environmental projects.
- In the CBAs carried out for projects approved in 1993-1999, various elementary rules of CBA were not taken into account, namely:
 - No problem description and description of project (with project) and base (without project) cases;
 - The project effects are not assessed in terms of comparing the project and base cases;
 - No explicit corrections for taxes and duties have been carried out, nor have shadow rates for inputs and outputs been applied.

Despite these problems, Consultants have recalculated the ERR for the majority of in-depth projects. In this recalculation the methodological issues raised above have only partly been adjusted. Adjustments have been made on project parameters (investment costs and timings, realised operating costs, realised outputs and results) and methodological issues (length of project period, application of shadow prices, exclusion of VAT, calculation of externalities or indirect benefits) only.

The general conclusions from the recalculations of the ERR are:

- The recalculated ERR (RERR) for transport projects is generally in line with the ex ante ERR. The typical range of ERRs for transport projects is 10-25%, with an average ERR of around 16%.
- The RERR for environmental projects is generally lower than the ex ante ERR. The typical range is 0-20%, with an average ERR of around 12%. If uncertain or unclear environmental benefits are left out, the RERR would drop to low (or negative) levels in almost all cases.
- Despite the many corrections applied, the RERRs are still at a reasonable level. Only few projects show such a low RERR that implementation of the project is questionable in retrospect.

Employment

Quantitative data on temporary and permanent employment effects of the sample projects was found to be weak. Information on temporary direct employment (e.g. during the construction period) is generally available, but in many cases neither information is given on temporary indirect employment, nor on permanent employment (direct and indirect). Such information is admittedly more difficult to collect, as it sometimes requires economic modelling exercises, which go beyond the capacity of project beneficiaries.

The modelling exercises carried out by the London School of Economics on a sample of CF co-financed projects show impressive impacts in terms of employment, additional value added, as well as in generated investments by businesses. The latter effect illustrates the leverage effect of CF projects on the private sector.

Management and implementation systems

The management systems for the Cohesion Fund in the Member States have grown into relatively efficient organisational structures since the start of the Cohesion Fund. As the emphasis shifted from mainly programming and selection of projects to a stronger role for monitoring, especially cost control and accounting have been further strengthened.

In most cases three (and sometimes four) layers are distinguished in the Member State: beneficiary/promoter, Managing Authority, CF co-ordinating department. In general control at the co-ordinating level is mainly administrative. There is no systematic Quality Assurance system in the Member States as regards the technical, financial and socio-economic viability of projects and their compliance with relevant EU directives. Annual commitments and financial control appear to be the main drivers in the management set-up. This is also reflected in the monitoring process, which focuses on financial and technical progress. Only limited attention is given to result and goal indicators.

Also in Brussels the main focus is on administrative and financial control, with additional assessment on the compliance with EU directives and policies. Although a framework contract is available, the Commission does not perform standard technical checks on project applications.

In three CF countries pre-funding systems are in place (Spain, Portugal, Ireland). These have a positive influence on the progress of projects in the start-up phase, when funding of the CF is not yet available. Especially the Portuguese example of a revolving fund, which is being fed by transferring half of the advance payment in the fund, is interesting because it can easily be applied in the New Member States. Also the project monitoring system developed in Portugal is a good example for new CF countries.

Compared to the ERDF, the CF requires a more intense administration since there are more organisational layers involved within Brussels and in the recipient countries. An analysis for Portugal shows, however, that the administrative costs for CF projects are comparable with the administrative costs for SF projects, if expressed per Euro of assistance. Due to their larger size, the administrative costs are higher for CF projects in absolute terms.

In general programming efforts are reported to be heavier for ERDF than for the project-based CF approach. This is compensated by the lower level of monitoring costs during execution of the ERDF programmes. Further streamlining of CF procedures with the ERDF procedures might clearly lead to lower administrative costs.

Community value added

The Cohesion Fund has played, and is still playing, a key role in Spain, Portugal, Ireland and Greece in the field of improvement of transport infrastructure, drinking water supply, wastewater treatment and waste management. There is a clear and tangible improvement of the situation in these countries in the period 1993-2002, which in many aspects has

been considerably faster than in the EU15. It is obvious that such improvements would have been less impressive without Cohesion Fund assistance.

Additional investments in the two sectors in the period 1989-2002 as a result of the availability of CF and SF financing is estimated at € 42.5 billion (€ 34.7 billion over the period 1994-2002). Over the period 1989-2002 additional public spending has been 33% higher in CF4 due to the availability of the funds. The effect of CF and SF in making additional funds available differs by country and sector: a decline can be seen over the period 1989-2002 in Greece and Ireland, while the effect increased in Portugal and Spain.

Apart from the contribution that the CF has made in terms of investments, the CF has had value added in terms of developing and focusing sector policies. An important contribution of the CF has also been the introduction and improvement of project cycle management techniques, from identification up to monitoring.

Recommendations on implementation

The main recommendations derived from the ex post evaluation are:

Commission

- The Commission could introduce measures for additional quality assurance for new applications. The required submission of a feasibility study for large projects in the new regulation is promising in this respect. In addition, a standard expert opinion on the quality of the project is recommended.
- In those cases where a project forms a part of a larger whole (e.g. a road section in a corridor) it is advised to request an EIA for the whole project, to avoid that information on less environmentally friendly parts of the larger project, that are (in)directly related to the application, does not reach the Commission.
- It is recommended that further methodological support be offered by the Commission to the Member States, including reference values for principal parameters (e.g. valuation of environmental benefits). The new regulation foresees this (art. 40). Similar support is suggested for developing a consistent, common set of result and impact parameters and the development of a reporting format for project costs, to allow the establishment of a uniform cost database.

Managing Authority/beneficiary

- To enhance the success of CF financed projects, it is strongly recommended to select only mature projects, which fulfil clear quality standards. This will lead to better projects and fewer/smaller time and cost overruns. On the basis of the experience with the CF so far, a number of recommendations can be made in this respect:
 - Adopt a multi-annual planning approach in which both project preparation and implementation are planned on a multi-annual time frame;
 - Create a pipeline of projects;
 - Request active public consultation before submission of applications;

- Request fully developed technical (design and feasibility) studies before application. This could be improved by creating a special facility in the country for technical feasibility studies;
 - Make more use of the CF to finance preparatory studies;
 - Request appropriate risk assessment before submission of applications;
 - Apply technical quality assurance on applications for financing. If relevant, develop a standard technical checklist in this respect.
 - Approve only projects which are close to tendering or have completed tendering procedures (this would require a system of pre-funding at the member states to avoid unnecessary start-up delays);
 - Do not allow re-measurement type of contracts.
- Offer methodological support to beneficiaries in preparing CBAs and in application of impact and performance indicators.
- Water supply (including water saving), sewerage construction and wastewater treatment should be tackled in an integrated way to avoid inadequate designs and unnecessary costs. This can be built in the procedure by requiring an integrated feasibility study for the design, before the detailed design of parts of the system are prepared. A master plan or feasibility study for the whole water system would even be better.
- Request measurable and quantified goals, results and impacts.
- The length of the approval procedure at the Commission can be shortened if projects are discussed with the Commission beforehand and checks on information needs are being carried out with the Commission before the application is submitted.
- Ensure adequate, professional management of the projects. Suggestions in this respect are:
 - Establishment of a clear (public or private) managerial body/company which is accountable for the implementation and management of the project;
 - Create one central (public or private) managing company for a group of smaller municipalities (cf. example of Portugal of multi-municipal companies for water projects);
 - Give central assistance on administrative and financial (accounting and cost control) matters.
- Experience shows that the start of a project is greatly facilitated if a central pre-funding system is in place. The system in place in Portugal, in which half of the advances from Brussels are put in a central fund to pre-fund projects, is easily transferable to other member states. The new regulation has already a stronger pre-funding facility built in for the new programming period (art. 81).

Recommendations – longer term: structure and procedures

- The system of annual commitments creates a tension towards the quality of projects, as immature projects are sometimes proposed in order to commit the annual budget. Two recommendations could assist in alleviating this tension:
 - Change the system of annual budgets to a system of only a budget for the whole programming period. This allows more flexibility.
 - Create a pipeline of projects (responsibility of managing authority)
- Groups of smaller projects should only be allowed if they really form one integrated project.
- The current rules on co-financing do not specifically encourage public-private partnerships above purely publicly financed projects, since the co-financing rate takes into account net revenues of a project. Further work would be required on this aspect if the Commission wants to promote the increased use of PPPs in CF projects.
- A similar dilemma exists with respect to the application of the “polluter pays principle” in water and waste management projects. The application of full cost recovery in tariff setting, which results from an adequate application of this principle, will strongly reduce the co-financing rate of a project. Additional regulation would be required to solve this tension.
- Although the new regulation foresees a further streamlining of ERDF and CF procedures, there still exists a difference in the maximum co-financing rates. The logic for using different rates is sometimes missing, as similar projects are financed by ERDF and CF. It could be considered to further harmonize the maximum co-financing rate between the two funds, to avoid unwanted “shopping” between the two funds. Another solution, as foreseen in the new regulation, is to follow a single programming system for both funds.
- The new regulation clearly identifies the need for a stronger accent on performance and quality. For this purpose a limited number of performance and impact indicators will be identified. These should be applied at the project level. Reporting on these indicators should be required in the final report of each project. It might be considered to introduce the obligation to collect information on indicators over a longer period than at the end of the project alone.
- If the ownership of the infrastructure changes from public to private bodies after completion of the project, this could create a windfall profit for the private party. The currently proposed regulation foresees possible adjustments in the contribution of the Cohesion Fund up to seven years after the financing decision (art. 56). This period could be extended since the lifetime of most projects is considerably longer.

1 Introduction

1.1 The Cohesion Fund

The Cohesion Fund was established in 1993 under the terms of the Treaty on European Union, i.e. the Maastricht Treaty. It is intended to contribute to the strengthening of the economic and social cohesion of the European Union. Its aim is to help the least prosperous Member States of the European Union to be able to fully participate in the Economic and Monetary Union from 1999 onwards. The eligibility criterion is that the GNP per capita is 90% or less than that of the EU average. During the period under evaluation four Member States benefited from the Cohesion Fund - **Ireland, Spain, Portugal and Greece.**

Acts governing the Cohesion fund

Council Regulation (EC) No 1164/94 of 16 May 1994 establishing a Cohesion Fund
[Official Journal L 130, 25.05.1994].

Amended by:

Council Regulation (EC) No 1264/1999 of 21 June 1999 amending Regulation (EC) No 1164/99
[Official Journal L 161, 26.06.1999].

Council Regulation (EC) No 1265/1999 of 21 June 1999 amending Annex II to Regulation (EC) No 1164/94.
[Official Journal L 161, 26.06.1999].

Unlike the Structural Funds, the Cohesion Fund supports projects, technically and financially independent project stages, as well as groups of projects forming a coherent whole. The support is targeted at only two fields: the environment sector and the trans-European transport infrastructure networks (TEN-T). The Cohesion Fund also contributes to preliminary studies related to such projects and their implementation, as well as to technical support measures such as comparative studies, impact studies, monitoring and, since entry into force of Regulation (EC) No 1264/1999, publicity and information campaigns.

The level of assistance is high (80-85% of eligible costs). The Commission and the Member States decide project priorities jointly. Since 1995, it has been the Commission's aim to ensure that 50% of the Cohesion Fund is targeted at environment projects linked to the implementation of European Union environmental policy and more specifically to the themes and target sectors contained within the Fifth Environmental Action Programme - Towards Sustainability.

The Cohesion Fund has committed more than € 16 billion during the period 1993-1999. For the programming period 2000-2006 the European Council has agreed to invest an additional € 18 billion through the Cohesion Fund.

1.2 The ex post evaluation

The ex post evaluation of projects co-financed by the Cohesion Fund is required according to regulation 1164/94, stating:

“During the implementation of projects and after their completion, the Commission and the beneficiary Member States shall evaluate the manner in which they have been carried out and the potential and actual impact of their implementation in order to assess whether the original objectives can be, or have been, achieved. This evaluation shall, inter alia, address the environmental impact of the projects, in compliance with the existing Community rules”.

Regulation 1164/94, Article 13(4)

The importance of the evaluation is wider than mere accountability

The wider objective of the ex post evaluation is not only to fulfil the regulatory requirements, but also to learn from the experiences gained in the Cohesion Fund practice. This should both enhance the quality of subsequent projects in the present Cohesion Fund countries, but also, even more importantly, to enhance the Cohesion Fund practice and procedures with a view to the new Member States of the European Union.

The ex post evaluation has been carried out on a sample of completed or almost completed projects, which have been financed by the Cohesion Fund in the period 1993-2002.

2 Methodology

2.1 Objectives and criteria

The Terms of Reference (TOR) states the following objectives for this ex post evaluation:

1. To establish to what extent the objectives of the Cohesion Fund have been achieved, as well as their impact on the two relevant sectors – environment and transport – and on economic and social cohesion.
2. To assess the effectiveness and efficiency of the implemented projects.
3. To identify the lessons to be learned from the selection, design and implementation of those projects, in order to improve strategic planning and the modalities of their selection, design and implementation.
4. To identify the Community added value obtained at national and EU level, with particular regard to the contribution made to the development of TEN-T.

To fulfil the objectives the following core evaluation criteria have been defined:

- a. *Appropriateness* of strategic planning, design and selection procedures
- b. *Effectiveness*
- c. *Efficiency*
- d. *Impact* at project and regional level
- e. *Management and implementation systems*
- f. *Community value added*

In order to guide the evaluations, as well as to ensure consistency of evaluation between the four countries, an Evaluation Guide was prepared in which the relevant questions to be answered and the approaches to such answers are described.

2.2 Scope of the evaluation

Depending on the criterion, the evaluation was carried out at three levels:

- **At programme level:** this means that the evaluation has taken into account the way in which the programme has worked at the general level. This approach has been taken for the criteria *appropriateness* and *management and implementation systems*.
- **At sample level:** a group of 200 projects has been reviewed in order to assess them in terms of *effectiveness*, *efficiency* and *impact*.
- **At in-depth project level:** from the 200 sample a group of 60 projects was selected, for which the socio-economic impact has been studied in more detail, using Cost-Benefit Analysis as the main guidance. The Economic Rate of Return has been recalculated for these projects on the basis of the found information. In this

recalculation the EU *Guide to cost-benefit analysis of investment projects* has been taken as the benchmark. It is noted, though, that this guide only recently came into force and the ex ante cost-benefit analyses were not carried out on the basis of this guide.

For each of the criteria and sub-criteria the evaluation has taken place at one level or a combination of the levels. Thus, part of the ex post evaluation (in particular relating to effectiveness, efficiency and project impact) relates not to the full programme of projects started in 1993-2002, but to a sample (200 or 60) of them.

Since the samples only deal with closed or almost closed projects, both samples have a bias towards projects that started early in the period 1993-2002. This has two effects on the outcome of the evaluation. Firstly, the sample projects are not fully representative for the projects carried out under the Cohesion Fund in general. Given that a learning process has been going on for all stakeholders, the more recent projects might compare more favourable with the older projects. The bias towards older projects can thus result in a somewhat more critical appreciation, which cannot be fully translated to the (present) programme. Secondly, since the regulations and requirements have also changed over time, the projects have been reviewed against the background of the time that they were initiated. This means that the changes over time in policies, strategies and requirements have been described. Also, judgments have been made in view of the then prevailing situation.

The Consultant, in consultation with the geographical units of DG REGIO, has selected the sample of 200 (and 60) projects. The selection was stratified and the following selection criteria were used:

- Geographical spread of projects over the country.
- Thematic spread (environment/transport and respective sub-themes).
- Inclusion of some projects experiencing delays.
- Inclusion of some projects that were included in the previous ex post evaluation.
- The year of implementation.
- The size of the project.
- The use of Public Private Partnerships.
- Randomness (to assure a representative sample).

The resulting structure of the samples is as follows:

Table 2.1: Structure of samples by sector and country

	Environment	Transport	Total
Sample 200			
Greece	24	18	42
Ireland	11	11	22
Portugal	22	20	42
Spain	62	32	94
Total	119	81	200
Sample 60			
Greece	7	5	12
Ireland	3	3	6
Portugal	7	6	13
Spain	19	10	29
Total	36	24	60

A list of all selected projects is presented in Annex A.

The division of the sample 60 projects over year of application is as follows:

Table 2.2: Structure of 60 sample by year of approval of the spending decision and country

	1993	1994	1995	1996	1997	1998	1999	2000	Total
Greece	4	6	1			1			12
Ireland	2	1	1	1		1			6
Portugal	1	4	2	4	1			1	13
Spain	4	5	8	2	6	2	2		29
Total	12	15	14	6	7	4	2	1	60
Idem, %	20%	25%	23%	10%	12%	7%	3%	2%	100%

It is clear that the way in which the sample has been chosen has resulted in a overweighing of projects which were approved relatively early in the period. For instance, nearly 70% of the sample 60 projects (41 of 60) were approved by the EC in the period 1993-1995.

2.3 Basic approach

In order to evaluate the projects on the above criteria, the various guidelines of the Commission have been taken into account, like the outcome of the MEANS programme¹ and the *Guide to cost-benefit analysis of investment projects*².

¹ European Commission, MEANS Collection (5 volumes), Evaluating socio-economic programmes, 1999

² European Commission, DG Regional Policy, Evaluation Unit, Guide to cost-benefit analysis of investment projects, 2000.

The basic structure of the evaluation has followed the standard steps of the evaluation as outlined in *MEANS Volume 3: Principal evaluation techniques and tools*:

- Structuring:
 - Clarifying and grading the effects to be evaluated, defining criteria
 - Choosing observation instruments
- Observing
 - Defining the observation field
 - Collecting data
- Analysing
 - Comparing data
 - Estimating effects
- Judging
 - Judging in terms of different criteria
 - Formulating a synthetic judgment.

The project documentation as available with DG REGIO in Brussels has been a main source for the evaluation. This has been complemented by information from various others (statistical) sources, including the Managing Authorities in the four countries. Further, questionnaires have been sent out to Beneficiaries and interviews have been held with both Managing Authorities and Beneficiaries. Table 2.3 gives a general overview of the various steps taken in the evaluation and the sources used.

Fixed formats have been used for collection of the basic data, as well as for the ex post calculation of the ERR (Recalculated ERR-RERR). These are included in the Evaluation Guide, which was especially developed for this project. These formats were filled in for each sampled project and provide a significant part of the input for the Country Reports.

Table 2.3: Steps taken and sources for the evaluation of the various criteria

	Source	Scope	Evaluation Criteria
1. Review of relevant documentation	<ul style="list-style-type: none"> - National/regional plans and strategy documents - Commission documents (relevant directives) - Cohesion Fund documents - Country specific Cohesion Fund documents - other relevant documentation 	programme level	Appropriateness Management
2. Interviews with relevant authorities and stakeholders	<ul style="list-style-type: none"> - National and regional authorities involved in management, implementation and monitoring 	Programme level	Appropriateness Management
3. Review of project documentation	<ul style="list-style-type: none"> - Project preparation documents - Feasibility/technical studies - Monitoring/evaluation reports - Project completion reports - other relevant documentation 	Sample projects	Efficiency Effectiveness Management Impact
4. Field visits to selected projects (including interviews)	<ul style="list-style-type: none"> - Site visit - Interviews with involved authorities and sponsors - Interviews with project management - Interviews with contractor(s) 	In-dept project review	Efficiency Effectiveness Management
5. CBA calculation for selected projects	<ul style="list-style-type: none"> - Review of ex-ante CBA - Recalculation of ex post ERR 	In-depth project review	Impact on project level
7. Reporting	Drafting Country Report	All	All
8. Feed back	Final Country Report	All	All

3 Appropriateness of strategic planning procedures adopted and pursued

3.1 Introduction

This chapter discusses the issue of *appropriateness* of the planning procedures of projects in the light of the objectives of the Cohesion Fund. Before the various elements of this evaluation aspect are presented, this section will first present some basic information on the commitments during the period 1993-2002.

Budget

Table 3.1 shows the total commitments by the Commission per year for each of the Cohesion Fund countries in the period 1993-2002. It shows that more than half of the budget has been committed for projects in Spain (58%), 17% went to Greece and Portugal each, while the share of Ireland was 8% over the period.

Although this division between countries has been relatively stable over the years, the share of Ireland has gradually been reducing. Striking is also the relatively high level of commitments for projects in Spain in 2002 (and relatively low commitments in Greece and Portugal). Total commitments by the Commission over the period amounted to nearly € 25 billion.

Table 3.1 Committed budget and share by country and year of commitment (mln EURO) *

Year	Greece		Ireland		Portugal		Spain		Total	
1993	280	17.9%	142	9.1%	283	18.1%	859	54.9%	1,565	100%
1994	332	18.0%	169	9.1%	334	18.0%	1,017	54.9%	1,852	100%
1995	387	18.0%	189	8.8%	387	18.0%	1,183	55.1%	2,147	100%
1996	437	17.9%	222	9.1%	440	18.0%	1,342	55.0%	2,441	100%
1997	495	18.0%	245	8.9%	492	17.9%	1,515	55.2%	2,746	100%
1998	517	18.0%	258	9.0%	520	18.1%	1,576	54.9%	2,871	100%
1999	549	17.6%	271	8.7%	549	17.6%	1,752	56.1%	3,121	100%
2000	436	16.4%	170	6.4%	451	17.0%	1,601	60.3%	2,657	100%
2001	467	17.2%	115	4.2%	456	16.8%	1,676	61.8%	2,714	100%
2002	335	12.0%	183	6.5%	297	10.6%	1,976	70.8%	2,791	100%
Total	4,236	17.0%	1,964	7.9%	4,208	16.9%	14,499	58.2%	24,906	100%

* Committed amounts by the Commission. Derived from Cohesion Fund annual reports

Number of projects

The above commitments relate to nearly 1400 projects, of which 1060 were in the environment sector and over 300 in the transport sector (see table 3.2). Also in terms of

the number of projects Spain has a major share. Table 3.2 also shows that a relatively large number of projects were approved in the first years of the 1993-1999 period. The number of approved projects was also higher in 2000-2002 as compared to 1997-1999.

Table 3.2 Number of project applications by year, sector and country

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Environment	Greece	29	93	8	5	13	9	7	7	31	10	212
	Ireland	29	20	8	8	4	2	2	2	0	1	76
	Portugal	19	24	24	24	9	2	5	17	5	10	139
	Spain	92	32	78	58	51	44	6	146	62	64	633
	Subtotal	169	169	118	95	77	57	20	172	98	85	1060
Transport	Greece	17	54	3	0	0	2	1	7	4	2	90
	Ireland	30	10	7	3	0	1	2	3	0	0	56
	Portugal	24	7	3	5	5	0	0	14	3	1	62
	Spain	33	11	11	9	2	4	6	5	18	4	103
	Subtotal	104	82	24	17	7	7	9	29	25	7	311
Total		273	251	142	112	84	64	29	201	123	92	1371

Source: CF project database

Figure 3.1 Environment projects by year of application

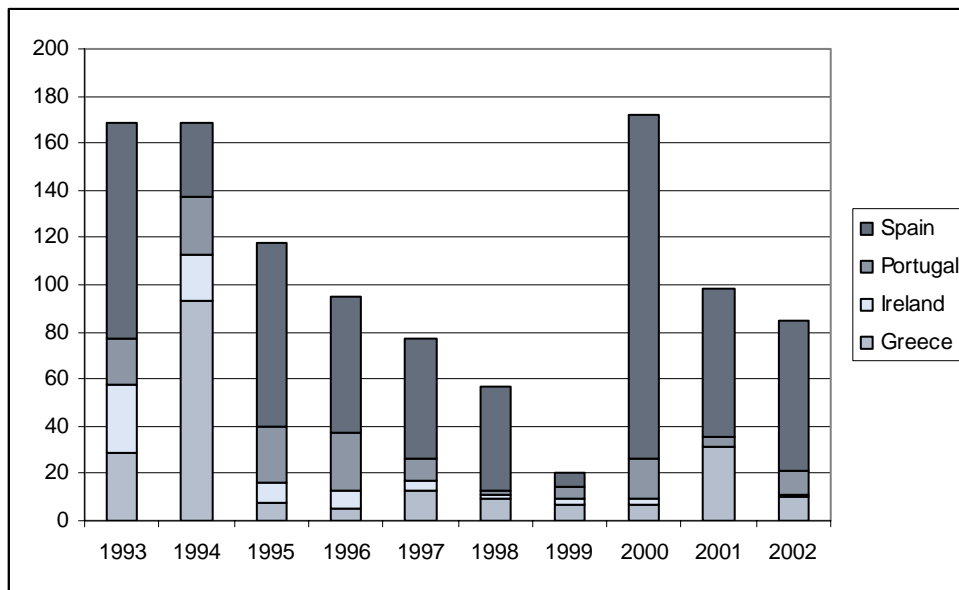
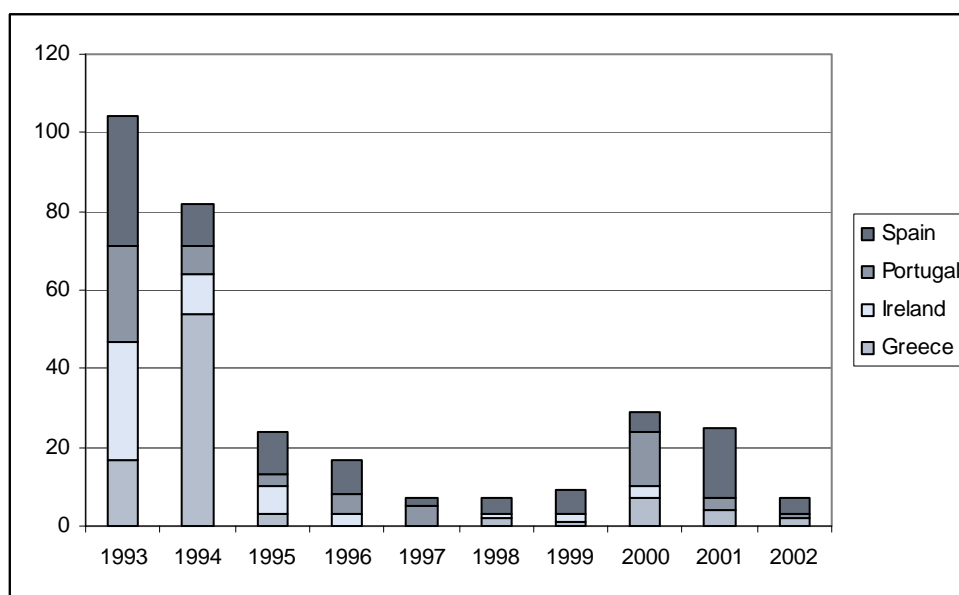


Figure 3.2 Transport projects by year of application



Since the budget division between environment and transport sectors has been nearly 50/50, the above data illustrate that the average transport project has a significantly larger budget than the average environment project. Table 3.3 shows these averages per sector and country for the overall period 1993-2002. For the total set of projects, the average size of transport projects is some 3.5 times the average of environment projects.

Table 3.3 Average budget per project (mln EURO)

	Environment	Transport
Greece	9.9	23.7
Ireland	13.1	17.2
Portugal	14.6	35.0
Spain	11.4	71.2
Average	11.6	40.5

Source: CF database and CF annual report. Calculated by ECORYS

Of the nearly 1400 projects that were started, around 57% have already been completed. This means that the final report has been received, the final payment has been made and the file has administratively been closed. The remaining projects are either still ongoing, or are already physically completed, but are still open for administrative reasons (e.g. final report not yet received, final payment not yet made).

Some 90% of the projects that were started in the first few years are now completed, while most of the projects started in 2000 or later are still open. The subtotals for both sectors show that a larger share of the transport projects started recently (e.g. in 2000 or later) is completed than of the environmental projects.

Table 3.4 Projects completed, by year of application, sector and country

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Environment	Greece	26	65	6	5	2	4	3	0	2	0	113
	Ireland	29	17	8	6	4	2	0	0	0	0	66
	Portugal	19	22	21	20	6	0	1	1	0	0	90
	Spain	92	31	73	54	34	12	3	4	1	0	304
	Subtotal	166	135	108	85	46	18	7	5	3	0	573
Transport	Greece	9	34	3	0	0	0	0	0	0	0	46
	Ireland	30	10	7	2	0	0	0	0	0	0	49
	Portugal	24	7	2	4	5	0	0	4	0	0	46
	Spain	32	10	10	9	2	3	3	1	3	1	74
	Subtotal	95	61	22	15	7	3	3	5	3	1	215
Total		261	196	130	100	53	21	10	10	6	1	788

Table 3.5 Projects completed, by year of application, sector and country (% of total applications)

		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Total
Environment	Greece	90%	70%	75%	100%	15%	44%	43%	0%	6%	0%	53%
	Ireland	100%	85%	100%	75%	100%	100%	0%	0%	0%	0%	87%
	Portugal	100%	92%	88%	83%	67%	0%	20%	6%	0%	0%	65%
	Spain	100%	97%	94%	93%	67%	27%	50%	3%	2%	0%	48%
	Subtotal	98%	80%	92%	89%	60%	32%	35%	3%	3%	0%	54%
Transport	Greece	53%	63%	100%	0%	0%	0%	0%	0%	0%	0%	51%
	Ireland	100%	100%	100%	67%	0%	0%	0%	0%	0%	0%	88%
	Portugal	100%	100%	67%	80%	100%	0%	0%	29%	0%	0%	74%
	Spain	97%	91%	91%	100%	100%	75%	50%	20%	17%	25%	72%
	Subtotal	91%	74%	92%	88%	100%	43%	33%	17%	12%	14%	69%
Total		96%	78%	92%	89%	63%	33%	34%	5%	5%	1%	57%

Source: CF project database, calculated by ECORYS

3.2 Appropriateness to national needs and EU policy

3.2.1 Appropriateness to national needs

Three periods

In general three different periods can be distinguished in the evaluation:

- In 1993 projects were financed under the interim facility.
- The first period of CF assistance 1994-1999.
- The second period of CF assistance 2000-2006.

These periods are in particular important for the assessment of appropriateness of the projects in view of national needs and EU policy. Over these three periods programming has become more elaborate. This has culminated in Reference Frameworks being used in all countries in the 2000-2006 period. In these frameworks, the priorities for the specific sector and country are elaborated and priority projects are listed. The use of such

Frameworks has ensured that the projects that are being carried out in this period are well based on analyses of national needs.

In the first CF period however, the projects financed under the CF, although being relevant for the needs of the particular country or region, were sometimes less urgent, but were selected because of their maturity in terms of technical project preparation.

Under the interim facility, the relation with national needs was least stringent, while the technical maturity has been a more important criterion for the project selection. This has in some cases given rise to the approval of projects with predominantly regional or local relevance. An example of such a project is El Hierro airport (93.11.65.031).

Environment

Generally, the CF financed projects cater for pressing needs in the field of water supply, wastewater treatment and solid waste. The four countries lagged well behind the EU average in 1993 in these respects and the CF assistance has allowed them to implement the relevant EU Directives and catch up with the other Member States, even though the previously set targets have not always been reached (e.g. in Portugal). The overall conclusion is that the projects carried out were highly appropriate with respect to national needs.

It is also clear though, that in some countries such needs have only been laid down in policies and strategies during the period 1993-2002. These were not always in place in 1993 and the availability of CF assistance has stimulated the elaboration of such plans during the period 1993-2002. For instance, Spain has presented separate reference frameworks for waste management, sewerage and wastewater and water supply in 2000.

Although the relevance of the projects in relation to the national needs is clear, the project applications generally fail to assess the contribution of the project to the national needs in quantitative terms. Also problem descriptions and problem analyses are sometimes lacking. Instead solutions are presented embedded in the project for which financing is applied for.

Transport

With respect to the transport sector, the needs of the various countries were generally better assessed. All countries availed of national transport plans in 1993, either for the whole transport sector or for individual transport sub-sectors. In Greece, for instance, a needs assessment had been carried out in 1993 for the “Delors II” package. In Spain the Master Plan for Infrastructure 1993-2002 was available. These plans indicated the large need for infrastructure in the countries in almost all transport fields, but particularly in roads and railways.

As a consequence, larger project pipelines were available for transport at the beginning of the period than for environment. In the case of Portugal this is for instance reflected in the higher share of funding of transport projects in the earlier years of the 1993-2002 period.

This was not the case, however, in Ireland. Here the national strategic importance of the initial projects is questionable and national needs were less reflected in the initial

transport projects, these having a more regional or local impact. This, however, had changed by 1998, when most transport projects put forward for CF funding were much more in line with addressing key national needs.

From the review of sample projects, it appears that in the majority of cases the projects have been assessed to be appropriate for the national and regional needs (see table 3.6).

Table 3.6: Relevance of the project with respect to national/regional needs.

		Yes	For the main part	Half relevant	For a small part	Not relevant	Not applicable / no data	Total
Environment	Greece	24	0	0	0	0	0	24
	Ireland	10	0	0	0	0	1	11
	Portugal	22	0	0	0	0	0	22
	Spain	52	3	0	4	0	3	62
	Subtotal	108	3	0	4	0	4	119
Transport	Greece	18	0	0	0	0	0	18
	Ireland	10	0	0	0	0	1	11
	Portugal	20	0	0	0	0	0	20
	Spain	29	1	0	0	1	1	32
	Subtotal	77	1	0	0	1	2	81
TOTAL		185	4	0	4	1	6	200
Idem (%)		93%	2%	0%	2%	1%	3%	100%

3.2.2 Appropriateness to Community policy

Environment

With respect to the Community policy on environment, various documents are of relevance:

- Article 130 of the Treaty
- The fifth and sixth Environmental Action Plan
- The various Directives relating to quality of water supply, solid waste management, waste water treatment etc.

The projects carried out with CF assistance in the field of environment invariably refer to one or more of these documents, thereby showing their appropriateness in view of Community policy. The evaluation has confirmed that most environmental projects are indeed (highly) relevant in this respect. However, references to the policy priorities or Community directives are mostly of a general nature and no further detail is provided on how the project will contribute to these objectives nor as to the way in which the project would achieve those objectives in quantitative or qualitative terms.

Since 2000 the application of the “polluter pays”-principle is required for CF assisted projects. And even before this date, application of the principle was to some extent applicable given the mentioning in article 130 R of the Maastricht Treaty³. Application of the principle has met with various difficulties and discussions. This has for instance been the case in Ireland, as no specific water and household waste charges were in place here. Instead, local authority service charges were used to cover the operating costs of the various municipal services. In the case of water charges the dispute with the Commission has resulted in a common agreement to no longer focus on water supply projects, but on wastewater treatment projects.

In Spain one sample project did not comply with the Community objectives. This concerns project 93/11/61/025 on sewage in Ceuta, which was initially approved, but later cancelled for not complying with the environmental objectives laid down in Directive 91/271. In other cases the specific objectives are not expressed in clear terms (e.g. coastal protection/beach regeneration projects Isla Christina, Benalmadena, La Barrosa). These projects aimed at improving the “quality of tourist facilities and at contributing to the development and vigilance of coastal areas”. They thereby seem to have more of a tourist character than of coastal protection.

Despite these remarks, on the whole the projects co-funded by the CF in all four countries fit in well with the Community policies and priorities on the Environment, including compliance with EU Directives. In this respect CF has greatly contributed to improving the implementation of the environmental Directives in the four countries over the reviewed period. Only in three cases the project was deemed to be not relevant in this respect (see table 3.7):

Table 3.7: Relevance of projects with respect to Community policy

		Yes	For the main part	Half relevant	For a small part	Not relevant	Not applicable / no data	Total
Environment	Greece	24	0	0	0	0	0	24
	Ireland	8	0	0	1	0	2	11
	Portugal	22	0	0	0	0	0	22
	Spain	49	5	2	0	1	5	62
	Subtotal	103	5	2	1	1	7	119
Transport	Greece	16	1	0	0	0	1	18
	Ireland	8	0	0	2	1	0	11
	Portugal	18	0	0	0	0	2	20
	Spain	27	3	0	0	1	1	32
	Subtotal	69	4	0	2	2	4	81
TOTAL		172	9	2	3	3	11	200

³ However, there was no legal basis for enforcing the polluter-pays-principle.

Transport

During the major part of the evaluation period, the transport projects financed under CF were aimed at improving the TEN-T network or access to these networks. Almost all of the projects reviewed are indeed related to the TEN-T network, with the exception of some projects that were approved in the early stages of the CF. This was for instance the case in Spain and Ireland. The fact that such projects have been approved is partly due to the lack of a pipeline of technically mature projects in the early years.

The investments in road and rail TEN networks have been most important in the four countries, other transport modes play only a minor role. During the period the emphasis has shifted from roads to railways in Spain, whereas in Greece the projects relating to the two main arterial highways Pathe en Egnatia remained important over the whole period.

Despite the positive assessment on appropriateness of the projects, some critical remarks can be made. In Spain in particular, the evaluators have been critical on the CF funded projects. On the one hand it is concluded that several transport projects have a national rather than a European dimension. This is particularly evident in the high-speed rail projects, in that the cross border connections are in various cases underdeveloped or absent.

But also some of the road projects, although relating to the TEN, are of a regional or local character rather than of immediate international importance. The same is noted in both Ireland (some of the earlier projects) and Greece. In Greece the national and regional importance of the Egnatia motorway, for instance, seems, for the moment, to be far larger than its European importance.

Secondly, the Spanish evaluators question the shift towards railway projects, and in particular to the high-speed passenger infrastructure, whereas rail freight corridors might give higher economic returns and might better substantiate the general European transport policies.

3.3 Integration in the national/regional sector strategy

Environment

Even though the environmental projects co-financed by the CF in 1993-2002 clearly addressed the needs of the country and regions, they were not always part of an integrated national or regional strategy at the beginning of the period. For instance, in Greece no specific master plan existed for environmental projects in 1993/1994. Only recently a Strategic Reference Framework was set up for environmental projects, providing the national and regional strategies with respect to environmental projects. In Portugal environmental plans were set up from 1995 onwards, providing a framework for the prioritisation of environmental projects. These plans played a minimal role in the earlier years of CF support.

The situation was different in Ireland, though. In Ireland all projects put forward for CF support originated from national strategies, even in the earlier period. Also in Spain most

projects in the sample were part of a national or regional strategy and were mentioned in investment plans, which were drafted prior to the application for funding.

These experiences describe the increasing integration of the CF financed projects in the national and regional strategies and investment plans. This trend has been given a boost with the Reference Frameworks, which were introduced in the period 2000-2006. Despite the less rigorous co-ordination in the earlier stages, most projects were included in national or regional plans.

Overall, the majority of sample projects were directly related to national or regional policies, strategies or master plans. This relevance is deemed questionable in only four cases.

Table 3.8: Relevance of projects with respect to national/regional policies and strategies/ master plans

		Yes	For the main part	Half relevant	For a small part	Not relevant	Not applicable / no data	Total
Environment	Greece	23	0	0	0	0	1	24
	Ireland	9	0	0	0	0	2	11
	Portugal	22	0	0	0	0	0	22
	Spain	56	1	1	0	0	4	62
	Subtotal	110	1	1	0	0	7	119
Transport	Greece	16	0	0	0	0	2	18
	Ireland	6	0	0	3	0	2	11
	Portugal	20	0	0	0	0	0	20
	Spain	30	0	0	0	1 ⁴	1	32
	Subtotal	72	0	0	3	1	5	81
TOTAL		182	1	1	3	1	12	200

Transport

Within the group of transport projects co-financed by the CF, a distinction can be made between the road projects on the one hand and rail projects on the other. The road projects in the four countries, while being part of the TEN-T network and therefore having an international dimension, were very important for the development of the national road networks of the four countries. For instance, the projects relating to the Egnatia motorway in Greece, while being part of a TEN corridor, greatly facilitate national movements and regional development of the concerned area. In Ireland the CF helped to shift the emphasis towards strategic road corridor development. Most of the road projects in the four countries were mentioned in the national road master plans at the time of application.

While most road projects supported by the CF were already identified in national transport plans, the national rail strategies were less geared towards the TEN-T

⁴ The one project considered not relevant in by the Spanish evaluators concerns minor improvement works on the airport of El Hierro (Canary Islands) to the comfort of passengers using the airport. This is one of the projects approved under the interim facility.

development. The CSF has helped countries to formulate a rail policy (Ireland) or shifted the emphasis towards the High Speed Passenger Rail development (Spain).

In both Greece and Portugal the rail projects, even though being related to the European network, were seen as a matter of high priority for national policy and strategy.

The projects assisted by the CF in the other transport sectors (ports, airports, vessel traffic management) are in most cases included in national investment plans (e.g. the Evaluation of Road and Railway Projects for Delors II Package⁵ in Greece; the respective master plans in Portugal).

Despite these positive conclusions, there appears some inherent tension between the national transport needs and priorities and the financing priorities as applicable for the CF. No doubt, most of the projects are beneficial for the national economies. However, they might not always have highest priority from the point of view of the national transport situation. This national situation might call for other projects that are not eligible for CF financing. Such a tension is for instance noticed for Spanish rail projects. In other countries such a tension is not felt. Nevertheless, also in Greece the importance of road projects is felt to be of a national and regional character rather than of an international character. In Ireland it is concluded that all projects were able to demonstrate a strong degree of integration with national and regional strategy.

3.4 National procedures and criteria for project selection

With respect to national procedures and criteria for selection of projects to be proposed for CF funding, an evolution can be seen over time. In particular in the early years of the CF, the procedures for selection of projects were not yet elaborate and formalised. This has resulted in various projects being proposed on the basis of their (technical) *maturity* and (administrative) *eligibility*, rather than on the basis of their urgency or priority.

In later years, a more formal selection structure came into place. In most countries the respective sector ministries coordinate the selection of projects in the transport and environment sector. Generally proposals are invited from local and regional authorities and sector organisations. In the case of Ireland such (transport) project proposals are sent to the Commission for early comments.

Within a sector the relevant sector Ministry may provide some prioritisation. For instance, in Greece all transport projects have been subject of a rigorous multi-criteria analysis, which resulted in grouping of projects in priority groups. These groups have been the basis for the transport projects selected for application. In most other cases, however, the priority setting has been less elaborate.

⁵ The Delors II package included both structural and cohesion funds provided by EC to Greece at the time of the Presidency of Mr Delors, which were used by both EC and the Greek Government as reference in the planning of investments in transport in Greece from different financial mechanisms.

The Managing Authority forwards the projects to the Commission. Most Authorities have increasingly endeavoured to have a pipeline of projects available. However, in particular in the early years a pipeline of projects was not always available, resulting in the forwarding of projects on the basis of their technical maturity. In some cases (e.g. Portugal) projects have been forwarded which were not technically ready, only to safeguard the budget for the particular year.

With the reference frameworks being more specific in terms of goal setting and programming, the selection of projects for CF financing has become more formalized. Still, however, the projects put forward from the pipeline lists are those projects that are technically mature, fit the available budget (and division over sectors) and have a favourable eligibility date. Usually the Managing Authority does not check the technical aspects of the application, but only checks the completeness of the application and the eligibility of the project.

Despite these steps along the way, it appears that the approval procedure takes long: in the case of the Spanish projects approval takes from 8 to 10 months, in Portugal on average 9,7 months. The long approval periods are generally caused by additional requests for information or clarification by the Commission. In some cases such questions result in modifications of the projects.

Irrespective of the causes for the delays, it is clear that the three months period indicated in the Regulation is generally not met. The analysis for Portugal shows that the total time span for a project to be approved can be estimated at 575 days. As an average for both transport and environment projects, a project stays almost 80 days at the sector coordination unit in Portugal, 35 days at the Managing Authority in Portugal and 462 days at the Commission. Additional analyses for Portugal show that the longer the period in Portugal, the shorter the period in the Commission. This might suggest that better preparation of projects shortens the approval period in Brussels. There appears to be no difference in approval time between small and large sized projects.

The table below shows the data for the 200 sample projects. It shows that in several cases (36 out of 155 for which data are available) it took more than one year to get the project approved. At the same time, in 27 cases approval was acquired within a period of three months.

Table 3.9: Time between application and approval of CF projects

		Three months or less	3-6 months	6-9 months	9-12 months	More than 1 year	No data	Total
Environment	Greece	2	1	5	1	13	2	24
	Ireland	0	4	1	0	2	4	11
	Portugal	3	6	6	3	4	0	22
	Spain	9	10	14	1	3	25	62
	Subtotal	14	21	26	5	22	31	119
Transport	Greece	7	4	0	1	2	4	18
	Ireland	2	0	2	0	2	5	11
	Portugal	0	4	4	7	5	0	20
	Spain	4	9	8	1	5	5	32
	Subtotal	13	17	14	9	14	14	81
TOTAL		27	38	40	14	36	45	200
		14%	19%	20%	7%	18%	23%	100%

Even so, the Spanish evaluators have cast some doubt on the completeness of even those projects that have been approved by the Commission in 1993-2002. The detailed review of projects shows that the project dossiers are not always complete and important details were missing.

Furthermore, it appears that for the sample projects various adjustments have been made to either the scope of the project, the duration of the investment or other reasons. These changes are partly reflected in modifications to the approval decision. In particular in earlier years, when such modifications were not limited as they are now, modifications frequently appeared. The following table shows some data from the sample projects.

Table 3.9: Number of modifications per project

		None	1	2	3 or more	No data	Total
Environment	Greece	2	9	4	9	0	24
	Ireland	0	1	5	5	0	11
	Portugal	1	6	9	6	0	22
	Spain	9	19	12	7	15	62
	Subtotal	12	35	30	27	15	119
Transport	Greece	0	6	6	6	0	18
	Ireland	1	3	5	1	1	11
	Portugal	5	6	5	4	0	20
	Spain	8	10	9	3	2	32
	Subtotal	14	25	25	14	3	81
TOTAL		26	60	55	41	18	200
Share in total		13%	30%	28%	21%	9%	100%

The incidence of modifications in the past was among others also related to the definition of groups of projects as one CF project. Although usually such projects are in one region, in some cases such projects could relate to different regions. Such groups of projects might result in both time overruns and modifications. In various cases, for instance, projects were for various reasons dropped from the original group, resulting in a modification. Also the risk of delays of the implementation of such projects is larger, as the planning of the “group” is related to the weakest project in the group. This also results in modification decisions.

Despite the emphasis on the administrative eligibility of the projects, a substantial part of the projects in the sample does not satisfy the threshold condition of € 10 million. In Portugal 41 projects out of a sample of 124 have a total investment budget of less than € 10 million.

The long periods needed before approval is received for a project are a weak element of the assistance from the Cohesion Fund. Efforts should be made to shorten the period. This not only deals with procedures at the Commission, but also, and perhaps even more, with preparation of the projects by the beneficiaries and Managing Authorities. In this respect actions have already been taken in the countries by making available technical support to beneficiaries. Still, however, more streamlining of the selection procedures and criteria with the goals and purposes of the CF is needed.

3.5 Use of Public Private Partnerships

The CF Regulation 1264/1999 introduced a new paragraph in Article 7 (1) calling on the EC to support beneficiary Member States’ effort to maximize the leverage of Fund resources by encouraging greater use of private sources of funding. One possibility to maximize the leverage effect could be financing of Public Private Partnerships. Public Private Partnership schemes (PPP) are arrangements between public and private sector actors with the aim to secure investment and greater efficiency in the delivery of public services, infrastructure and facilities. Both public and private parties share investments, risks, rewards and responsibilities in the implementation of PPP projects.

As highlighted in the Guidelines for Successful PPP’s issued by the EC in March 2003, PPP schemes provide with:

- Additional capital.
- Alternative management and implementation skills.
- Value added to the consumer and the public at large.
- Better identification of needs and optimal use of resources.

The CF has assisted only in a few cases projects in which private sector parties played a role in the sense described above. In several other cases projects were financed that, although they are formally not PPP-projects, have some PPP elements in it.

Although in none of the four countries co-financing of PPP-projects from the CF is widespread, there are some differences noticeable between the four countries.

In Spain and Greece the CF involvement in PPP-projects is relatively low, while in Portugal and Ireland various CF assisted projects are regarded as PPP-projects or projects in which private parties play a certain role. Moreover, PPP-projects are found relatively more in the transport sector than in the environment sector.

The table below gives a short description of PPP- and related projects carried out in the period 1993-2002 with CF co-financing. Most of these projects are not included in the 200 sample.

Table 3.10 PPP- projects and projects with some private role co-financed by CF in the period 1993-2002

Country	Sector	Name (CF-number)	Short description of PPP aspects
Greece	Environment	None	
	Transport	New Athens Airport	Joint financing from CF, national government and private sector in scope of 30 years concession.
Ireland	Environment	Dublin Region Waste Water Treatment Scheme Stage 4 and 5.	DBO approach is used. This will also be used for extensions of CF co-financed projects (Lough Gill Regional Water Scheme)
	Transport	N1/M1 Drogheda By-pass	Private party taking concession for newly built road including DBFO for non- CF financed extension.
Portugal	Environment	None	
	Transport	Bridge across the Tagus river	DBFO contract on the basis of 30-35 years concession for toll bridge.
		Toll motorways Brisa	Co-financing by CF of investments in new toll roads
Spain	Environment	Incineration Plant in Constantí, Tarragona	Joint share company with private financing (29% of equity) responsible invested in and owns installations
		Urban renovation Ciutat Vella, Barcelona	Joint share company with private financing (49% of equity) responsible for project implementation
	Transport	None	

Experience in *Greece* with CF co-financing of PPP-projects is limited to the New Athens Airport in Spata. It concerns a classical concession set-up with joint public and private financing. The experience is valued positively, since the airport was completed in time and according to plan and is considered to be of high quality; it is considered a “best practice” case. A limitation to PPP-projects in Greece is the lack of general legislation regarding PPPs; for each project a specific law has to be approved by Parliament.

In *Ireland* no real PPP-project has been co-financed from the CF. Nevertheless, in some cases private sector parties have been involved in the project or extensions of CF co-financed projects. These experiences are generally regarded as positive. There is certainly an increasing commitment for PPPs in Ireland.

For instance, in the environment sector, the relevant ministry has moved to a Design Build and Operate (DBO) system, in which the private sector takes a concession for twenty years. They design and build the plant and operate and maintain the works over this period on the basis of an agreed payment from the government. The private party

thus takes the risks of cost inflation that had previously been placed on the public sector. Such constructions have been applied for extensions of previously CF co-financed projects (e.g. Dublin Region Waste Water Treatment Scheme Stage 4 and 5; Lough Gill Regional Water Scheme). The DBO system was applied to ensure best value over the whole lifetime of the project and the particular scheme is gradually beginning to become accepted as an effective means of delivering projects.

In the transport sector, a PPP project has been designed in combination with the Drogheda Bypass, a project co-funded from the CF. After completion of the Drogheda by-pass, a new section (the Dundalk Western Bypass) was built under a Design, Build, Finance and Operate (DBFO) contract. The private contractor also took over the operations and maintenance of the Drogheda Bypass and the toll plaza that had already been constructed. Under the DBFO contract the Dundalk Bypass was constructed at no cost to the National Roads Authority. In addition the NRA was expected to receive € 25 million in toll revenues through the agreed revenue share mechanism during the construction period.

In *Portugal* various transport infrastructures have been co-financed by the CF in which private sector parties participated in financing and operations of the structures. The most eye-catching project is to the Tagus-bridge. The reasons for applying PPP in this case were:

- Lack of public financing resources
- Lack of technical resources to design the bridge and manage the construction
- Need for professional management.

The overall experience with this PPP-project is positive in that the bridge was finalized in time, without cost overruns. Further, a similar project executed by the National Roads Administration might have taken two years more to complete. It is also assessed, though, that in such a case the construction costs could have been some € 250 million lower (€ 650 million as compared to € 900 million).

The reasons for limited co-financing by CF of PPP-projects in *Spain* are among others:

- Complexity in combining private sector finance and CF financial support.
- Lack of coherent guidance on how to procure those projects to make the most effective use of PPP.
- Poor level of knowledge about PPP schemes at national and regional level.
- Recent lack of stimulation by the government of the involvement of private parties in management and exploitation of transport infrastructure.

The scattered evidence of application of PPP approaches in CF co-financed projects shows that this approach can result in successful projects, both in terms of quality and timeliness of the project completion. The application of PPP did not in all cases result in lower construction costs.

The application of PPP in CF projects is relatively low. This is partly the result of a lack of general (legal) frameworks, knowledge and experience in the countries. Another reason is for the reluctance to propose such projects for CF financing are the (perceived) administrative complications. For instance, the generation of net-revenues by the project reduces the co-financing amount from the CF.

3.6 Complementarity with Structural Fund Objective 1 and 2

Three of the four countries involved -Greece, Ireland and Portugal- were as a whole eligible under Objective 1 financing of the Structural Funds throughout the period. In the case of Spain only a part of the country was eligible for Objective 1 financing during 1993-2002, with some of the other regions being eligible for Objective 2 financing. Thus, the issue of complementarity between CF co-financing and co-financing from SF sources is different in Spain than in the other countries.

Spain

The Cohesion Fund does not provide for a regional breakdown of resources, nor does it differentiate between regions on the basis of SF eligibility status. Actual spending shows that funds are distributed in a rather balanced way between Objective 1 regions (38% of total spending), other Objective/Non-Objective regions (37%) and projects covering both types of areas (25%).

All countries

There is an issue of complementarity in all countries, in that projects in the transport and environment sectors can be financed from CF as well as SF sources (ERDF). The evidence from the four countries shows that in all countries the division of available funds over projects is done in a coordinated and rather pragmatic way, which is based on the specific conditions for CF and SF financing:

- Generally larger projects are co-financed from CF, while smaller projects are financed from the SF.
- Projects within TEN-T corridors or particularly contributing to the achievement of EC Directives in the environment sectors are proposed for CF funding.
- Projects in larger communities tend to be financed from CF, while those in smaller communities are financed from SF.
- In Spain: projects in Objective 1 regions are generally financed from SF funds, while those in other regions are financed from CF funds.
- In Portugal it is noted that, because of the stricter rules on eligibility in the CF, more complex projects (with separate tenders, different starting and ending dates, etc) are generally financed under the SF.
- Other factors that play a role in the choice of funding are: eligibility criteria, availability of funds, maturity of projects and the difference in co-funding rates.

This largely pragmatic approach does not mean that no programming or co-ordination is carried out. However, the programming documents (Reference Framework, Operational Programmes) are sometimes kept rather vague, not specifying individual projects. This gives the sector and national Managing Authorities the optimal flexibility in the division of projects over the various funds. Such a division can in many cases mean that some sections of large road and rail corridors are financed from CF, while other sections are financed from the ERDF. In environment projects, such a division can be found among different stages of the project. Evidence from the sample projects also shows that there is little or no overlap of funding and double financing of projects is rather rare.

3.7 Conclusions and additional observations

From the evidence provided in the above section the following conclusions can be drawn.

Relevance

Although the relevance of the projects in relation to the national needs is clear, the project applications generally fail to assess the quantitative contribution of the project to these national needs. Also problem descriptions and analyses are sometimes lacking. Instead, solutions are presented embedded in the project for which financing is applied for.

Nearly all reviewed projects were within national and EU policy frameworks. However, the scopes of these policy frameworks are very wide, which makes that projects easily fit into one of the priority areas.

Project selection and design

During 1993-2002 Managing Authorities focused primarily on timely commitment of the available funding, paying less attention to the (technical) contents and (economic) priority of projects. This attitude is a result of the organisation of the Cohesion Fund around annual commitments. This system does not contribute to proper selection of technically mature projects, as could be the case in an approach in which budgets are not lost after one year but can also be committed in later years. This might be one of the causes that too frequently technically immature projects were forwarded to the Commission.

The design of a project is of paramount importance for its success, as well as for construction, operating and maintenance costs. In this respect it is noted that technical feasibility studies were hardly or not at all available for the evaluators, despite the fact that any substantial transport and environment project normally requires the preparation of a proper feasibility study.

This lack is remarkable since Article B of Annex II of Council Regulation 1164/94 (the Regulation) specifies that the Member States must provide all necessary information including the “results of feasibility studies and ex-ante appraisals”. It is also not fully in compliance with article 13 of the Regulation, which asks for “a systematic appraisal and evaluation of projects”.

The provision of feasibility studies does not seem to receive sufficient attention, since the applications and the financial decisions generally do not refer to a feasibility study or a summary of a feasibility study. The requirement in the Regulation as regards the availability of a feasibility study in the application is thus not strictly applied.

The lack of an adequate feasibility study may be the cause for various problems such as: (1) improper designs, (2) technical amendments after approval before the start of the construction, (3) late amendments to design/tender dossier, (4) late start of implementation, (5) cost overruns due to additional activities for the Contractor, who is then in a good position to claim additional costs, (6) longer implementation periods than

foreseen, (7) too many requests for extension of the implementation period up to 10 years as is now sometimes the case⁶.

In the Guide to the Cohesion Fund 2000-2006, Annex III requires specific technical information to be included in the application. However, the Guide does not require the submission of a feasibility study. The Guide may therefore not be fully compatible with the Regulation. In not requiring a full feasibility study, the Guide puts a substantial burden on the Commission services to assess the proposed technical solution based on very limited information. This results in requests for additional information and clarification.

As regards transport projects, the horizontal EU environmental directives like the Habitat and Birds directives are sometimes being circumvented by requesting financing for part of a corridor, which is not planned to be constructed in a Birds or Habitat area.

The Spanish experience shows that smaller projects or projects consisting of a large number of sub-projects are difficult to handle in the Cohesion Fund, due to the inflexibility of the system and the long approval periods for amendments.

Water saving is not systematically built in into the project design of water supply projects. Although the “Guide to the Cohesion Fund 2000-2006” refers to reduction of leakages of the distribution system, there is no reference at all to water saving as an essential element for water supply projects. Nevertheless, this water saving aspect is of economic and of environmental importance.

The time needed to get approval on applications is generally much longer than the three months foreseen in the regulation. This is partly due to improper preparation of projects. Also the time needed in Brussels is relatively long.

Use of Public Private Partnerships

Until now little use has been made of Public Private Partnerships in Cohesion Fund projects. In some cases this relates to the particular circumstances in the countries (Spain, Greece). However, there might also be reluctance by applicants to submit PPP-projects, due to the complicated character of such projects, that might make financing from Cohesion Fund more difficult or less interesting (e.g. the inclusion of net-revenues in establishing the co-financing rate).

Complementarity

Funding of projects in CF countries is in an administrative way co-ordinated between CF and SF sources. The reasons for applying for CF funding are usually pragmatic and relate to the eligibility, co-financing rate, type of project, region in which it is carried out, etc.

⁶ The above does not imply that the Commission does not assess the quality of the designs at all. Especially in Spain there are two examples, where the design in the original application was questioned by the Commission and resulted in substantial changes. In the case of the wastewater treatment plant of Madrid this resulted into the withdrawal of the application (because of the lack of nutrient removal as a third stage). It was replaced by a new application including nutrient removal as third stage.

4 Achievements by sector and country

During the past decade, the environment and transport sectors in the CF4 have continuously developed. Global trends in trade and economic development, as well as political and cultural trends towards a cleaner and ‘greener’ environment, have had their impact on the sectors.

This chapter provides a short overview of the trends in both sectors in each of the Cohesion countries. Where relevant and possible, a comparison with average EU trends is given. Section 4.1 describes country level trends, while sections 4.2 and 4.3 concern the sectors environment and transport respectively.

4.1 Country level

In order to be eligible for Cohesion Funding the average GDP per capita of the member state has to be below 90% of the EU average. Table 4.1 shows the development of this indicator in the four Cohesion countries compared to the EU15 average.

Table 4.1 Development of GDP per capita (in Purchase Power Standards; EU15 = 100)

	Greece	Ireland	Portugal	Spain	EU15
1993	64	83	63	78	100
1995	66	93	71	78	100
1999	68	112	74	82	100
2000	70	119	74	83	100
2002	71a	125	71	86	100

a: 2001

Sources: EC, DG TREN; country reports

It shows that Ireland’s GDP per capita has increased significantly during the period 1993-2002 and has surpassed the level of 90% of the EU average. The CF assistance to this country has consequently been phased out in the programming period 2000-2006.

The economic growth in Ireland and other countries has had a favourable impact on unemployment rates. Table 4.2 gives the unemployment rates for the CF4 countries and for the EU15 average. Only in Greece unemployment rate has remained more or less stable over the period, thereby showing a less favourable development than the EU as a whole. In Ireland, Portugal and Spain unemployment rates reduced significantly and relatively more than in the EU.

Table 4.2 Unemployment rates

	Greece	Ireland	Portugal	Spain	EU15
1996	9,7%	11,9%	7,4%	22,3%	10,7%
1998	10,9%	7,5%	5,1%	18,6%	9,8%
1999	11,6%	5,6%	4,5%	15,7%	9,0%
2000	10,9%	4,2%	4,1%	14,0%	8,1%
2001	10,2%	3,8%	3,8%	13,0%	7,6%
2002	10,0%	4,3%	5,1%	11,4%	7,8%

Sources: EC, DG TREN; country reports

One of the objectives of the Cohesion Fund is to enable the CF countries to adhere to the Growth and Stability Pact, while continuing the investments in the transport and environment sectors. The annual reports of the Cohesion Fund describe that with the exception of Portugal (in 2001) and Greece (during almost the whole period)⁷, the countries have indeed been able to keep their budget deficits below 3% of GDP from 1998 onwards. In particular Ireland and Spain show a good track record in this respect.

Table 4.3 Budget deficit or surplus as % of GDP

	Greece	Ireland	Portugal	Spain	EU 15
1993	-13.4%	-2.7%	-8.9%	n.a.	n.a.
1996	-7.4%	-0.1%	-4.0%	-4.9%	-4.2%
1998	-2.5%	+2.4%	-2.6%	-3.0%	-1.6%
1999	-1.8%	+2.4%	-2.8%	-1.2%	-0.7%
2000	-4.1%	+4.4%	-2.8%	-0.9%	+1.0%
2001	-3.7%	+0.9%	-4.4%	-0.4%	-1.1%
2002	-3.7%	-0.2%	-2.7%	-0.1	-2.1%
2003	-4.6	+0.1%	-2.8%	+0.4	-2.7%

Source: Eurostat New Cronos database.

4.2 Environment

Table 4.4 shows the average water use in litres per capita per day in the CF countries and EU. It indicates that water use in the CF countries is some 20% above the EU average.

Table 4.4 Water use by households (litres per capita per day)

Greece	Ireland	Portugal	Spain	EU 15 average
175	180	184	174	150

Source: Eurostat, data for the second half of 90's, most recent data available for each country; EIB for Ireland

⁷ The Greek figures have recently been adjusted. The table shows the most recent figures.

Table 4.5 presents the development of some other environmental indicators for some of the CF countries as well as for the EU15. However the availability of statistics on environmental indicators on a comparable basis for EU countries is very limited.

Table 4.5 Evolution of main environmental indicators (% of population)

% of population ...	Greece		Ireland		Portugal		Spain		EU 15	
	1991	2001	1993	2002	1993	2002	1993	2002	1993	2002
Served by water supply	96,0*	98,9*			81,4	91,3			95	
Served by waste water drainage & treatment	56,6*	66,2*	58	n.a.	19,1	56,9	48	n.a.	78	
Served by solid waste collection	100	100			92,2	100			95	

Source: country reports; Eurostat (New Cronos database)

* This relates to number of households in Greece

4.3 Transport

The transport sector projects under the Cohesion Fund focus on infrastructure development. Table 4.6 presents the evolution of some main transport indicators. The table shows that the motorway network has more than doubled in Greece, Ireland and Portugal, well above the development in EU15. Also in Spain the growth in road network was far above that of EU15.

The railway network is decreasing in length in most EU countries, which is also the case in the CF4. The main trend is that conventional railway lines are taken out of operations, because their exploitation is no longer economically feasible. At the same time High Speed Railway Tracks are being constructed on a large scale. The results of this construction activity are not yet reflected in the indicators in table 4.6, as most of these projects are still underway

Table 4.6 Evolution of main transport indicators

	Greece		Ireland		Portugal		Spain		EU 15	
	1993	2001	1993	2001	1993	2001	1993	2001	1993	2001
Motorways (km)	330	742	53	125	579	1,659	6,577	9,571	43,541	52,762
Motorways (km/1000 km ²) **	2.5	5.6	0.5	1.8	6,3	20.0	10.4	19.0	13,8	15,9
Motorways (km/100.000 pop.)	3.2	6.8	1.5	3.3	5.8	16.2	16.8	23.7	11.8	13.9
Railways (km)***	2,484	2,299	1,944	1,915	2,850	2,814	14,539	14,303	159.870	153.398
% of electrified railways		3		2	15,1	32		54	40,5	51
High speed rail (km) ****	0	0	0	0	0	0	376	377	Ca. 900	2,366
High speed rail under construction (km) ****	0	0	0	0	0	0	376	1,094	Ca. 2,000	2,046

Source: Eurostat

* 2001 Figure for Portugal; 1995 figure for EU15

** Greece, Ireland and Spain calculated; source Portugal: National Institute of Statistics

*** Source: DG TREN, 1990 and 2000 data.

**** Source: Union Internationale des Chemins de Fer; estimates for EU15

With the increase in welfare, car ownership in all cohesion countries has increased faster than in the EU15 (see table 4.7).

Table 4.7 Car ownership development (passenger cars per 1000 inhabitants)

	Greece	Ireland	Portugal	Spain	EU15
1995	211	275	258	362	433
1996	214	291	277	376	438
1997	229	310	297	389	446
1998	244	323	316	408	457
1999	267	339	347	427	469
2000	299	347	351	437	479
2001	322	359	364	451	488

Source: EC, DG TREN

Table 4.8 shows the growth of road haulage in terms of ton kilometres (tonkm). It shows that EU road haulage increased by 50% in the period 1995-2001, while the growth in the CF4 was substantially higher (Greece 62%, Ireland 104%, Portugal 93% and Spain 57%).

Table 4.8 Road haulage development (billion tonkm, national + international)

	Greece	Ireland	Portugal	Spain	EU15
1995	13,3	5,6	11,1	101,2	856,9
1996	15,9	5,6	22,8	101,6	1.101,4
1997	18,1	5,6	24,4	108,9	1.131,5
1998	20,6	5,6	24,7	124,1	1.171,6
1999	21,5	9,4	25,2	133,2	1.229,2
2000	21,5	11,0	18,8	147,4	1.259,8
2001	21,5	11,4	21,4	159,3	1.282,9
2002		14,0	20,0	181,9	

Source: EC DG TREN

Overall rail freight transport is decreasing in relative importance compared to road transport. Overall growth in the EU15 was a mere 8% over the period 1994-2002. In Ireland rail freight transport is decreasing in absolute terms, but in the other CF countries rail freight has been growing with around 30%.

Table 4.9 Rail freight transport (billion tonkm)

	Greece	Ireland	Portugal	Spain	EU15
1994	0,3	0,6	1,6	9,0	219,3
1995	0,3	0,6	2,0	10,4	220,9
1996	0,3	0,6	1,9	10,4	220,1
1997	0,3	0,5	2,2	11,5	237,2
1998	0,3	0,5	2,0	11,8	239,5
1999	0,3	0,5	2,2	12,0	236,3
2000	0,4	0,5	2,2	12,1	249,8
2001	0,4	0,5	2,1	12,2	241,7
2002	0,4	0,4	2,2	12,3	236,9

Source: EC DG TREN

Conclusion

Based on the statistics presented above it can be concluded that the availability of transport infrastructure has clearly improved in the CF4 during the period 1993-2002. The growth in networks has been faster than in the EU15. Also road and rail freight movements have grown relatively faster in the four countries than in EU15.

5 Effectiveness

5.1 Outputs and results achieved

The tables in this section are based on the analysis of the project information relating to the 200 sample projects, including the project files and interviews held with local authorities. It appeared that in many cases no quantifiable objectives were set *ex ante* for the envisaged output, results and goals. Besides, for many of the evaluated projects insufficient quantified indicators (or none at all) were available *ex post* to assess the realisation of outputs or results. Still, based on an assessment of the project files, as well as on interviews with authorities and stakeholders involved, qualitative judgements have been made on the degree of realisation of outputs, results and goals. In some cases, even if no judgement on realised outputs or results could be made, still an indication whether or not the goal will be reached in future is given.

Outputs

Although examined in the same section, it is important to note that project outputs and project results are not to be confused. Outputs relate to the physical indicators that prove that the planned actions have been implemented. The full achievement of physical output will normally lead to the achievement of the project results if the ensuing utilisation is according to expectations.

Table 5.1 presents the results of the evaluation of the 200 sample projects with respect to realisation of project outputs. The table shows that 50% of the projects reviewed have fully realised the projected outputs. In another 14% of the projects the outputs were realised for the main part, while in 30% of the projects the information was not sufficient. In 6% of the projects the realised outputs were only half or even less than anticipated at the start.

Problems during implementation are the main reason for not fully realising outputs. In some environmental projects project applications were made when the design was not yet very mature, which resulted in changes in the realised outputs.

Table 5.1 Realisation of project outputs

		Fully realised	For the main part	Half realised	For a small part	Not realised	No data	Total
Environment	Greece	14	6	1	2	0	1	24
	Ireland	11	0	0	0	0	0	11
	Portugal	13	2	1	0	0	6	22
	Spain	30	12	0	0	0	20	62
	Subtotal	68	20	2	2	0	27	119
Transport	Greece	13	1	1	0	3	0	18
	Ireland	5	4	0	1	0	1	11
	Portugal	1	1	0	0	0	18	20
	Spain	13	2	0	2	0	15	32
	Subtotal	32	8	1	3	3	34	81
TOTAL		100	28	3	5	3	61	200
Idem (%)		50.0%	14.0%	1.5%	2.5%	1.5%	30.5%	

Results

Table 5.2 shows to what extent project results have been realised. It appears that the realisation of results has been better than of outputs: 70% of the projects have been evaluated to have fully delivered the envisaged results, while another 23% have realised results for the main part. Its more qualitative character can explain this more favourable judgement, as compared to the judgement on project outputs. Whereas project outputs are usually clearly and precisely described ex ante, project results are usually stated in more general terms. Achievement of such general results is thus more likely, even if project outputs are not fully, or only partly achieved.

Table 5.2 Realisation of project results

		Fully realised	For the main part	Half realised	For a small part	Not realised	No data	Total
Environment	Greece	18	5	0	0	0	1	24
	Ireland	10	1	0	0	0	0	11
	Portugal	14	8	0	0	0	0	22
	Spain	35	17	1	0	0	9	62
	Subtotal	77	31	1	0	0	10	119
Transport	Greece	14	4	0	0	0	0	18
	Ireland	7	3	0	0	0	1	11
	Portugal	13	7	0	0	0	0	20
	Spain	28	2	0	0	0	2	32
	Subtotal	62	16	0	0	0	3	81
TOTAL		139	47	1	0	0	13	200
Idem (%)		69.5%	23.5%	0.5%	0%	0%	6.5%	100%

It appears from the evaluation of the 200 project files that no clear and uniform result and output indicators have been used. For each project different indicators can be used, even for two projects in the same area and sub-sector. It is therefore difficult to compare projects.

Goals

It is likely that if outputs have been delivered and results are realised, the project goals have as well been reached. However, project goals of the CF financed projects are not always quantified ex ante and are in some cases not easy to quantify. In most of the 200 project files no clear indicators were defined ex ante that would make it possible to assess whether or not project goals are reached. Therefore, such an assessment had to be based on a qualitative overall judgement of the performance of the project and its role towards the goals set.

Table 5.3 shows the results of the assessment for the 200 projects. 80% of the reviewed projects have realised their goals fully or for the main part. For 12 projects (6%), however, it is judged that goals have not been realised, or only for a small part. This score is somewhat less positive than on realisation of results, which indicates that these projects designs were not sufficiently geared to the stated goals.

Table 5.3 Realisation of goals

		Fully realised (Yes)	For the main part	Half realised	For a small part	Not realised	Not applicable / no data	Total
Environment	Greece	13	7	1	2	0	1	24
	Ireland	10	1	0	0	0	0	11
	Portugal	22	0	0	0	0	0	22
	Spain	31	11	1	0	1	18	62
	Subtotal	76	19	2	2	1	19	119
Transport	Greece	3	7	1	4	3	0	18
	Ireland	4	5	0	1	0	1	11
	Portugal	18	1	0	0	0	1	20
	Spain	24	1	1	0	1	5	32
	Subtotal	49	14	2	5	4	7	81
TOTAL		125	33	4	7	5	26	200
Idem (%)		62.5%	16.5%	2%	3.5%	2.5%	13%	100%

Summary of main findings per country

In the following paragraphs, an overview is given of the main findings in each country.

Greece

The effectiveness of the road and rail projects co-financed under the Cohesion Fund in Greece is constrained by the fact that very often projects concern sections of larger transport corridors. The effectiveness of the road or rail section itself heavily depends on the delivery of other sections, which may or may not be co-financed from the CF.

Like in other countries, there is a lack of clearly quantified project results and goals in Greece, making it difficult to assess their realisation. This is partly attributed to insufficient experience of local and regional authorities in designing these types of projects.

Overall, the realisation of goals appears more successful for environmental projects than for transport projects, which is mainly caused by the delays in implementation of the latter, as well as the dependence of projects on the completion of other (road/rail) sections.

Ireland

The analysis of Irish CF projects indicates that the CF has clearly contributed to economic development. There are various examples of increased regional activity and attractiveness due to investments. It is even stated that for some projects CF funding has been a trigger for follow-up investments that were financed without CF support. In several specific projects utilisation clearly increased immediately after implementation of that project. It is noted though that comparison of objectives between projects is not possible, as they have not been using the same indicators.

The high economic growth in Ireland during the period 1993-2002 partly explains why the outputs, results and goals of the Irish projects have been reached so well. Economic growth and population growth contributed to increases in demand for and use of environmental and transport infrastructure facilities which were higher than expected.

Portugal

Overall, most of the CF co-financed projects have fully realised their goals. However, it is also indicated that the CF projects can only realise their goals if they are well integrated in the relevant network. Thus, improved road sections can only contribute to a goal if they are well integrated in the road network of that region. This also holds for environmental projects: a water sewage facility can only work well if the wastewater network of that city or village is connected to the facility and the observed number of households is given access to it. In some cases secondary investments were required to enable projects to realise their goals. This raises the question whether such projects should not have been defined wider.

Although in most final reports it is concluded that goals have been reached, figures to verify that conclusion are often missing, or figures on outputs or results do not fully support that conclusion. This problem is specifically identified for environmental projects. Also, in some cases indicators proposed in the ex ante application are replaced by others in the ex post final report, making a comparison impossible. It further appears that in some cases different indicators are used for similar projects, making an inter-project comparison difficult.

Spain

Many of the Spanish projects have faced changes in project scope, through modifications of decisions and implementation strategy. However, this did not necessarily change the project goals. Still, as there was no requirement of monitoring operational project outputs and results after implementation of the project itself, it is also difficult to evaluate the

realisation of goals. The assessment is therefore based on both available quantitative data and interviews with authorities involved. A finding that is noted specifically in Spain is that EC requirements on methodology, reporting, etc. are difficult to manage for local or regional authorities, which do not have experience in this field.

5.2 Utilisation of infrastructure

The question whether the project outputs have provided sufficient basis to realise the project results is often related to the utilisation of the project output. For infrastructure this means for example whether the envisaged number of car drivers is indeed using the new road. For environment projects this relation is sometimes less direct. For example a water purification plant (the output) delivers an amount of purified water (result) and the users are the customers of this plant that consume the water.

Of the 200 projects, a sample of 60 projects has been analysed in more detail, using data from questionnaires and interviews. For some of the projects data were received on the actual use (i.e. number of cars using a road, train passengers, m³ of water purified, etc.). Together with more qualitative information on the other projects, a judgement is made on the utilisation of the 200 sample projects (see table 5.4).

Overall, 50% of the projects are being utilised fully or for the main part. However for 43% of the projects either insufficient data were available or the question of utilisation was irrelevant, as some of the projects were not aiming at direct use by the population. In 7% of the cases the utilisation is half or less than half of the anticipated level. This group is comparable to the group that has achieved not more than half of its project goals (8%), but larger than the group of projects that achieved (less than) half of its anticipated results (0.5 %). This difference is explained by the fact that utilisation of a project is in many cases better quantified (both ex ante and ex post), enabling a more arithmetic comparison, than in the results of a project.

Table 5.4 Utilisation of projects

		Fully utilised	For the main part	Half realised	For a small part	Not realised	Not applicable / no data	Total
Environment	Greece	13	5	2	2	0	2	24
	Ireland	9	0	1	0	0	1	11
	Portugal	6	3	0	0	0	13	22
	Spain	22	6	0	0	1	33	62
	Subtotal	50	14	3	2	1	49	119
Transport	Greece	9	2	0	3	1	3	18
	Ireland	5	4	0	1	0	1	11
	Portugal	0	1	0	0	1	18	20
	Spain	10	5	2	0	0	15	32
	Subtotal	24	12	2	4	2	37	81
TOTAL		74	26	5	6	3	86	200
Idem (%)		37%	13%	2.5%	3%	1.5%	43%	100%

5.3 External factors

When evaluating the effectiveness of the implementation and operation of projects, external factors can play a role, in positive or negative ways. Typical external factors are:

- Economic: GDP growth faster than expected (Ireland) or slower (Portugal, last years);
- Meteorological: cold winters making ground work impossible;
- Archaeological: delays due to excavation works;
- Habitats: longer environmental approval procedures than expected.

More specific external factors related to investment projects are:

- Difficulties in purchasing land (protests of local authorities or individuals);
- Weather conditions;
- Delays in contracting construction companies (in some cases related to EU regulations on open tendering procedures);
- Public opposition to certain projects.

In most of the projects, no or only few external factors were identified ex ante. Uncertainties were sometimes mentioned, but a clear analysis of potential risks and ways to mitigate these risks was seldom incorporated in the project applications.

Table 5.5 The degree to which external factors are responsible for not realising project outputs, results and goals

		Fully	More than half	Half	For a small part	No	Not applicable / no data	Total
Environment	Greece	5	1	5	4	6	3	24
	Ireland	5	0	1	0	2	3	11
	Portugal	0	0	1	5	6	10	22
	Spain	10	1	0	13	16	22	62
	Subtotal	20	2	7	22	30	38	119
Transport	Greece	9	3	1	4	0	1	18
	Ireland	2	0	2	2	3	2	11
	Portugal	1	0	1	3	9	6	20
	Spain	3	1	1	1	8	18	32
	Subtotal	15	4	5	10	20	27	81
TOTAL		35	6	12	32	50	65	200
Idem (%)		17.5%	3%	6%	16%	25%	32.5%	100%

Table 5.5 shows to what extent external factors played a role in the implementation of the projects. The table shows that in 41% of the cases external factors did not or nearly not influence the implementation of a project. In 26% of the projects, however, external factors played a role; for 65 projects (33%) of the sample the external influence could not be assessed. These results are not surprising, as on the one hand external influences are sometimes difficult to identify before the project start, so that the chance of some factor

arising and affecting the project is realistic. On the other hand, when looking back ex post, it is often difficult to isolate the specific reasons why the project implementation was not realised as planned, i.e. often a mixture of causes is lying behind this, both positive and negative, and the relative importance of each cause can be small.

5.4 Beneficiary population

Some projects are aiming at the total population of a country or a region, while others may focus on a specific target group. For instance, a wastewater plant may be designed to benefit the population of a certain city or area, while a port terminal aims at specific transport modes. The beneficiary population has not in every project been identified ex ante in a quantitative way. In such cases a qualitative judgement has been made. Table 5.6 shows that in 70% of the cases the population benefited to the extent envisaged ex ante, or at least for the main part of that. For 26% of the projects however, this judgement either was not applicable (no direct beneficiary population envisaged) or could not be made.

Table 5.6 Did the population benefit according to the ex ante aimed level?

		Yes	For the main part	Half	For a small part	No	Not applicable / no data	Total
Environment	Greece	17	5	0	1	0	1	24
	Ireland	11	0	0	0	0	0	11
	Portugal	19	1	0	0	0	2	22
	Spain	25	9	0	1	0	27	62
	Subtotal	72	15	0	2	0	30	119
Transport	Greece	7	5	2	4	0	0	18
	Ireland	6	4	0	0	0	1	11
	Portugal	17	0	0	0	0	3	20
	Spain	14	0	0	0	0	18	32
	Subtotal	44	9	2	4	0	22	81
TOTAL		116	24	2	6	0	52	200
Idem (%)		58%	12%	1%	3%	0%	26%	100%

Summary of findings per country

Greece

The assessment of the size of population benefiting from a project closely relates to the utilisation of the project results. Environmental projects in Greece are fully focussed on the local population in the areas where projects are implemented. Often, the use of facilities is very well quantified ex post (e.g. % of houses connected to water supply), but utilisation was not always defined ex ante. This hampers a direct check whether volumes are above or below expectations. Based on the interviews and opinions given, a more qualitative assessment on the beneficiary population had therefore to be made.

For the two road corridors, Egnatia and Pathe, traffic forecast models were used before the works started, but, since not all impacts were included in the models, a comparison of realisation with ex ante data is not useful. In two other projects (in the port and airport sub-sector) realised passenger and freight traffic are above the levels estimated ex ante.

Ireland

The evaluation of Irish CF projects indicates that in most cases the level of direct benefiting population is according to the ex ante aimed level. In some cases also indirect benefiting groups can be identified. An example are residents in a city area where a bypass road has been built, whose real estate value has increased due to less traffic passing their houses.

Portugal

Similar to project outputs, results and goals, indicators used for the beneficiary population vary ex post versus ex ante, as well as between projects, even if these are within the same sub sector. Besides direct beneficiaries (population connected to the infrastructure), the volume of indirect beneficiaries can be very large, but it is a matter of definition to what extent these are influenced. For instance, will all inhabitants of a certain region benefit from a new road? Overall, it is concluded that the total population of the country benefits from CF funding one way or another, but a quantification of the level of this benefit cannot be given.

Spain

The beneficiary populations of transport projects is defined in two ways:

- The actual users of the infrastructure (road users, train passengers, vessels calling in a port); and
- Indirectly benefiting population due to better access of industries and commercial areas, residential areas, etc., as well as for example reduced costs of consumption goods due to lower freight transport costs to the area.

For environmental projects the beneficiary population in principle concerns the group of users of the project results. For projects with a clear product, such as water purification plants or waste collection systems, this is clearly identified and can also be quantified. However for projects concerning for example reforestation or beach improvements, this is much more indirect. Even if in such cases groups of users can be identified, a monitoring system on the numbers of users or the level of their benefit can hardly be made.

5.5 Leverage effect on private sector

The question whether investments in infrastructure or environmental facilities have a leverage effect on the private sector is difficult to answer. On an individual project level the impact is considered small in most cases, as apart from the temporary employment, the sensitivity of a regional economy to that individual project is low. Also it is in many cases quite difficult to directly and uniquely relate developments in the private sector like increased investments or production of goods and services, to a certain infrastructure improvement (e.g. a road, water supply or sewerages system). Because of the low sensitivity and/or complex relation, the leverage effect on the private sector (or the

indirect effect of a project) is usually not described in the project application. An assessment of this aspect in relation to the ex ante expectations is therefore difficult to make. On a general level, though, with billions of Euros investments financed through the Cohesion Fund, a significant leverage effect is realised (see section 7.2).

The present section concentrates on the evidence from the project files, in particular relating to additional effects from a project on economic activity (investments, turnover, etc) in the private sector. As far as such effects increase the welfare of the country, they are included in the Cost Benefit Analysis (see section 7.1).

Summary of findings by country

Greece

Although it is a longstanding experience that private sectors, amongst other the tourism sector, profit from transport and environmental improvements, no clear quantification of such effects exists. Temporary impacts of projects for the construction sector are considered significant. In terms of permanent impacts, various effects can be mentioned, such as the reduction of transport costs for freight and the subsequent increase in private commercial activities, such as road haulage and forwarding companies. However, an estimate of the size of this effect is impossible to give.

The evaluation of Greek CF projects also indicates that non-completed road projects have a potential for PPP in the future; such financing opportunities are currently being explored.

Ireland

The varying importance of the leverage effect on the private sector in Ireland can best be illustrated by some examples:

- A road bypass project, which was started as a PPP project was transferred to a private contractor who will collect road tolls and will be responsible for further road development. Besides that, commercial real estate projects are being developed along the corridor that might otherwise have not been started or in other regions.
- A terminal development in a seaport did not only result in an increase in cargo throughput through that terminal, but also more private activity in related port services was realised.
- Through a large drainage project a large area of previously undeveloped land is becoming available for private investment and the first signs of interest are now coming forward.

Portugal

As also stated for other countries' projects, the leverage effect on the private sector should be estimated with prudence. Even temporary employment for the implementation of a project should not too easily be counted fully, as this can concern reallocation of existing workforce of a company and not necessarily leads to net employment increases.

It is assumed that impacts for the transport sector are much more significant than for the environment sector. A main reason for this is the large size of works in the transport sector, which is usually much larger than in the environment sector, even if individual CF projects can be small. A second reason is that the impact of environmental projects is

more focused on living standards of the population and sustainable development, while the impact of transport projects is more directly focused on economic activity.

Spain

Two types of effects related to the private sector leverage are identified:

- Temporary employment generated directly or indirectly through the execution of the implementation works.
- Long term effects. For environmental projects there are not many proofs indicating permanent leverage impacts. For transport projects this seems easier to assess, although quantification is hardly possible. The main effect is the reduction of travel costs that directly benefit users through cost savings (private or commercial) or indirectly through the passing on of cost reductions in prices of producer or consumer goods.

5.6 Conclusions and additional observations

Generally, the majority of projects reviewed have achieved their outputs, results and goals. Also in the majority of projects the utilisation of the infrastructure and the beneficiary population was (largely) in line with the ex ante expectations. However, in particular in the case of project results, project goals and beneficiary population, the assessment was hampered by lack of quantification ex ante and/or lack of availability of quantified indicators ex post. This gives rise to some comments on the reporting demands on project beneficiaries as they applied in the period 1993-1999, both in the stage of application, as well as in the final report.

In all CF4 countries there is a lack of ex ante quantification of project results and goals to be achieved. Only general objectives are mentioned. The reason is mainly that in the past the Commission did not ask for such a detailed quantification. Therefore the final reports of the projects reviewed do not include this information and a quantitative assessment of their effectiveness in these areas is difficult if not impossible. Instead a qualitative assessment had to be made.

The use of suitable indicators as regards effectiveness is not very developed. Frequently objectives, outputs and results are being mixed up, despite that the MEANS Collection has provided a structure for this.

It is also found that different indicators for outputs, results and goals are being used for similar projects within the same sub-sector. This makes it very difficult to assess the level of impact of the various projects in comparison to each other.

The Regulation contains an obligation for the Member State to produce a final report for each project. However, in the past the Regulation did not prescribe a minimum content, reason why many final reports reviewed contain little information. For instance, sometimes the final report contains only a statement that the envisaged amount of concrete and iron has been used, or similar statements.

Further, very often the final reports focus mainly on technical indicators, planning and costs and much less describe issues concerning impacts, effects or wider influences. One of the consequences is that, if ex ante goals have not been set in a quantitative way, there is no need to explain ex post the reasons for not realising this.

This deficiency has partly been repaired in the Council Regulations 1164/94 and 1386/2002. These Regulations improve the contents of the final report. Still, however, there is no clear reporting requirement in the final report on e.g. the important question whether the infrastructure (like a wastewater treatment plant) is performing in accordance with the design parameters. It is also noted though that in the present programming period a letter has been sent to the CF countries obliging them to make special provisions for maintenance. Such a clause will be included in the new funding decisions.

The reporting on implementation risks and external factors influencing the project implementation is often not elaborated much upon in the final reports. As the ex ante set objectives are not described in a quantitative way, it appears that project authorities do not feel a need to explain the impact of external factors on deviation from the objectives.

For some projects, especially the ones delivered in recent years, an ex post evaluation may come too early to identify the level of results and utilisation, as these still have to develop in the years of operation. A further monitoring of project operation for a longer period after completion of construction may be useful.

There is presently no obligation for the Member States or for the beneficiaries to operate or maintain the infrastructure after its completion. The infrastructure and land may even be sold after completion even if the Cohesion Fund has been used to purchase land and/or real estate.

6 Efficiency

6.1 Time scale and costs

Deviations from the time schedule

One of the weak elements of the Cohesion Fund projects is the deviation of their implementation from the original time schedules (see table 6.1). The analysis of the sample projects shows that in less than one fifth of all projects the implementation was according to the initial time schedule. More than half of the projects experienced a delay of more than one year and 29% of the projects even show a delay of more than 2 years.

Table 6.1 Implementation delays

		No delay	Delay < 0.5 year	Delay 0.5-1 yr	Delay 1-2 yrs	Delay 2-5 years	Delay >5 years	No data	Total
Environment	Greece	1	1	3	7	8	4	0	24
	Ireland	2	0	1	3	4	0	1	11
	Portugal	0	1	4	7	8	2	0	22
	Spain	3	1	16	12	15	0	15	62
	Subtotal	22	3	19	24	30	6	15	119
Transport	Greece	2	0	2	5	6	2	1	18
	Ireland	0	0	2	3	4	2	0	11
	Portugal	3	1	7	4	4	0	1	20
	Spain	8	3	7	9	3	0	2	32
	Subtotal	13	4	18	21	17	4	4	81
TOTAL		35	7	37	45	47	10	19	200
Idem (%)		17.5%	3.5%	18.5%	22.5%	23.5%	5%	9.5%	100%

Although there are some differences in delays no main distinctive pattern is found for projects in the environment or transport sector. Between the countries however, the review shows clear differences. The best performer in this respect appears to be Spain where approximately half of the projects were implemented with less than one year delay. The review indicates that Ireland had most difficulties in sticking to the original time schedules. Forty percent of the environment projects and 55% of the transport projects in Ireland experienced a delay of over 2 years. This is even more remarkable since Ireland has a system of pre-funding through the Exchequer, which enables an easier start of projects.

Although the time overruns are substantial, time deviations as such are not uncommon in infrastructure projects. For example, recent evaluations of the EIB on environment projects⁸ show time overruns of over 2 years for more than 30% of projects. Nevertheless, time overruns are essential to control, since they form one of the main factors in causing cost overruns⁹.

Table 6.2 Reasons for delays

		Not enough	No clear	Weak	Technical	External	Community	Other	Not	Total
		political commitment	deadlines	management & monitoring	reasons	factors	involvement procedures		applicable / no data	
Environment	Greece	1	1	2	15	12	5	0	1	37
	Ireland	0	0	0	4	1	0	4	3	12
	Portugal	1	0	3	14	5	4	0	5	32
	Spain	0	0	2	16	13	4	16	32	83
	Subtotal	2	1	7	49	31	13	20	41	164
Transport	Greece	0	0	0	14	6	1	1	4	26
	Ireland	3	4	1	5	7	4	0	1	25
	Portugal	0	0	1	9	6	5	0	7	28
	Spain	1	2	1	15	0	0	6	12	37
	Subtotal	4	6	3	43	19	10	7	24	116
TOTAL		6	7	10	92	50	23	27	65	280
Idem (%)		3%	3.5%	5%	46%	25%	11.5%	13.5%	32.5%	100%

Technical reasons, external factors and community involvement procedures are most often cited as reasons for delays (see table 6.2). Other reasons, like weak management or lack of political commitment, are much less important. More specifically, the following causes of delays are frequently mentioned:

- Ill preparation of projects (quite often euphemistically indicated as technical reasons). Projects are submitted when they are not mature enough; detailed technical feasibility studies are lacking. This does not only results in delays in the approval procedure, but also in changes in design, changes in the scope of work and in additional administrative procedures.
- External factors. To a slightly lower extent external factors as archaeological finds, unexpected geological and meteorological conditions are indicated as causes for delays. The discovery of protected habitat areas can also be categorized under this heading. To a certain extent these external factors could have been foreseen through more detailed preparatory studies.
- Community involvement. This is mainly related to opposition from local communities. Improvements in this field could be realised by more extensive public consultation.
- Lack of managerial capability. This holds especially for the smaller municipal bodies, which are faced with more complex infrastructure works and

⁸ see e.g. EIB (2002) EIB Financing of Solid Waste Management projects; EIB (1999) An evaluation study of 17 water projects located around the Mediterranean

⁹ See also: European Commission (year unknown), Understanding and Monitoring the Cost-Determining Factors of Infrastructure projects; and Bent Flyvbjerg et. Al. (2004) What causes cost overruns in transport projects.

administrative procedures than they were being used to before the start of the Cohesion Fund.

Cost deviations

Cost deviations are strongly related to time overruns a) because they have a common underlying factor (ill preparation of projects at the time of submission) and b) are directly influenced by time overruns through price inflation. For example, as a result of the high growth of the Irish economy, costs in the construction sector increased by 95% over the 7-year period 1995-2002¹⁰. As a rule, sample projects that are faced with high delays also show high cost overruns¹¹.

Table 6.3 Budget deviation

		No overrun	<5% overrun	5-10% overrun	10-20% overrun	20-50% overrun	>50% overrun	No data	Total
Environment	Greece	7	5	0	1	5	4	2	24
	Ireland	0	1	2	2	3	3	0	11
	Portugal	6	5	3	3	2	3	0	22
	Spain	22	5	3	5	4	5	18	62
	Subtotal	35	16	8	11	14	15	20	119
Transport	Greece	4	3	2	3	3	3	0	18
	Ireland	2	4	0	0	2	2	1	11
	Portugal	8	6	1	1	2	1	1	20
	Spain	16	1	0	1	6	1	7	32
	Subtotal	30	14	3	5	13	7	9	81
TOTAL		65	30	11	16	27	22	29	200
Idem (%)		32.5%	15%	5.5%	8%	13.5%	11%	14.5%	100%

The evidence from the sample projects shows that even though the overall picture is more or less comparable, cost overruns show a slightly more favourable picture than the delays. Whereas only 20% of the projects kept to the original time frame almost 50% of all projects stayed within or close to (<5% overrun) their budget. Some 25% of all project showed a cost overrun of more than 20%, with 11% being really problematic in this area with more than 50% budget overruns. On average the reviewed sample projects show a cost overrun of some 17.5%.

This overrun compares relatively well with international experience (see text box 6.1), indicating that there is no evidence that CF co-financed projects are managed any different from a cost control point of view than the average (public or private) infrastructure project.

¹⁰ This might even lead to a vicious circle in which delays in countries with high inflation lead to substantial cost increases, which in turn lead to additional delay as a result of approval procedures, etcetera. This phenomenon is, however, not applicable for Ireland, due to the system of public pre-financing applied. This system has secured that no delays were incurred in projects due to delays in approval at the Commission and/or due to cost overruns and the necessary modifications.

¹¹ Cost overruns are defined as deviations in realised total investment costs as compared to the original investment costs. In many cases these overruns have been absorbed by national governments, as the contribution of the CF has usually not been increased.

Again Ireland appears to be performing relatively poor in this respect, compared to the other CF countries. Especially the environmental projects in the Irish sample proved to be difficult to control from a cost perspective, but also 40% of the transport projects showed cost overruns of more than 20%.

It should further be noted that in some cases cost overruns could occur after closure of the projects at the Commission, as a result of long running legal disputes (e.g. with respect to expropriation). Such overruns are not taken into account.

Text box 6.1 Cost overruns in transport infrastructure: the international experience

Cost escalation in transport infrastructure projects appears to be more common than sometimes expected. A recent statistical analysis of 258 international rail, bridge, tunnel and road projects¹² showed that 9 out of 10 projects are faced with substantial cost overruns, varying from 20% on average for roads and 45% for rail projects. It was found that costs overruns are strongly related to the length of the implementation phase, stressing the importance to keep control of delays. A second cause is related to the size and complexity of projects: the larger and more complex the project is, the higher the chances of cost overruns. The study also analysed whether a relations exists with the type of ownership of the project (public or private). It appears that it is an oversimplification to state that private ownership leads to better cost control. Designated public bodies with a clear accountability show an equally good performance.

Main causes for cost overruns are shown in table 6.4. The foremost causes for cost overruns mentioned are project modifications, time delays, technical reasons and inadequate cost estimates. All of these reasons point at inadequate preparation of projects. Enhanced quality of the projects that are submitted and submitting projects only when they are technically mature enough could therefore reduce cost overruns. The reasons that are mentioned correspond well with findings from other research. Frequently mentioned cost changing factors that have a high impact on the overall costs are design changes, (poor) project management, inflation and difficulties with contractors¹³.

Greece is a special case in this respect as the cost development in Euros is also influenced by the devaluation of the Greek drachma¹⁴. This has had a mitigating impact on the Euro price of those projects that took a long time to be implemented.

A specific cause could also be mentioned for Ireland, where especially in the first period use was made of re-measurement contracts, which have a clear tendency for cost increases above the original budget estimates. An important change in this respect is the increased use of Design Build Operate (DBO) and Design Build Operate Maintain (DBOM) contracts in Ireland, which leads to improved cost control¹⁵. Portugal has positive experiences with using separate bodies for construction of infrastructure¹⁶. International evidence (see text box 6.1) indicates that cost control is not only a matter of

¹² See Flyvberg, Holm, Buhl (2002) APA Journal, Vol 68, Underestimating the costs in public works projects; and Flyvberg, Holm and Buhl, (2004) Transport Reviews Vol. 24, What causes cost overruns in Transport Infrastructure projects?

¹³ See e.g. EC DG XVI, Understanding and monitoring the cost-determining factors of infrastructure projects.

¹⁴ The value of the GRD towards the ECU was 30% lower in 2001 in comparison with mid 1993.

¹⁵ An additional improvement is that these projects are submitted to the Commission after completion of the tender process. Cost estimate are in this case replaced by "firm" contract prices.

¹⁶ For example BRISA for the construction of toll roads.

having clearly delineated contracts in place, but that it is also related to having clear accountability of (private or public) bodies.

Table 6.4 Main reasons for cost overruns¹⁷

		Modifications to project	Time delays	Inadequate cost estimates	Technical reasons	Weak budget discipline	Weak monitoring	Other	Not applicable / no data	Total
Environment	Greece	13	10	3	3	0	3	1	8	41
	Ireland	5	6	4	5	1	0	7	0	28
	Portugal	10	7	7	3	0	1	0	7	35
	Spain	13	5	6	6	0	0	6	42	78
	Subtotal	41	28	20	17	1	4	14	57	182
Transport	Greece	6	12	6	12	0	0	0	3	39
	Ireland	6	8	2	1	1	0	6	0	24
	Portugal	7	5	2	5	0	1	0	8	28
	Spain	5	0	3	1	0	0	0	26	35
	Subtotal	24	25	13	19	1	1	6	37	126
TOTAL		65	53	33	36	2	5	20	94	308
Idem (%)		32.5%	26.5%	16.5%	18%	1%	2.5%	10%	47%	100%

6.2 Unit costs

It is difficult to establish a systematic database on unit costs on the basis of the sample of projects evaluated in this study. The main reasons are:

- The wide range in type of projects;
- Cost changes over the years (no common cost base year);
- Insufficient cost details to arrive at unit cost;
- Too many projects with specific circumstances (e.g. differences in number of tunnels and bridges, geomorphologic conditions, location of projects resulting a widely varying expropriation costs etc.).

Another difficulty is that the in various projects different units are used, in line with the available information. Table 6.5 provides an indicative overview of the unit costs as found in the different countries.

The unit costs presented show a large variation. Although conclusions are hard too draw based on the arguments mentioned above, a general conclusion from the country reports is that the unit cost analysis has not revealed any “gold plated” projects. High unit costs are generally explained by project specific circumstances. In some cases, though, projects seem to be over-dimensioned, i.e. too much capacity is provided in relation to actual or expected use. However, also such indications are exceptions, rather than the rule.

¹⁷ Interpretation of the cause by the evaluators on the basis of the project information.

In comparative perspective the most distinct differences between the countries are the high water supply costs per inhabitant in Greece and the very high cost of the motorway construction in one project in Ireland (the Drogheda Bypass). Also the cost of water supply (cost per meter pipeline) in Spain appears to be relatively high¹⁸. The high costs in Greece are explained by the relative over-dimensioning of the water supply plants, as only part of the originally envisaged population to be served is realised (see previous chapter). The high cost for the Drogheda Bypass appears to be explained by the construction of a large number (24) of engineering structures, including a high level bridge, on a relatively short length of road (21 km).

Table 6.5 Indicative unit cost

Type of project	Unit	Spain	Portugal	Ireland	Greece
Motorway ¹⁹	k€/km	-	1190-6500	800-11600	2785-6860
Rail line	K€/km	-	1950-2500	-	3000
Rail electrification and power supply	K€/km	1170	-	900	-
Water supply	€/inhabitant	25-165	127-291	820	-
Water supply	€/m	2000-2060	1300	-	-
Sewage network	€/m	310-360	-	-	105-284
Waste water treatment	€/m3 treated	0.0-0.77	-	-	-
Waste water treatment	€/inhabitant	-	93-177	-	-
Solid waste	€/inhabitant	34-38	20-58	-	-
Solid waste	€/tonne waste treated p.a.	38-285	-	-	-

6.3 Appropriateness of the co-financing rate

Although the judgement of the appropriateness of the co-financing rate is mainly subject to the question whether the regulation is abided and is thus more at home in an audit than in an ex post evaluation, still a number of findings are relevant to the ex post evaluation.

The Cohesion Fund contributes up to 80%-85% of eligible expenditure. According to the Council regulation 1164/9465 (art. 7.1), the “actual rate of assistance shall be fixed according to the type of operation to be carried out”. This rate should be reduced for projects that generate substantial net revenues for the producers. For the 2000-2006 the polluter pays principle is explicitly entered in the regulation in determining the rate of assistance.

¹⁸ Not only in comparison with Portugal but also when compared with the finding of the previous ex post evaluation which found a range in pipes cost of 205-1332 Euro/m for water supply projects.

¹⁹ The previous ex post evaluation gives a range for motorway construction from 5.2 MEuro for inter-city roads to 11.1 mEuro for urban 2*3 motorways. This corresponds closely to the range found in the present evaluation.

In practice pragmatic criteria are applied in determining whether the grant is maximised at 80 or 85%. For instance, in Spain the Managing Authority keeps as a rule that regional projects receive 80% assistance, while national projects receive 85% co-financing.

An important aspect of the co-financing rate is the eligibility of costs. In particular in the early years of the Cohesion Fund there appeared to be confusion on the exact definition of eligible costs. During the course of the programme this has matter been gradually laid down in more detailed eligibility rules.

In general net revenue generation has been taken into account in the sample projects. In the transport sector this relates mainly to toll roads and projects in the port and airport sub-sectors. For the environment sector this concerns the fees that are being charged to the users. Still, for a large number of environment projects the maximum grant rate of the eligible costs was approved. This can be attributed to the fact that tariff levels are assumed to be at the level of estimated operating and maintenance costs (or lower). Thus, the user charges are used to cover these costs and the projects do not create any net revenues.

Text box 6.2 The dilemma of the polluter pays principle and the Cohesion Fund

The application of the polluter pays principle (PPP) has been laid down in the Maastricht Treaty (article 130r). In the same Treaty it has been indicated that for member states where the costs are deemed appropriate provision may be made in the form of financial support from the Cohesion Fund (art 130s). For waste management charging in line with the PPP has been applicable since the mid seventies (directive (74/442). For the Cohesion Funds the polluter pays principle was explicitly introduced for the second programming period.

Full application of the polluter pays principle implies a dilemma, as it would raise charges to the level were it would allow full cost recovery (including investment costs). Per definition, this would mean that grant rates would be reduced to zero. The better application of the principle the lower the level of support. This situation has been realised by the Commission, which commissioned a study on this subject²⁰ but no clear solution has been found until now. In practice a more flexible, pragmatic approach is adopted in which an assessment is made whether there is a charging system in place, which preferably recovers the operating and maintenance cost. Another approach is the establishment of fixed reduced grant rate for specific types of projects (waste supply, waste water treatment), without analysing the exact tariffs itself. Another approach is to exempt project for grant support for environment sectors where no polluter pays principle is applied at all. However, no clear rules are set on this issue.

Ex post co-financing rates show a much wider variation. By far the most important reason for this is that total costs have increased above the originally planned budgets (see 6.1). While at the beginning the Commission was still inclined to raise its contribution to a certain extent in line with cost increases, current practice in the CF4 countries reveals that as a rule absolute support levels remain fixed once an application has been approved. Thus, additional costs are borne by the promoters (or financed by national or local governments) providing an additional incentive to keep costs under control.

²⁰ EC (2000), The Cohesion Fund and the environment; the application of the "polluter pays" principle in Cohesion Fund countries.

Text box 6.3 The dilemma of the public-private partnership and the Cohesion Fund

It is a clear objective of the Commission to stimulate increased private sector involvement to augment the impacts of Cohesion Fund funding. However, as with the application of the polluter pays principle, a perverse incentive has been built in the Cohesion Fund regulation. For Member States who have to decide whether to proceed with a public-private partnership or undertake the project as a fully public initiative the latter will be more attractive as it will receive higher levels of Community support. This phenomenon applies also on a more general level in the sense that non-revenue generating sectors stand a higher chance to be presented for Cohesion Fund support²¹.

In a number of cases the co-financing rate has been adjusted ex post, reflecting final determination of the eligible costs. There is no active control whether ex post net revenue streams have been reassessed, leading to adjustments in the co-financing rate.

6.4 Conclusions

Time and cost overruns

Implementation delays and costs overruns are weaknesses of the projects that have been analysed. On average, the sample projects show a cost overrun of some 17.5%. Although cost overruns are not uncommon in infrastructure projects and the Cohesion Fund does not perform worse than international experience elsewhere, this still forms an important issue to address.

The four most important reasons for cost and time overruns are:

- Ill preparation of projects. Projects are submitted when they are technically not mature enough; detailed technical feasibility studies are lacking. This does not only result in delays in the approval procedure but also in changes in design, changes in the scope of work and in additional administrative procedures. Delays and scope changes are one of the main factors influencing the costs.
- External factors. To a slightly lower extent external factors as archaeological findings, unexpected geological conditions and meteorological conditions are indicated as causes for delays. The discovery of protected habitat areas can also be categorized as an external factor. To a certain extent these external factors could be foreseen through more detailed preparatory studies.
- Community involvement. This is mainly related to opposition from local communities. Improvements in this field could be realised by more extensive public consultation.
- Lack of managerial capability. This holds especially for the smaller municipal bodies, which are faced with more complex infrastructure works and administrative procedures than they were being used before the start of the Cohesion Fund.

A number of actions have been undertaken already within the Cohesion Fund, which provide incentives for improved preparation of projects and help to avoid very long

²¹ For example in the Annual report of the Cohesion Fund it is mentioned that ports and airports are relatively underrepresented due to the fact that they are in general income generating. This might also be one of the explanations why especially public funded roads apply for CF support.

delays. Examples are the M+24 rule (leading to cancellation of commitments if a project has not started 24 months after approval) and the decision to allow only one major modification. Also the current practice not to co-finance cost increases provides a stimulus in this respect. These actions have the effect of making Managing Authorities more cautious and will presumably lead to applications with better-prepared projects. It is, however, also possible that the result is that projects budgets are overestimated in project applications (to create room for cost overruns and not to lose the co-financing), while the M+24 rule might even stimulate applications for not yet finalised projects.

Unit costs

There is no clear indication that “gold plated” projects have been financed under the CF, although it is hard to establish a systematic database on unit costs for the selected projects. There is some evidence, though, that projects have been financed with too high capacity in relation to (future) utilisation of the infrastructure.

Co-financing rate

Apart some problems concerning eligibility of costs in the beginning of the period, the rules for determining the co-financing rate do not pose a specific problem. The evaluators have found only pragmatic criteria for the application of either an 80 or 85% co-financing rate. The difference in maximum co-financing rates between ERDF and CF creates incentives to prepare a portfolio of projects that maximizes total support given by the Community.

In addition, some basic dilemmas exist between general policy objectives and the rules applied for calculation of the co-financing rate. Especially the application of the polluter pays principle would merit another approach. This principle is only partially adopted as in most cases depreciation and interest costs (in practice some 60-70% of all costs) are not systematically recovered from user charges. Increasing user charges to cover such costs is discouraged by the present system of determining the co-financing rate.

7 Impact on project and regional level

7.1 Project level

7.1.1 Ex post evaluation of ERR

General

The study team has carried out an in-depth analysis of 60 projects in the four countries, divided over the transport and environment sectors. Despite the many problems with data availability and consistency of data as mentioned before, the study team has been able to review many cost-benefit analyses (CBAs) that were carried out ex ante, in view of the ex post information derived. For the majority of the projects an ex post evaluation has been carried out showing the ex post Economic Rate of Return (RERR).

In carrying out this RERR calculation, two types of adjustments have been applied.

At the **first** level, the information submitted in the ex ante CBA has been compared with the ex post information. This comparison has been carried out for the total amount of the investment costs, the timing of the investments, realized operating costs, realized project outputs and results. As described, the project information was sometimes weak in terms of results. If no contrary information was available, the same projects results have been used as in the ex ante CBA. However, if investment periods were longer than in the ex ante CBA, the project benefits have been taken from this later date of completion onwards. The project period has been prolonged, to be able to assess benefits over the full project period. In such cases the Recalculated ERR (RERR) in essence represents an update of the ex ante CBA with actual cost information (size, timing).

The **second** level of review has been with respect to the methodological aspects, like the project period applied, the inclusion of taxes and duties, the application of shadow prices and the treatment of externalities. It appears that many ex ante CBAs were carried out on the basis of project periods that differed (usually shorter, sometimes longer) from those indicated in the recently published CBA guide.²² Other methodological adjustments carried out relate to exclusion of taxes and duties (mainly VAT) and adjustments in the computation of externalities or indirect effects.

This approach has admittedly some limitations in that any methodologically questionable benefits of projects have not been taken out. This approach has been chosen since there is no uniform framework for calculation of benefits. Although the CBA guide gives good guidance on the contents of CBAs, the actual implementation may differ by sector and

²² This, of course, can be partly attributed to the fact that many of the projects reviewed were approved well before the guide on CBA was published.

country. For instance, in particular in the field of environmental projects various approaches can be found between countries, and even within a country between projects, in terms of types of benefits taken into account and their valuation. This holds in particular for water supply and wastewater treatment plants, but also for solid waste projects. As there is room for own interpretation of the guidelines, no attempt has been made to come to one uniform methodology.

In the case of transport projects, the methodology is more universal and valuation of benefits is less of an issue. However, in this case the size of benefits and timing of them might be disputable. Also in such cases the review has only taken into account proven deviations from the ex ante CBAs.

Thus, although the review has some limitations, in particular with respect to data availability, at the same time it is clear what the value of the review is. By adjusting only proven changes in investments costs and timings, realised results, the project period and methodological failures in terms of inclusion of VAT and application of shadow rates, the review shows to what extent in retrospect the approved projects turned out to be weak, assuming the same reasoning as was applied before application. It thus gives a good idea on whether projects had indeed the socio-economic importance that was attached to them.

Apart from these general remarks, Consultants have some specific observations on the methodologies applied in the ex ante CBAs:

- The ERR shown in the ex ante evaluations of the environmental projects is in many cases overstated due to the inclusion of non justified benefits. In the RERR calculations this could only be partly corrected, due to the lack of information about more realistic unit benefits.
- There has not been a clear guidance as to how the ERR should be calculated in the 1993-1999 period.
- There is a need for more defined and uniform methodology to assess the benefits from environmental projects.
- In the CBAs carried out for projects approved in 1993-1999, various elementary rules of CBA are not taken into account, namely
 - No description of project and base cases
 - The effects are not assessed in terms of comparing the project and base cases
 - No explicit corrections for taxes and duties, nor application of shadow rates for inputs and outputs

In the following paragraphs first the results by country and sector are presented. Some examples of a recalculation exercise are given. In the last paragraphs general conclusions for all countries and sectors will be drawn.

Greece

The ex post analysis of the CBAs in Greece has met with serious difficulties. Firstly, for environmental projects only financial analyses were carried out. In these analyses investment and operating costs were taken into account, as well as revenues, but no attempt has been made to assess the monetary value of the (non priced) environmental benefits. Even so, an ex post financial analysis could only be performed for a selection of

the sample projects, due to limited data availability. The results of the ex post financial analysis can be found in the Greek country report.²³

With respect to transport projects in Greece the situation is quite different. The impact of all proposed road projects had initially been assessed through socio-economic feasibility studies. For the medium to longer term such studies include benefits such as reduction of operating costs, travel timesavings, safety benefits, energy savings, consumer surplus benefits and other. All CBAs are based on projections on the utilization of the new infrastructure and are extended for a time horizon which depends on the nature of the project. Costs include construction and maintenance expenses of the new infrastructure, as well as other expenses for the operator.

Despite this relative advantage, some major problems occurred in the ex post evaluation of transport projects. Firstly, some of the in-depth projects belong to larger sections of the Egnatia and Pathe motorways. The ex ante CBAs for these projects only relate to such larger sections and not to individual projects, making an ex ante and ex post comparison at the project level impossible. Secondly, such individual projects may have been completed without the other adjacent sections being ready. This implies that (nearly) no benefits are realized in the first years after completion, due to the lack of traffic from/to such adjacent sections. Nevertheless, the anticipated benefits can still be realized in the future, but no real ex post evaluation can yet be carried out.

Bearing in mind these difficulties, the following table shows the results of the ex post evaluation of five transport projects in Greece. Various types of adjustments have been applied to the ex ante CBA:

- In various cases project periods in the ex ante CBA were shorter than advocated in the CBA guide. These have been lengthened in the ex post CBA.
- In various cases realized (or newly anticipated) traffic appeared to have been higher than anticipated in the ex ante CBA. The benefits have accordingly been adjusted upwards.
- In a few cases the realized investment costs are lower than anticipated in the ex ante CBA.

The result of these changes is that the RERR for the transport projects is generally higher than the ex ante ERR.

²³ Since this chapter focuses on the economic appraisal, the results of the ex post financial analyses are not presented in the Synthesis Report.

Table 7.1: Ex ante and ex post ERR for sample transport projects, Greece

		Ex ante ERR	Ex post ERR	Adjustments
94.09.65.016a	Egnatia Motorway, section: Ladohori- Lykopodi	8.8%	17.55%	Ex ante relates to longer section with higher unit costs than this project. Updated traffic forecasts are used. The project period has been slightly shortened.
94.09.65.013A	PATHE - section Raches to Agroinvest inst. (KM 240 to KM 244)	5.04%	11.04%	Higher investment costs. Externalities have been recalculated. The project period has been slightly shortened.
94.09.65.005	Container terminal N. Ikonio	34.36%	41.75%	Lower investment costs, higher traffic realized, longer project period
93.09.65.003	Extension of Terminal of Corfu airport	4.46%	4.23%	Higher investment costs. Updated traffic information has been used. The project period has been lengthened.
93.09.65.008	Improvement alignment line Thessaloniki- Alexandroupolis	8.5%	11.72%	Lower investment costs. A shorter project period has been applied. The investment period was longer than anticipated.
	Average	12.23%	17.26%	

Ireland

Like in Greece, the recalculation of the ex ante ERR has met with serious problems in Ireland, due to non-existing or very limited information being available on the ex ante CBA. Further, the country team concludes that the application of the CBA as an important project appraisal tool was inconsistent, with different methodologies used and some providing a far greater degree of comprehensive analysis than others.

This problem is particularly prominent for environmental projects. There are marked differences between the level of detail provided in the ex ante CBAs, making recalculation of the ERR sometimes problematic. The Department of the Environment, Heritage and Local Government has taken note of the problems caused by different methodologies and has commissioned a consultant to develop a common methodology to be applied to all wastewater and water supply projects. This study is currently ongoing.

Despite these problems, ex post analyses could be carried out for the sample projects. The following changes have, where necessary, been applied to the ex ante CBAs to come to the RERR calculations:

- Parameters of the project have been adjusted: changes in investment costs, changes in scope;
- Exogenous factors, like economic growth influencing the value of time;
- Application of conversion factors;
- Adjustment of the time horizon for the benefit;
- Double counting of benefits.

For the transport projects the changes applied resulted in two cases in an RERR lower than the ex ante ERR, while in one case the RERR was higher than the ex ante ERR. The

latter was due to application of a (longer) project period that is in line with the CBA guide. The average RERR for the three projects is estimated at 10.6% (ex ante: 12.2%).

Table 7.2: Ex ante ERR and ex post ERR of transport projects, Ireland

		Ex ante ERR	Ex post ERR	Adjustments
93.07.65.007/ 98.07.65.001	Drogheda by-pass	9.60%	2.64%	Shorter project period (25 instead of 30 years), higher investment costs, higher value of time applied, conversion factor applied on some costs.
96.07.65.001	DART Rail extension	10.0%	8.14%	Higher investment costs
93.07.65.014	Dublin Port Lo-Lo Terminal	17.0%	21.15%	Longer project period (25 instead of 20 years), methodological adjustment to benefit calculation
	Average	12.2%	10.64%	

Dublin Port Lo-lo Terminal Recalculation of Economic Rate of Return

Within the ex-ante CBA a twenty year time horizon was assumed, below the recommended 25 years for port projects in the 2000-2006 period. The discount rate of 10% applied differs significantly from the 5% rate currently recommended although CBAs at this time in Ireland typically used rates of around 8%..

The benefits that were quantified as part of the ex-ante CBA included price reductions for customers and improved operating efficiencies. No conversion factors were applied in the calculation of the ex-ante ERR. This was typical of cost-benefit analysis conducted at this time, and would not be justifiable given the project's location within the Dublin metropolitan area.

The ex-ante economic rate of return amounted to 17.00%, with a net present value of €19.760 million. The ex post evaluation revealed a recalculated economic rate of return of 21.15%, with a net present value of €21.699 million.

The main differences between the economic rate of return and the recalculated economic rate of return occurred due to variances in CBA methodologies caused by disparities in the discount rate and lifespan applied in the ex-ante cost-benefit analysis from the recommended levels applied under the ex post examination. The additional period over which the benefits accrue increased the NPV of the project considerably.

A further flaw in the ex-ante methodology was identified in the treatment of customer discount. The ex-ante CBA has worked out net cash flow by taking Net Incremental Revenue less Net Incremental Costs less Customer Discount (increased throughput in the port that results in price reductions for the end customer) but additionally in the calculation of external benefits they are trying to include this customer discount and port profits (worked out from subtracting net revenue minus net costs minus customer discount) as a positive, which we believe is double counting. We have therefore only included it in our calculations in the former context.

The recalculation of the ERR for the environment sample projects shows the RERR in one case to be slightly higher than the ex ante ERR, while in another case it is substantially lower. On average, the ERR of the environmental projects is lower than those of the transport projects.

Table 7.3: Ex ante ERR and ex post ERR of environment projects, Ireland

		Ex ante ERR	Ex post ERR	Adjustments
94.07.61.020	Lough Gill Regional Water Supply	7.85%	8.36%	Longer project period (30 years instead of 25 years); scaling down of project size; higher investment costs; smaller indirect effects; application of conversion factor for labour
96.07.61.003	Drogheda drainage	11.70%	5.49%	Longer project period (30 years instead of 20 years); higher investment costs; review of industrial development and tourism development benefits; higher operating costs, application of conversion factor for labour.
93.07.61.039	Ballymount waste facility	n.a.	7.37%	Time horizon 30 years; assessment of benefits: development benefits, efficiency savings.
	Average	9.8%	7.1%	

n.a.: For this project no economic rate of return was calculated.

Drogheda Main Drainage Recalculation of Economic Rate of Return

The time horizon for the Drogheda Main Drainage project in the ex-ante CBA was only 20 years, 10 years less than recommended for environment projects during the 2000-2006 period. The ex-ante CBA in fact talks about a 25 year project timescale but this includes the five year construction phase.

Only the economic rate of return was calculated in the ex-ante CBA. No discount rate was used in order to calculate a net present value of the investment. Exogenous factors were however taken into account, with Industrial development benefits, commercial development benefits, shellfish rearing benefits, and tourism development benefits projected.

The original ex-ante economic rate of return stood at 11.7%. The recalculation of the ERR produced a rate of 5.49%, with this fall attributable to a 60% budget overrun, despite a number of other positive influences on the ex post calculation. The ex post net present value was calculated at €6.7million. The changes that were incorporated into the ex post CBA are detailed below:

- Industrial Development Benefits are based on industrial growth envisaged in March 1993 - we have applied GDP realised growth and growth trends to update these figures
- Tourism Development Benefits projected tourist market growth figures through to 2012 - we have applied a conservative tourist growth forecast of half this level from 2012 onwards
- Commercial Development Benefits, given the economic growth that resulted, would be much more significant than anticipated. WE have assumed these to be 10% of value added as opposed to 5% in the original assumptions
- Ex-ante CBA envisages low initial operating costs as Scheme would not reach capacity but in the end it reached the anticipated level very quickly. Thus we have assumed full operating costs from an early stage.
- Benefits to the economy were assumed to result from the recruitment of general operatives of £10,000 per annum as a consequence of them being recruited from the live register. Given that the economy is now close to full employment, a situation not foreseen at the time, we feel that these benefits are not justified and have excluded them
- As a project with the Dublin Metropolitan area, conversion factors of 0.95 were applied to labour-intensive cost elements of maintenance and direct labour
- Time horizon for project assumed to be 30 years as opposed to original 20 years in line with 2000-2006 recommendations
- Implementation Benefits are worked out on the same basis as in the ex-ante, I.e. 25.7% of Construction Costs net of VAT

Portugal

When comparing the ex ante CBAs of the in-depth sample with the EC Guide on CBA as published in 2000, it appears that the approaches adopted are simplistic and rarely take into account the methodological principles defined in the Guide.

Some general conclusions on the CBAs are:

- Since the ex ante CBA is in many cases basically a financial analysis with economic benefits from externalities, generally no price adjustments have been taken into account in the ex ante CBA.
- In many cases there is no risk analysis carried out, in some cases also sensitivity analysis is lacking.

- Significant differences are noted between the projects that served as basis for the CBA and the projects that were actually approved (changes in parameters, multi-phased projects which refer to one CBA for each phase).

95/10/61/008 – Multi-municipal water supply system for southern Porto - water capture, adduction and water treatment plant - Phase 1: the major reason for the difference is the investment presented on the CBA analysis and the investment approved, which is 70% of the initial one. Again, there are some significant differences between the project which was approved and the project studied in the CBA analysis. There are other small differences between the quantities of water supplied to the municipalities, which is about 80% of the expected, but since there was a delay in the construction, it might still be recovered. The external benefit added – public health – has only an impact of 0.5% on the RERR.

The results for the recalculation of the ERR for the in-depth sample projects are shown in the table below. There appear to be some marked differences between the environment and transport projects. Whereas the RERR of environmental projects is generally lower than the ex ante ERR, due to higher investment costs and lower than anticipated results, in the case of transport projects it is generally higher. The latter is mostly due to the inclusion of indirect or external benefits in the RERR that were not included in the original CBA. The average RERR for the transport projects is at 20.4% relatively high

93/10/65/028 - A4 Porto - Amarante Motorway - Construction of the motorway section between Penafiel and Amarante: the difference is explained by 2 factors: the increase on the investment presented on the first CBA, even with the conversion factor adopted and the optimistic projection of traffic; the projection is 12.7% above the real traffic.

Table 7.5: Ex ante and ex post ERR for environment and transport projects in Portugal

		ERR	RERR	Adjustments
	Environment			
95.10.61.006	Waste water drainage and treatment for Southern Porto-Valongo	-12,2%	1,14%	More users than expected. Externalities have been included.
96.10.61.002	Vale do Sousa urban solid waste	5,66%	11,29%	Lower outputs than anticipated. Some indirect benefits have been included
94.20.61.022	Reinforcement of the Alvito Water Supply	8,11%	2,80%	Investment costs higher than foreseen, Lower outputs.
94.10.61.008	Multi-municipal water supply system for southern Porto	9,72%	8,65%	Lower investment. Lower output
95.10.61.009/ 96.10.61.015	Multimunicipal Water Supply System for northern Porto	10,30%	3,28%	Lower output. Lower indirect benefits (tourism).
97.10.61.003	Rehabilitation of the lagoon environment in Rio Formosa	22,00%	5,99%	Lower output. Higher indirect benefit. Shadow prices applied for labour
96.10.61.010	Feira/Gaia Multi-municipal Urban Solid Waste Treatment	34,42%	17,90%	Higher investment costs. Lower outputs.
	Average environment	11.1%	7.3%	
	Transport			
94.10.65.005	Construction of the Bridge over the Tagus	9,13%	16,70%	Higher traffic than expected
96.16.65.002	A3 Porto/Valence Motorway – Braga West/Ponte de Lima section	10,35%	17,30%	Lower investment costs. Lower traffic realised.
94.10.65.007	Modernization of the Beira Alta Railway line II	12,00%	13,55%	Larger impacts in terms of time savings,
93.10.65.028	A4 Porto-Almirante Motorway – section Penafiel/Almirante	17,00%	14,5%	Higher investment costs. Adoption of conversion factor. Lower traffic.
2000PT16CPT005	Construction of the IP2 Main Route - between EN216 and EN102	27,50%	25,20%	Lower traffic, inclusion of indirect benefits.
93.10.65.018/ 95.10.65.003	Reorganization and Modernization of Leixoes seaport	33,00%	35,38%	Price adjustments, exclusion of dis-benefit
	Average transport	18.16%	20.4%	

Spain

The following tables compare the results of the RERR with the ex ante ERR for the 22 sample projects, on the basis of the described adjustments. For 2 environmental and 5 transport projects the comparison could not be made, due to lack of information on costs, ex ante appraisals and/or outputs.

In case no clear information was available on the result of the project, but information on investments and operating costs was available, it has been assumed that the anticipated outputs have materialized. The following main adjustments were carried out:

- adjustment of investment costs and period according the realized implementation period;
- extension of the project period in line with the CBA guide (i.e. 30 years for environmental projects);
- sometimes: exclusion of VAT in the investment costs.

The following table shows that the average ERR of the 17 environmental projects as found in the ex ante CBA was 30.2%. This average is the result of a wide range of ERRs: 4 projects show an ERR below 10%, 9 projects between 10 and 20% and 4 projects show an ERR of more than 20% (up to 200%!).

If the above corrections are taken into account, the result is somewhat different. The average of the RERRs of the 17 projects drops to 18.9%. In five cases the RERR is higher than the ERR, in 11 cases the RERR is lower, in one case the RERR equals the ERR.

97.11.61.044 Solid waste treatment centres in Castilla y Leon

Project summary

The group of projects aims to provide an adequate solution for the treatment of urban solid waste in Castilla y Leon. Four subprojects are identified:

- Construction of a centre for treatment of solid urban waste in province of Zamora, combined with the construction of 6 transfer stations in 6 municipalities in this province (485 tonnes per day treated)
- Construction of a centre for treatment of solid urban waste in province of Segovia, combined with the construction of 4 transfer stations in 4 municipalities in this province (480 tonnes per day treated)
- Construction of three treatment centres for solid urban waste in Palencia, Cevico de la Torre, and Quintanilla de Onesiomo. (45,681 tonnes per day treated)
- Closure of 15 uncontrolled garbage dumps in Castilla and Leon and cleaning up of the area (406,617 m³ residues treated and an area of 129,933 m² recovered).

The scope of the group of projects changed slightly but not significantly as compared to the ex ante CBA.

The ex ante CBA is based on an investment of Ecu 20.6 million over a two to three year investment period (depending on the project). In the ex post evaluation the realised higher investment have been taken into account; however, as the ex ante CBA included VAT, this has been excluded from the amount (Ecu 21.7 million). The realised investment period was three years for all projects. The investment started one year later than anticipated.

In the ex ante CBA a 10 year period has been taken for estimation of benefits. A 15 year benefit period has been taken in the ex post analysis, which is shorter than the period advised in the CBA guide, but equals the life time of the project.

Two types of benefits are taken into account in the ex ante CBA:

- tax revenues (there is no special waste collection tax, but part of the combined local tax is allocated to the project)
- environmental benefits, in particular due to closure of garbage dumps.

The calculation of the environmental benefit is based on the assumption that the costs of decontamination of the soil would be 3500 Pts per metric tonne. These costs are avoided by the correct sealing of the rubbish dumps.

The level of tax revenues in the ex ante CBA is assumed to be exactly covering the operating costs of the installation.

Given that the project has realised the outputs as anticipated, no major changes have been made to the methodology in the ex post evaluation. However, due to the delay in implementation, the full environmental benefit is realised one year later than anticipated.

The ex ante ERR comes to 19.23%. The changes applied in the ex post evaluation result in a RERR of 14.5%. The main reason for the difference is the delay in environmental benefit by one year, due to delay in implementation of the sealing of the rubbish dumps.

Table 7.6: Ex ante and ex post ERRs of the in-depth projects in the environment sector, Spain

		ex ante ERR	ex post ERR	Adjustments
93.11.61.057	Beach regeneration Isla Christina	14,50%	14,20%	Longer project period (30 years instead of 20 years), longer investment period
93.11.61.058	Beach regeneration La Barrosa	44,70%	44,70%	
97.11.61.012	Sanitation Santander Bay	59,40%	46,10%	Longer project period (30 years instead of 20), lower output, higher operating costs
94.11.61.018	Water purification Mar Menor-Sur	6,70%	12,60%	Longer project period (30 years instead of 20), no benefits due to later operations, higher output, exclusion of double counting
95.11.61.015	Water purification Murcia	13,03%	7,50%	Longer project period, higher investment costs, longer investment period, lower output
94.11.61.001	Sanitation Aljarafe III	8,80%	10,60%	Longer project period (30 years instead of 20), higher investment costs, exclusion of VAT,
96.11.61.031	Urban environment Madrid	12,70%	13,10%	Longer project period (30 years instead of 25), lower investment costs
95.11.61.010-3	Forestation and erosion control Segura	9,73%	7,83%	Shorter project period (30 years instead of 50), longer investment period
95.11.61.022E	Renovation Old City, Barcelona	13,10%	-11,80%	Higher investment costs, lower output
95.11.61.004-1	Forestation and erosion control IBH Sud, Gaudalquivir	5,20%	0,90%	Shorter project period (30 years instead of 50) longer investment period, change in project definition
97.11.61.001	Incinerator plant	18,33%	28,11%	Longer project period (30 years instead of 19)
97.11.61.044	Waste water treatment Castilla y Leon	19,23%	14,49%	Longer project period (20 years instead of 14), exclusion of VAT, benefits starting later due to delay in implementation
97.11.61.046	Solid waste treatment and closure of landfill, Anda	11,69%	10,48%	Longer project period (30 years instead of 22), exclusion of VAT
93.11.61.023	Erosion control BH Nord	10,60%	7,30%	Shorter project period (30 years instead of 50), higher investment costs
97.11.61.042	Water supply Castilla y Leon	11,85%	10,88%	Longer project period (30 years instead of 25), different investment costs, longer investment period
95.11.61.027	Water supply in various regions	212,66%	59,33%	Longer project period (30 years instead of 20), different investment costs per project, longer investment period
99.11.61.006	Water supply Salamanca	41,75%	44,90%	Longer project period (30 years instead of 20)
Average		30,23%	18,90%	

Of the changes applied in the calculation of the RERR, the effect of the project period has had the largest impact. In almost all cases (13 of the 17), the project period used in the RERR is longer than in the ERR, namely 30 years as compared to the 20/25 years foreseen in the ex ante CBA. In three cases the project period was shortened, from 50 to 30 years.

Both the ERRs and RERRs are relatively high. The CBA guide, for instance, gives an average ex ante ERR for water and environment projects of 15.8%, which compares to the average ex ante ERR of 30% (18.8% for 16) and the average RERR of 19% (16.4%). Although this difference might seem relatively small, the evaluation team has three major comments.

Firstly, in almost all Spanish CBAs various benefits have been taken into account, which are questionable and/or difficult to assess on the basis of the project descriptions. In many cases the CBAs are not very elaborate and do not give sufficient information on such benefits. In the RERRs such benefits have not been adjusted, due to lack of clear indications on how and to what extent these should be adjusted. Almost all projects include 'environmental benefits' which are estimated without a clear justification. If such benefits were not taken into account, the RERR would in almost all cases drop to very low or negative levels.

Secondly, in many cases revenues have been taken into account from user charges, which are calculated in such a way that the operating costs of the installations are fully covered by these charges. Since such charges appear also to apply in the without project situation, such benefits do not seem to be justified. In this respect the CBAs lack a clear comparison between project and base case situation (with and without situation).

Thirdly, although in various cases a similar approach has been used in defining the benefits, the unit benefit applied differs between the various projects even if they are similar in scope.

Project 97.11.61.042: Water supply works in Castilla y Leon

Short project description

The project consists of various groups of water supply projects. In total 12 different projects were proposed, of which 2 were replaced. Due to replacement of projects and modifications the original time period was not met, nor was the budget sufficient. The project was modified once to take the replacement into account. The works consist of reservoirs, dams, treatments plants and network connections. The projects were in 6 different municipalities in the region Castilla y Leon.

The ex ante CBA was carried out for the original group of projects. Total expected investment was Ecu 20.836 million, to be spent in one year (1995). In practice only 11 projects were carried out within the available budget, but spread over a time period of four years (1995-1998).

The benefits of the project in the ex ante evaluation were taken over a 20 year period. In the ex post evaluation a 30 year period for each individual project has been taken to assess project benefits. This change has a significant effect on the ERR.

In terms of benefits, the ex ante CBA distinguishes two types of externalities:

- Guaranteed water supply
- Reduction of overexploitation of water resources.

The valuation of both benefits was based on: the output in terms of water supplied to the population and a unit environmental benefit for both items (Pts 60 per m³ for guaranteed water supply, Pts 5 per m³ for the reduction of overexploitation of water resources). These unit benefits are applied an various water supply projects in Spain. In contrast with other water supply projects in Spain, the water charges (canon) are not taken as a benefit.

In the ex post evaluation the realized output of the projects have been taken, which was considerably (50%) below the data in the ex ante CBA, partly due to the exclusion of one of the projects. No adjustment has been made for the methodology to assess the environmental benefit of the project.

In the ex ante evolution an ERR for the combined group of projects is shown of 212.7%. This is, of course, unrealistically high and casts serious doubts on the quality of the ex ante CBA.

On the basis of the adjustments described (longer investment period, changed project scope, lower output, longer benefit period) the RERR has been calculated at 59.3%.

The high level of the RERR is completely the result of the methodology applied to calculate benefits. This methodology, although applied in many water supply projects, is highly questionable. It does not start with a proper comparison of with and without situations and therefore does not derive a proper assessment of benefits. To illustrate this: if it is assumed that the only benefit is the improved efficiency of the use of natural water resources, and thus only the second benefit should be taken into account, the cash flow becomes negative over the whole project period.

The comparison for the transport projects shows that ex post ERRs are generally in line with the ERRs found in the ex ante CBA. In one case the RERR is substantially lower, while in another case it was found to be higher. This is explained by the fact that no major adjustments have been made to the project periods, while also the outputs of the projects are generally in line with ex ante expectations. The effect of longer investment periods on the ERR is generally small.

Table 7.7: Ex ante and ex post ERRs of the in-depth transport projects, Spain

		Ex ante ERR	Ex post ERR	Adjustments
95.11.65.004	Rias Bajas Motorway- Camarzana de Tera-Rio Mente, Furnaces-San Ciprian sections	7.60%	7.65%	Investment costs
93.11.65.009	N-III - Requena-Chiva section	14.90%	14.31%	Investment costs
1999.ES16CPT005	Lleida-France Cervera bypass	12.22%	6.67%	Lower time savings achieved
97.11.65.002	Madrid Metro Access to Brajas airport	25.82%	25.79%	Investment costs
94.11.65.003	Bailén-Granada dual carriageway	14.40%	19.27%	Higher benefits due to higher utilization
		14.99%	14.74%	

Conclusions

On the basis of the 46 ex post evaluations shown above (22 for Spain, 13 for Portugal, 6 for Ireland, 5 for Greece), the general conclusions are:

- The calculated RERR for transport projects is generally in line with the ex ante ERR. The typical range of ERRs for transport projects is 10-25%, with an average ERR of around 16%.
- The RERR for environmental projects is generally lower than the ex ante ERR. The typical range is 0-20%, with an average ERR of around 12%.
- Despite the many corrections applied, the RERRs are still reasonable. Only few projects show such a low RERR that implementation of the project is questionable in retrospect.
- There is no uniform methodology applied in environmental projects, which makes comparison of projects difficult, if not impossible, in particular across countries. In particular the treatment of environmental benefits differs considerably between countries, resulting e.g. in relatively high RERRs in the case of Spain.
- Project documentation is generally weak on the provision of ex post data, in particular concerning the implementation and operation periods. Lack of insight in outputs and operating costs hampers a thorough ex post evaluation.

7.1.2 Employment effect of individual projects

Whereas the ex post appraisal of projects and recalculation of ERR has met with serious difficulties due to lack of proper and consistent information, the information on the employment effects of individual projects is even weaker. Generally project applications only give information on the short-term direct employment effect, i.e. the effect during construction of the infrastructure. In some cases the longer-term direct effect is given, i.e. the additional employment in running the infrastructure. However, short and longer-term indirect effects on employment are generally not assessed beforehand and not measured ex post. Below some evidence from the review of 200 sample projects is given. It shows only the results for those projects for which information was available.

Table 7.8: Employment effects of sample projects *

	Direct – temporary (job years)	Direct – permanent (jobs)	Indirect – temporary (job years)	Indirect – permanent (jobs)
Greece	n.a.	n.a.	n.a.	n.a.
Ireland	1,910	43	n.a.	n.a.
Portugal	11,000	840	900	400
Spain	89,100	3,400 1)	45,300	600 1)

*: includes only effects of those for which information was available

n.a.: not available

1) environmental projects only. No data on transport projects available

Spain

For 52 of the 63 sample environment projects information could be gathered on direct and indirect employment effects, on short and longer term. It shows that whereas some 11,700 direct and 5,300 indirect job years were created during construction and/or implementation of the projects, the long run, permanent employment was much lower namely 3,400 direct and 600 indirect jobs.

Direct temporary employment in the transport projects has, according to application data, been substantially in the transport projects carried out in Spain: 40,000 job years in road projects, 37,000 in railway projects and some 400 job years in other projects. Indirect temporary employment was also found to have been substantial: some 40,000 job years in total. However, the evaluation team has not been able to get this ex ante information confirmed. Nor could long term effects of the projects be assessed. This is at the one hand due to the lack of information provided in the application, at the other hand due to the theoretical difficulty to assess such employment effects of transport infrastructure projects.

Portugal

In the case of Portugal for only 22 of the 41 sample projects (limited) information is available on employment. It shows that in these 22 projects 11,900 temporary jobs have been created (of which 900 indirect, 11,000 direct), while the permanent job creation has been around 1240 (of which 840 direct, 400 indirect). In 14 of the 22 projects the

achievement was as projected or better, while for 8 projects the realized employment fell short of expectations.

General

In the annual report of the Cohesion Fund 1997 a global analysis is carried out with respect to the employment effect of CF projects. It reports that an analysis of project applications is carried out showing that “on average around 20 jobs are generated directly per million Ecu of grant in transport projects and 25 jobs per million Ecu in environment projects”²⁴. It is not clear though whether this relates to temporary jobs, relating to construction, or longer lasting jobs.

7.2 Impact at regional level

London School of Economics (LSE) carried out the only study that has looked into the macro and regional economic impact of projects financed from the Cohesion Fund at the project level. The results of this study *The socio-economic impact of projects financed by the Cohesion Fund, A modelling approach* (1999) will be briefly described below. This report is an update of an earlier study carried out by LSE and published in 1998.

7.2.1 Impacts of individual projects

The LSE study has used three types of models to look into the effects of individual projects. The first model relates the extra public investment in a region to the increase in private investments and employment. The second model looks into spillover effects of such investments to other regional. The third modelling approach concerns a computable general equilibrium model and assesses the direct and long-term effect of transport projects on the national and regional economies.

Each of the models has its shortcomings. However, since it gives results of model runs based on actual project data, they provide some relevant insights, in particular the results of the VAR simulations (model 1) and the general equilibrium models (model 3).

VAR Model

The first model is a Vector Auto Regional Model. It simulates responses by private sector on public investments, as well as longer-term employment effects arising from the investments. The simulations use generic data on regional economies of the CF countries to simulate the responses.

The following table shows the results for project simulations.

²⁴ Annual report of the Cohesion Fund, 1997, page 107.

Table 7.8: Economic impact of various transport projects co-financed by the Cohesion Fund

Country	Project	Cumulated business investment (long run)	Employment response (long run) jobs
Spain	Madrid Ring Road	3%-3.3%	2,900-3,400
	Rias Bajas Motorway	11%-12.3%	3,300-3,900
Greece	Evinos Dam	3%	13,000
	Spata Airport	4.03%	8,800
Portugal	Tagus crossing	3.1%	16,500
Ireland	North South Road Link	2%	N.a.
	North South Rail Link	12%	n.a.

Source: LSE, The socio-economic impact of projects financed by the Cohesion Fund, 1999.

The table shows the leverage effect of the simulated projects on the private sector in terms of generated investments. This effect is in many cases around 3%. The notable exceptions being the Rias Bajas motorway in Spain and the North South Link in Ireland, with cumulative impacts of above 10%. In these cases the regions affected by the public investment show strong business responses to the new infrastructures.

Employment estimates show that in most cases substantial long-term employment is generated. These are around 3-4,000 jobs in the Spanish cases, but even more in the cases studied for Greece and Portugal (8,800-16,500 permanent jobs). These results illustrate the strong permanent employment effect of transport infrastructure projects.

General Equilibrium Model

With the computable General Equilibrium Model (GEM) the macro economic impact of transport projects can be simulated, for the short (direct effect) to longer run. Whereas the direct effect only gives the direct effect of opening of the road itself (in terms of transport cost reductions), the GEM also estimates the effects in the longer run, due to various adjustment processes including the movement of industries and labour to adjust to the new situation. The model runs also show the effect of the investment on regional income. The model has been applied for various road transport projects in CF countries (see table below).

Table 7.9: Estimated direct and long run effect of various infrastructure projects

Country	Project	Investment (M ECU)	Direct effect (M ECU)	Long run effect (IM ECU)	% of real income national*	% real income regional (range)*
Ireland	North South Road	450	163	183	0.91-1.10	0.42-1.52
Spain	Madrid Ring Road	305	185	287	0.045-0.07	0.00-0.17
	Rias Bajas Motorway	785	121	164	0.03-0.04	0.0-0.36
Portugal	Tagus crossing	426	39.2	36.9	n.a.	0.01-0.10
Greece	Egnatia	4301	398	448	0.96-1.2	0.10-6.25
	Pathe	3860	933	1157	2.33-2.89	0.34-4.27

Source: LSE, The socio-economic impact of projects financed by the Cohesion Fund, 1999.

*: The first column gives the direct and long-term effect as a % of the income at the national level. The second column gives the range of the effect on income (as a %) per region. Thus in the case of Ireland, the lowest impact on a region is 0.42% (direct effect), while in another region the impact (long run) on regional income is as high as 1.52%.

Conclusions

It can be concluded from these results that while the investment in the roads is substantial, the annual direct effect in terms of reduction of travel costs is in many cases also substantial, being usually more than 10% of the initial investment costs (sometimes 60%!). In almost all cases this effect is reinforced in the longer run by second order and third order effects. The long run or indirect effect of the road investments is generally 10-50% higher than the direct effect (with the exception of the Tagus crossing). Thus, the investment in the infrastructure improves the efficiency of the economy, due to the ensuing changes in industrial patterns and inducing migration.

It can also be concluded that the effect of the investments on the national welfare level can vary significantly, from relatively small in the case of the Rias Bajas Motorway (only 0.03 to 0.04 %), to 2-3% in the case of the Pathe motorway. This partly reflects the importance of the infrastructure relative to the whole economy. Whereas the Rias Bajas Motorway is important for the northwestern part of Spain, the Pathe motorway affects a large part of Greece.

The effect of the road infrastructures can, therefore, best be seen at the regional level. For instance, the long run effect of the Egnatia motorway is more than 6% in one of the affected regions! This illustrates the effect that transport infrastructure can have on regional development, even in case of large national infrastructures. Moreover, all regions benefit from the investment.

7.3 Conclusions

Cost benefit analysis

The quality of the CBAs as used in the application forms in 1993-2002 is generally weak. In particular for environmental projects the quality varies considerably, as does the methodology applied. In many cases the environmental benefits (non priced benefits) are insufficiently documented and are high by any standards. The found quality is such that general conclusions on the socio-economic impact of environmental projects are hard to draw. Even the use of the CBA instrument for project selection in this field is questionable.

In transport projects the quality of the CBAs is generally higher. In these projects a problem can emerge if projects are part of a wider section and no specific CBA is available (or could be made).

Further, Consultants have the following observations on the methodologies applied in the ex ante CBAs:

- There has not been a clear guidance as to how the ERR should be calculated in the 1993-1999 period.
- There is a need for more defined and uniform methodology to assess the benefits from environmental projects.
- In the CBAs carried out for projects approved in 1993-1999, various elementary rules of CBA are not taken into account, namely
 - No problem description and description of project and base cases;
 - The effects are not assessed in terms of comparing the project and base cases;
 - No explicit corrections for taxes and duties or application of shadow rates for inputs and outputs.

Despite these problems the ERR has been recalculated for the majority of in-depth projects. Adjustments have been made on project parameters (investment costs and timings, realised operating costs, realised outputs and results) and methodological issues (length of project period, application of shadow prices, exclusion of VAT, calculation of externalities of indirect benefits). The general conclusions are:

- The calculated RERR for transport projects is generally in line with the ex ante ERR. The typical range of ERRs for transport projects is 10-25%, with an average ERR of around 16%.
- The RERR for environmental projects is generally lower than the ex ante ERR. The typical range is 0-20%, with an average ERR of around 12%. If uncertain environmental benefits are left out, the RERRs would drop to low (or negative) levels in almost all cases.
- Despite the many corrections applied, the RERRs are still reasonable. Only few projects show such a low RERR that implementation of the project questionable in retrospect.
- The lack of a uniform methodology applied in environmental projects makes comparison of projects difficult, if not impossible, within a country and across countries. In particular the treatment of environmental benefits differs considerably between countries and sometime also between projects.

Employment

Data on temporary and permanent employment effects of the sample projects was found to be weak. Information on temporary direct employment is usually available, but in many cases neither information is given on temporary indirect employment nor on permanent employment (direct and indirect). Such information is admittedly more difficult to collect, as it sometimes requires economic modelling exercises, which go beyond the capacity of project beneficiaries.

The modelling exercises carried out in the past by London School of Economics on sample CF co-financed projects show impressive impacts both in terms of employment, additional value added, as well as in generated investments by businesses. The latter effect illustrates the leverage effect of CF projects on the private sector.

8 Management and implementation systems

8.1 Management and implementation

With respect to the management system of the Cohesion Funds, a distinction can be made between the system in Brussels and the systems applied in each of the four Cohesion Fund countries. Since the latter are not identical, each of the four systems will be briefly described. These descriptions are followed by a description of the management system in Brussels.

Greece

A new management system was introduced for the Cohesion Fund in Greece in 2000, in order to achieve more efficient programming and monitoring procedures. The main change was the introduction of Managing Authorities for each of the sub-sectors.

The Ministry of National Economy is the Managing Authority for the CF. It is responsible for coordinating all actions between the MAs and EC, as well as with the Monitoring Committee of the Operational Programmes (OP) of the 3rd CSF and the relevant ministries. The introduction of MAs for the sectors has greatly improved the procedures for the CF.

The most important MAs are:

- MA of the OP Railways, Airports and Public Transport (RAPT)
The objective of RAPT is to ensure the effectiveness and regularity of the management and implementation of the OP, by ensuring that actions are compatible with laws and providing support to final beneficiaries. In cooperation with the CSF Managing Authority it plans programs, evaluates, monitors and verifies the implementation of the OP.
- MA of the OP Road Axes, Ports and Urban Development (RAPUD)
RAPUD is a special service of the Ministry of Environment, Physical Planning and Public Works. The responsibilities of the MA RAPUD are among others to set up a system to gather reliable information for monitoring indicators; drawing up and proposing adjustments to the Programme; drawing up and submitting annual and final implementation reports.
- MA of the OP Environment. The structure of the MA for Environmental projects is similar to the set up for the MA of RAPUD.
- The 13 MAs of the Greek Regions for the Regional OPs.

The projects are implemented by the final beneficiaries, among which are ERGOSE, a subsidiary of the Greek Railways Organization, EGNATIA ODOS and EYDE PATHE. ERGOSE was set up in 1996 to undertake the management of the investment programme projects of the Greek Railways, in particular those co-funded by the EU Programmes. In

late 1997 ERGOSE took over the management of the projects. Its specific aim is to maximize absorption of the Greek and Community funds placed at disposal of the Greek Railways and to assure that each of the projects is delivered in time and at an acceptable cost and quality. EGNATIA ODOS and EYDE PATHE play similar roles for the Egnatia and Pathe motorways. In the environmental sector EYDAP, the nowadays privately owned enterprise for water supply and sewerage for the greater Athens area, and similar organizations (DEYAs) in other municipalities are active.

The country evaluators conclude that introduction of the MAs and the independent organizations that are responsible for the realization, operation, maintenance and exploitation of the projects, improved the management of projects. Their participation in the monitoring process is thus considered essential. However, some of these authorities, more in particular the regional authorities managing mostly environmental projects, are not qualified enough to handle such type of projects.

Ireland

The overall responsibility for the administration of the Cohesion Fund in Ireland rests with the Department of Finance (DoF), as the Managing Authority. The Department submits all project applications to the EC and allocates the financial resources for projects. It is also responsible for chairing the Monitoring Committee and stands as the main link between the EC and the implementing bodies.

Besides the MA, other government departments (Department of Environment, Heritage and Local Government; Department of Transport; Department of Communications Marine and Natural Resources) take on the role of intermediate bodies. These bodies approve the contracts submitted by the implementing body, monitor project progress and prepare certification reports. They are also responsible for the delivery of the final reports and progress reports for the Monitoring Committee.

Intermediate bodies produce their own procedure manuals for the CF, outlining the structures and systems to be followed throughout the project's life cycle. The implementing bodies must ensure compliance with the Project Appraisal guidelines of the DoF, verify that the projects is consistent with CF objectives and EU requirements (environmental protection, competition, public award, etc), as well as with rules of eligibility.

Implementing bodies act as project managers to each project and are charged with fulfilling a number of obligations on the part of intermediate bodies. These implementing bodies tend to be the local authorities responsible for the area in which the project is being implemented.

Very few of the projects reviewed appeared to be constrained in any way by the multi-tier management approach described above. Most project stakeholders found implementing and intermediate bodies easily accessible and easy to deal with. However, at the project level in some cases management problems were noted:

- Not enough attention on feasibility and technical specification, resulting in redesigning and cost overruns (e.g. Lough Gill Regional Water Scheme, M1/N1 Drogheda Bypass)

- Lack of coordination between regional and national level in the application stage (Lough Gill Regional Water Scheme)
- Cost control, management and planning of the project (Drogheda Main Drainage Scheme) resulting in 6 modifications and extension of the project by more than 10 years

In other sample cases, however, no particular management problems were encountered (i.e. Dublin Port Lo-Lo Terminal, Ballymount Waste Facility).

Portugal

The institutional framework for the implementation of the CF in Portugal has been set up by the national legislation in March 1994 and, although some changes have been introduced since, the model remains largely the same to date. The Directorate General for Regional Development (DGDR) is the Managing Authority for the CF and for that purpose a specific unit has been created. It coordinates contacts with the EC, assesses applications and reference frameworks before submission and leads negotiations with the EC. The DGDR is also paying authority for the CF.

According to the Law-decree 191/2000 adopted for the present programming period, DGDR has been ascribed among others the following tasks and responsibilities:

- Establish contacts with EC regarding assessment of applications;
- Represent the fund in management and monitoring structures;
- Assure national co-ordination of management, monitoring and evaluation of operations;
- To propose regulations or rules regarding the implementation of the Fund and to define management procedures.

Below the national coordination are the sector coordination levels, consisting of units in the Ministries of Transport and Public Works and the Ministry of Cities, Physical Planning and Environment. These two sector coordinators are responsible for the preparation of sector strategies and priorities, for assessing projects submitted by project holders and for selecting applications to be sent to DGDR. The heads of these units are at the same time Managing Authorities of the Operational Programmes for transport and environment, thus ensuring full coherence and coordination between the ERDF and CF operations.

Law-decree 191/2000 also describes the tasks and responsibilities for sector coordinators, like among others:

- To follow the execution of the approved intervention;
- To ensure the collection and treatment of physical and financial data on the execution of the interventions.

At the project level it appeared that:

- Projects reach DGDR usually only during the second half of the year, which hampers timely submission to the EC.
- Too many versions of the draft application and final reports exist before a final version is submitted to the EC. It appears that implementing bodies might need training in these respects.

- Deficient programming and lack of project management skills lead to unrealistic costs and longer implementation periods.

Spain

The Ministry of Finance is the national authority responsible for overall Cohesion Fund management. Within this Ministry the relevant DG has, among others, the following tasks:

- National level counterpart for the EC;
- Organization and agreement on budget distribution at national level;
- Organization of calls for project proposals and provision of information for applicants;
- Collection of project proposals from applicants, Eligibility check of project proposals and to ensure overall compliance with CF and national priorities in cooperation with the concerned line Ministry;
- Submission of eligible applications to the EC for approval;
- Organization and chairmanship of Monitoring Committees;
- Monitoring of the projects on the basis of financial and physical indications, administration of procedures for decision modifications;
- Management of payments;
- Control of projects.

In addition, the Ministry of Finance has carried out many of the cost-benefit analyses included in the applications for the co-financing of transport infrastructure projects. To this end it follows a uniform method.

The projects themselves are being managed by the applicants, being either 1) national authorities like Ministry of Environment, Ministry of Infrastructure, river basin authorities or autonomous bodies like AENA (airports) and GIF (railway infrastructure management); 2) regional authorities or 3) local authorities (for environment projects only).

Management at the Commission²⁵

At the Commission the DG REGIO manages the Cohesion Fund. Since its establishment the organisational setting of the Cohesion Fund management has undergone some organisational changes. At present, a number of directorates within DG REGIO are involved in the management. A central position is being taken by the geographical units of the three directorates of DG REGIO:

- Directorate C/Unit C1: Ireland
- Directorate D/Unit D1: Spain
- Directorate D/Unit D2: Portugal
- Directorate E/Unit E1: Greece

With the accession of 10 new member states further adjustments have been made to reflect the new situation since May 2004.

In addition to the geographical units, Directorate A is responsible for overall co-ordination, except for financial and budgetary matters, which are the responsibility of Directorate G.

²⁵ This section is based on: Manual of Procedures Cohesion Fund, Internal document version July 2003.

When an application is received by DG REGIO, other DGs are consulted. Most prominent are DG Environment, which is consulted for all projects, and DG TREN, which is consulted on TEN-T projects (i.e. all transport projects of the Cohesion Fund). The main reason for this consultation is to assure that projects comply with EU (environmental and TEN-T) policies and directives and that projects do not overlap with other budgetary support from the Commission. Projects are mainly assessed from an administrative and financial point of view and on compliance with EU directives.

No standard check is being performed on the technical design of projects, although occasionally complex projects or projects that give reason for additional scrutiny might be subject to external assessment by outside experts. For this reason the Commission has a framework contract in place with external consultants.

After projects have been approved, projects are monitored through the Monitoring Committees, progress reports and sample checks by the Member States authorities and monitoring missions by the Commission. If required, the Commission decision may be modified during project implementation. As a rule, since July 2002 only one major amendment is allowed in CF4 countries, to promote the submission of more mature projects.

8.2 Monitoring system

Monitoring Committees

The monitoring systems in place in the CF4 are similar. Monitoring of the progress of projects is being carried out by Monitoring Committees, which meet twice per year. In some cases separate monitoring sub-committees are organised for separate groups of projects, like e.g. projects from regional authorities or public-private partnerships in Spain. The Monitoring Committees are chaired by the MA of the CF of the particular country and contain representatives from sector coordination units, EC, beneficiaries and European Investment Bank. The monitoring is carried out on the basis of reports on each of the ongoing projects, which show both physical progress (outputs) and financial progress.

During 2000, in Spain the Monitoring Committee discussed its re-organisation with a view to a more efficient organization (avoiding lengthy meetings in seven separate sub-committees). The EC suggested to organize one formal committee for general questions and to examine only those projects that experience serious problems. The new format was put into operation in April 2001 and some projects were designated as subject to intensified monitoring.

Monitoring indicators

Monitoring data are found to be quite limited, in particular in the 1993-1999 period. Usually only a small set of indicators were used, which were completely related to physical output (e.g. metres of water pipes installed) and financial progress. In effect the project promoters were even encouraged to use the same physical indicators to allow for comparisons between projects. This method of monitoring only allows to follow physical

and financial progress of the projects and helps to identify projects that are delayed; in Monitoring Committees actions are agreed to rectify these problems. However, in the case of e.g. Greece this system was deemed to be insufficient to give a clear view of the project progress. In Spain there has risen doubt as to the accuracy of the data, as physical progress in output is in some cases found to be exactly according to planned outputs, whereas small variations could be expected. In other cases planned outputs for the same project were found to change over time without any modification of the project having been reported.

The sample projects do not make a consistent use of result indicators and there is no use of impact indicators. For instance, the analysis of 62 sample projects in field of environment shows that in 38 projects result indicators were defined at the application stage, whereas in only 16 projects their result indicators were re-examined at the final stage. Most sample projects, however, limit the quantification of results to an indication of the total population of the region or city affected by the infrastructure.

For the period 2000-2006 an improved application format has been adopted, introducing more detail with regard to monitoring indicators. Sections 3.3.1 and 3.3.2 of the new application ask for a quantification of objectives, whereas sections 4.3.1 and 4.3.2 ask for a detailed quantification of main indicators, in addition to the list of output indicators for monitoring purposes.

In 2000 a more elaborate information system was set up in Portugal, allowing on line monitoring of projects. The system is organized in 12 areas, including financial data (expenditures, payments, EC transfers), control actions, decisions, programming data, technical visits, etc. The system is deemed to work appropriately and responds to the needs of the stakeholders. The data inserted by project are in fact relatively comprehensive, unlike the situation before 2000 when inputted information was basic and very limited. Given the positive experience with this system, it can be seen as a good example for other (new) CF countries.

8.3 Administrative costs

Administrative costs in CF countries

There is no systematic information available on the administrative burden of managing the CF as compared to the programme approach of the SF. This information is not systematically kept with the Managing Authorities in the countries, nor in Brussels. The evaluation team has therefore drawn conclusions on the basis of more qualitative and scattered quantitative information.

The general conclusion from various discussions with Managing Authorities, as well as with geographical units within DG REGIO, is that there is no obvious difference in the level of administrative costs, when seen in relation to the size of the interventions. There is a difference in approach though. Whereas much of the efforts are needed during negotiations on the programme in the case of SF, with relative low administrative burden later on the process, the administrative burden of management of CF interventions is

more evenly spread in time. This burden is, of course, related to the application procedure, involving consultation rounds, as well as the disbursement procedures.

The Portuguese evaluators have assessed the administrative costs per project and per 1000 Euro of investment for both transport and environment types of projects, under CF and ERDF assistance. The assessment, which admittedly has some assumptions in it, shows the administrative costs for CF assisted projects to be up to three times higher than for ERDF assisted projects. Expressed per 1000 € of investment, however, the difference is smaller, giving comparable figures for transport projects between the two programs, and substantially lower for environmental projects under the CF than under ERDF.

Thus, although the administrative costs per project might be higher under CF, in terms of costs per € contribution the administrative costs of the CF are lower (environment) or comparable (transport). This conclusion confirms the general conclusion on basis of the interviews.

Table 8.1: Estimated administrative costs of projects financed under CF and SF in Portugal

	Administrative cost per Project (€)	Administrative cost per 1000€ of investment (€)
Cohesion Fund		
Environment	14,600	0.40
Transport	21,700	0.34
ERDF		
Environment	4,300	1.89
Transport	6,100	0.31

Source: CISED, Country Report Portugal.

For Spain some information was derived at a more aggregate level. For the management of CF projects the Ministry of Finance employs some 16 persons, while in management of ERDF funds some 58 persons are active. Given that the ERDF funds are roughly 3 times the funds for CF, this points at a slightly (some 20%) higher capacity for CF per € of investment.

It therefore appears that, although the administrative costs for the Cohesion Fund might have a different pattern as compared to the Structural Funds, the administrative burden for the Cohesion Countries is not significantly different from the administrative costs from managing the Structural Funds.

8.4 Conclusions

The management systems for the Cohesion Fund in the Member States have grown into relatively efficient organisational structure over the years since the start of the Cohesion Fund. As the emphasis shifted from mainly programming and selection of projects to a stronger role for monitoring, especially cost control and accounting have been further strengthened.

In most cases three layers are distinguished in the member state: Managing Authority, CF co-ordinating department and beneficiary/promoter. In general the control at the national level is mainly administrative. There is no systematic Quality Assurance system in the Member States as regards the technical, financial and socio-economic viability of projects and their compliance with relevant EU directives. Annual commitments and financial control appear to be main drivers in the management set-up. This is also reflected in the monitoring process, which focuses on financial and physical progress of projects. Only limited attention is given to result and goal indicators.

Also in Brussels the main focus is on administrative and financial control, with additional assessments on the compliance with EU directives and policies. Although a framework contract is available, no standard technical checks are performed on project applications.

In three countries pre-funding systems are in place (Spain, Portugal, Ireland). These have a positive influence on the progress of projects in the start-up phase, when funding of the CF is not yet available. Especially the Portuguese example of a revolving fund, which is being fed by transferring half of the advance payment in the fund, is interesting because of its ease to apply it in the other new member states. Also the project monitoring system developed in Portugal is a good example for new CF countries.

Compared to set-up applied for ERDF, the CF requires a more intense administration since there are more organisational layers involved within Brussels and in the recipient countries. An analysis for Portugal shows, however, that the administrative costs in the member states per project are comparable with the administrative costs of SF if expressed per Euro of assistance.

In general programming efforts are reported to be heavier for ERDF than for the project based CF approach, which compensates for the lower level of monitoring costs during execution of the programme. Further streamlining of the CF with the ERDF might clearly lead to lower administrative costs.

9 Community added value

9.1 Macro economic impact

Clearly, the CF4 countries have invested heavily in their transport and environmental infrastructure in the period 1993-2002. Many of these projects have been carried out with financing from own national funds, many others have been co-financed by the Cohesion Fund. It is obvious that total investments in the two sectors would have been less, if the CF assistance had been available. In that case investments would probably have been carried out later and less would have been achieved.

Nevertheless, the availability of CF financing might also have had the effect that national governments have concentrated on other sectors, since funds for transport and environment projects were available from the EC. It is therefore important to assess the additionality of CF funds for the national governments.

Table 9.1 gives an idea of this additionality for the two sectors. It shows the average annual public spending in each of the CF4 countries, with and without CF and ERDF assistance.

Table 9.1: Average annual public spending by sector in the four CF countries (in million Euro)

		1989-1993		1994-1999		2000-2002		Total '89-02 (bln €)	
		Without	With	Without	With	Without	With	Without	With
Greece	Tra	745	1072	1515	2009	2785	3197	20.4	25.9
	Env	398	523	300	417	437	460	4.7	6.0
Ireland	Tra	267	384	350	589	1133	1472	6.6	9.5
	Env	87	129	60	84	469	518	2.1	2.6
Portugal	Tra	1065	1348	1681	2277	1480	2185	18.8	25.6
	Env	249	367	266	518	279	495	3.4	6.1
Spain	Tra	4359	5076	3437	4545	2958	4605	46.9	61.4
	Env	1932	2160	1887	2603	1830	2923	24.5	33.0
Total	Tra	25.7	31.5	41.9	56.5	25.1	34.4	92.7	122.4
(bln €)	Env	10.7	12.7	15.1	21.7	9.0	13.2	34.8	47.6
	Total	36.4	44.2	57.0	78.2	34.1	47.6	127.5	170.0

Source: DG REGIO

Various conclusions can be drawn from the table:

- Total public spending in the CF4 has been far higher in transport than in environment. Given the 50-50 apportionment between the two sectors in the CF, the CF is relatively more important for the environment sector;
- Over the period 1989-2002 the public spending in both sectors has been 32% (transport) to 37% (environment) higher due to the availability of the Cohesion and Structural Funds.
- In absolute terms this extra spending amounts to € 42.5 billion over this period. The extra spending over the period 1994-2002 amounted to € 34.7 billion. The major share of this (around 70%) relates to the transport sector. The extra spending has increased over the period, from € 2 billion per year in 1989-1993, via € 3.5 billion per year in 1994-1999 to € 4.5 billion per year in 2000-2002.
- Over the years, the average **extra** spending due to CF and SF availability declined in Greece (to only 5% for environment and 15% for transport in 2000-2002) and Ireland (to 10 and 30% respectively in 2000-2002), but increased in Portugal (to 77% and 48%) and Spain (to 60 and 56% respectively).
- With the exception of Spain, total public spending in the **transport** sector has increased over the period 1989-2002 in the CF4. In Greece and Ireland average annual spending (more than) tripled, in Portugal it doubled. Average annual spending on transport declined in Spain.
- Average annual public spending in the **environment** sector showed a more mixed trend. It increased in Spain and Portugal (mainly due to CF and SF funds), rose sharply in Ireland (due to increase in own funding) and declined in Greece.

Overall the conclusion is therefore that the CF (and SF) has resulted in a higher level of public spending in the two sectors. Total additional funds devoted to these two sectors amount to € 42.5 billion over the period 1989-2002. The size of this effect differs by country and period, from very low levels (5% in Greece's environment sector in 2000-2002) to almost a doubling (95% in Portugal's environment sector in 1994-1999).

The data shown in chapter 4, however, also indicate that not all 4 CF countries have been able to keep their budget deficits within the limits set by the Growth and Stability Pact. In particular Greece, and to a lesser extent Portugal, had difficulties in adhering to the maximum budget deficit of 3% of GDP.

9.2 Impact on TEN-T and environmental policies

It has become clear from previous sections that the projects financed by the Cohesion Fund have been highly important for the CF4, both in implementation of the EC Directives in the field of environment, as well as in upgrading the main transport corridors. This impact can for instance be illustrated by the amount of funds that have been spent on these sectors over the period 1994-2002. The Spanish evaluation report estimates that the CF has contributed 15% of the needs in sanitation over the years 1994-1999. For water supply the relative contribution was lower at 3%, while the contribution was 0.6% for solid waste. However, for erosion and forestation the CF contributed 69% of the total investments needed in the period. In Portugal the CF assistance has represented 0.4-0.5% of the GDP and 1.7-2.1% of the total investment made in the country in the 1993-2002 period.

The above data indicate the high importance of the CF in monetary terms. However, also in terms of achievement the CF has its effect. The data in chapter 4 indicate that the achievements in the transport and environment sectors in the CF4 are substantial in that various countries have developed faster than the EU15 average in many respects (motorway development, water supply, high speed rail construction). In some aspects some of the CF4 are even ahead of the EU15 average (e.g. Portugal and Spain in motorway development); in others (e.g. wastewater treatment) some of the CF4 are still lagging behind the EU15 average.

But the impact of the CF projects goes further, in that it has assisted and stimulated the governments to develop strategic views on the development of both the environmental infrastructure and the transport network sectors. The availability of funds has certainly brought forward the development of these sectors substantially, as well as the implementation of the environmental Directives. The Greek country report concludes that due to the participation in CF and as a result of the needs that this participation created, detailed policies and strategies are currently developed in order to assist environmental protection through actions with specified priority goals and impacts.

But the CF has also had an impact in the transport policy field. To illustrate this, the Irish evaluation team concludes that there is little doubt that the CF played its part in ensuring a renewed focus on an integrated transport policy to meet the needs of the country's rapidly growing economy.

9.3 Project selection and management

The most important added value of having Community involvement, however, lies perhaps not in the provision of money and implementation of sector strategies and Community Directives, but in the improvement in project identification, preparation, appraisal, selection, monitoring and implementation procedures. Despite the critical remarks made above on these points, in all CF4 countries there has been a strong improvement in the various steps of the project cycle.

In terms of project identification, the availability of funds has stimulated more beneficiaries to identify and prepare projects in relation to their transport or environment problems. The CF rules give a guidance to the various aspects to be taken into account, like for instance a Cost Benefit Analysis and Environmental Impact Assessment. The CF has stimulated the use of both tools.

In terms of appraisal, various improvements can be made. Nevertheless, the CF has contributed to selection procedures and criteria and has helped governments to develop programming instruments.

The same conclusion holds for project monitoring. Although this in the beginning was perhaps too much focused on administrative monitoring, such monitoring procedures have been improved over time and has helped the governments to use similar techniques elsewhere. The Irish evaluation report, for instance, concludes that various intermediate

bodies and beneficiaries (National Roads Authority, Dublin Port Corporation, Irish Rail) noted significant improvements in their procedures as a result of the requirements of the Cohesion Fund.

In terms of project management it is clear that various changes that were induced by CF and SF procedures and requirements, such as the development of separate project management organisations (e.g. in Greece), the use of monitoring indicators, the insistence on public tendering as well as on reporting, all have helped to improve project management capacities in the CF4.

In Ireland, the National Roads Authority has established a Project Expenditure Claims system as one of the by-products of Cohesion Fund requirements. This innovative system links cost control with accessibility to funding. Also the Department of Environment, Heritage and Local Government declared the impact of the Cohesion Fund with regard to financial control and administration as being highly significant for their organisation.

9.4 Conclusions

The Cohesion Fund has played, and is still playing, a key role in Spain, Portugal, Ireland and Greece in the field of improvement of transport infrastructure, drinking water supply, wastewater treatment and waste management. There is a clear and tangible improvement of the situation in the period 1993-2002, which in many aspects has been considerably faster than in the EU15. It is obvious that such improvement would have been less without Cohesion Fund assistance.

Additional investments in the two sectors in the period 1989-2002 as a result of the availability of CF and SF financing is estimated at € 42.5 billion. Over the period additional public spending has been 33% higher in CF4 due to the availability of the funds. The effect of CF and SF in making additional funds available differs by country and sector, though: a decline can be seen over the period 1989-2002 in Greece and Ireland, while the effect increased over the period in Portugal and Spain.

Apart from the contribution that the CF has made in terms of investments, the CF has had added value in terms of developing and focusing sector policies. An important contribution of the CF has been the introduction and improvement of various techniques for the whole project cycle, from identification up to monitoring.

10 Recommendations

10.1 Introduction

The projects that have been subject to the ex-post evaluation obviously have a certain bias towards projects, which have been initiated under the first Cohesion Fund period (1993-1998). The recommendations, however should be forward looking and take due notice of the changes which have occurred since then and new regulation for third Cohesion Fund period 2006-2013 as has been recently proposed²⁶.

The recommendations have been presented along two main lines of thought:

- Recommendation with respect to the *structure and procedures of the Cohesion Fund*. These recommendations are mainly targeted at further changes to the recent proposal for a new regulation for the period 2007-2013, since it is highly unlikely that changes in structure and procedure of the CF can be applied at short notice.
- Recommendation with respect to the *implementation and application of the Cohesion Fund*. These recommendations are more practical of character and are primarily aimed at improvements, which can be realised through the introduction of best practice and transfer of experiences from the first Cohesion Fund countries to the new member states. The target group for this recommendation might change from the second to the third programming period, as the management will become more decentralised. Certain recommendations in this respect might become redundant after 2006 as they are included in the new regulation, however, they could still be valid for the present programming period.

The distinction between the two can be blurred. New procedures can be introduced obligatory by changes in the regulation and/or additionally prescribed procedures, or voluntarily by developing common methods and transfer of best practice.

10.2 The structure and procedures of the Cohesion Fund

- The system of annual commitments can create a tension towards the quality of projects as sometimes immature projects could be proposed to use up the annual budget. Two recommendations could assist in alleviating this tension:
 - Change the system of annual budgets to a system of only a budget for the whole programming period. This allows more flexibility.
 - Create a pipeline of projects (responsibility of managing authority)

²⁶ "Proposal for a Council Regulation laying down general provisions on the European Regional Development Fund, the European Social Fund, and the Cohesion Fund", COM (2004) 492 Final. 14/7/2004

- Clusters of smaller projects should only be allowed if they really form one integrated project.
- The current rules on co-financing do not encourage public-private partnerships above purely publicly financed projects, since the grant rate will be reduced as revenues are taken into account. Further work would be required on this aspect if the Commission wants to promote the increased use of PPPs in CF projects.
- A similar dilemma exists with respect to the application of the “polluter pays principle” in water and waste projects. Full cost recovery, which results from an adequate application of this principle, will strongly reduce grant rates. Additional regulation would be required to solve this tension.
- Although the new regulation foresees a further streamlining of ERDF procedures with CF there still exists a difference in the maximum co-financing rates. The logic for using different rates is sometimes missing as similar projects are financed by ERDF and CF. It could be considered to further harmonize the maximum co-financing rate between the two funds to avoid unwanted “shopping” between the two funds. Another solution, as foreseen in the new regulation, is to follow a single programming system for both funds.
- The new regulation clearly identifies the need for a stronger accent on performance and quality. For this purpose a limited number of performance and impact indicators will be identified for the OP. These should be extended to the project level. Reporting on these indicators should be required in the final report of each project. It might be considered to introduce the obligation to collect indicator information over a longer period than at the end of the project alone.
- In certain cases it might be advisable if the ownership of the infrastructure changes after completion of the projects from public to private bodies. This could create windfall profits for the private party. The currently proposed regulation foresees possible adjustments in the contribution of the Fund up to seven years after the financing decision (art. 56). This period could be extended since the lifetime of most projects is considerably longer.

10.3 Implementation of the Cohesion Fund

Commission

- The Commission could introduce additional quality assurance for new application. The required submission of a feasibility study for large projects in the new regulation is promising in this respect. In addition a standard expert opinion on the quality of the project is recommended.
- In those cases where a project forms part of a larger whole (e.g. road sections) it is advised to request an EIA for the whole project, to avoid that information on less environmentally friendly parts of the larger project, that are (in)directly related to the application does not reach the Commission.

- It is recommended that further methodological support and reference values for principal parameters will be offered by the Commission to the member states. The new regulation foresees this (art. 40). Similar support is suggested for developing a consistent, common set of result and impact parameters and the development of a cost reporting format to allow the establishment of a uniform cost database.

Managing Authority/beneficiary

- To enhance the success of CF financed projects is strongly recommended to select only mature projects which fulfil clear quality standards. This will lead to better projects and less time and cost overruns. On the basis of the experience with the CF so far a number of recommendations can be made in this respect:
 - Adopt a multi-annual planning approach in which both project preparation and implementation are planned on a multi-annual time frame
 - Create a pipeline of projects
 - Request active public consultation before submission of application
 - Request fully developed technical (design and feasibility) studies before application. This could be improved by creating a special facility for technical feasibility studies.
 - Make more use of the CF to finance preparatory studies
 - Request appropriate risk assessment before submission
 - Apply technical quality assurance on applications for financing. If relevant develop a standard technical checklist in this respect.
 - Approve only projects which are close to or have completed tendering (this would require a system of pre-funding at the member states to avoid unnecessary start-up delays)
 - Do not allow re-measurement type of contracts
- Offer beneficiaries methodological support in preparing CBAs and proposing impacts and performance indicators
- Water supply (including water saving), sewerage construction and wastewater treatment should be tackled as a whole to avoid inadequate designs and unnecessary costs. This can be built in by requiring that an integrated feasibility study for the design is required before the detailed design of parts of the system will be prepared. A master plan or feasibility study for the whole system would even be better.
- Request measurable and quantified goals, results and impacts.
- The speed of approval procedure at the Commission can be increased if projects are discussed with the Commission before and checks on information needs are being carried out with the Commission before the application is submitted.
- Ensure adequate, professional management of projects. Ideas in this respect are:

- Establishment of a clear (public or private) managerial body/company which is accountable for the implementation and management of the project;
 - One central (public or private) managing company for a group of smaller municipalities (cf. example of Portugal of multi-municipal companies for water projects);
 - Give central assistance on administrative and financial (accounting and cost control) matters.
- Experience shows that the start of project is greatly facilitated if a central pre-funding system is in place. The system in place in Portugal, in which half of the advances from Brussels are put in a central fund to pre-fund projects, is easily transferable to other member states. The new regulation has already a stronger pre-funding facility built in for the new programming period (art. 81).

Annex A: List of sample projects

Greece

<i>Greek projects</i>		
CF reference	Category	Project title
940832051	Environmental Project	Biological treatment Chania
940832034	Environmental Project	Sewage and rain network Chania
1994GR16CPE093	Environmental Project	Sewage & raining waters of Chania (940961022 - 9409610412)
940832041	Environmental Project	Water supply + sew. Rethymno
940832036	Environmental Project	Water supply Larisa
940832065	Environmental Project	Sew.+bio treatment in Kalambakas-Meteores
940832020	Environmental Project	Waste management Patras
940832003	Environmental Project	Sew.+biolog.treatment Pyrgos
930832001	Environmental Project	Sewage + biolog.treatment Thiva
980832005	Environmental Project	COHESION - EVACUATION DES EAUX PLUVIALES DE LA VILLE DE KORINTHOS
940832061	Environmental Project	Groupe: 940961078,0273
940832063	Environmental Project	COHESION - EVACUATION DES EAUX USEES ET LA STATION D'EPURATION BIOLOGIQUE DE VILLIA
940832047	Environmental Project	Sewage Alexandroupolis

<i>Greek projects</i>		
CF reference	Category	Project title
990832003	Environmental Project	Construction d'une décharge de déchets à Komotini
	Environmental Project	Water supply + sewage Mytilene (930961063 - 950961063)
950832006	Environmental Project	Sewage - Mytilene
990832001	Environmental Project	Construction d'une décharge de déchets à Rhodes
930832021	Environmental Project	Water supply of Voio
940832049	Environmental Project	Water supply, sewage and biol. treatment in Florina
	Environmental Project	Treatment/disposal liquid waste - Igoumenitsa
940832016	Environmental Project	Sewage Ioannina
970832001	Environmental Project	Water supply Ioannina
930832016	Environmental Project	Sewage + biological treatment Preveza
940832083	Environmental Project	Upgrading of sanitary landfill - Saloniki
960832002	Environmental Project	Sewage - N. Kallikratia-Ag. Pavlos
940832024	Environmental Project	Water supply of Thessaloniki from Aliakmon river
970832005	Environmental Project	COHESION - LA PROTECTION DE L'ENVIRONNEMENT NATUREL ET FORESTIER
940833023	Transport Project	Egnatia Motorway, section: Ladohori-Lykopodi
940833031	Transport Project	COHESION - VIA EGNATIA SECTION IGOUMENITSA
1994GR16CPT033	Transport Project	Egnatia Igoumenitsa-Girka (940965016B -940965016E - 940965016F - 940965016H)
940833024	Transport Project	Egnatia Motorway, section: Ag.Nikolaos-Koumaria
940833034	Transport Project	COHESION - VIA EGNATIA SECTION PERISTERI - TUNNEL ANTHOHORI
940833026	Transport Project	Egnatia Motorway (by-pass of Kavala from MR 4+937 to MR 9+400
940833033	Transport Project	COHESION - VIA EGNATIA DEVIATION DE KAVALAS - ECHANGEUR DE AG. ANDREAS N. KARVALI

<i>Greek projects</i>		
CF reference	Category	Project title
940833029	Transport Project	PATHE-section: By-pass of Patras, K1-K4 (MR 0+000-MR 2+890)
940833037	Transport Project	COHESION - MOTORWAY BY-PASS OF PATRAS (K1-K4)+(K5-K6-K7-A)
940833011	Transport Project	PATHE - section Martino-Atalanti
1994GR16CPT943	Transport Project	Martino-Atalanti-Arkitsa-Ag. Konnos-Viaduct (940965012C - 940965012D - 940965012E - 940965012F)
940833012	Transport Project	PATHE - section Atalanti-Arkitsa
940833013	Transport Project	PATHE - section ARKITSASA-AG.KOSTANTINOS
940833014	Transport Project	PATHE - viaduct in Lake ILIKI area
940833018	Transport Project	PATHE - section Raches to Agroinvest inst. (KM 240 to KM 244)
1994GR16CPT941	Transport Project	PATHE - section Raches to Agroinvest inst. (KM 240 to KM 244)
940833019	Transport Project	PATHE - section Pelasgia tolls to AG. THEODORI junction
940833017	Transport Project	PATHE - section Dion-Katerini
940833021	Transport Project	COHESION - AUTOROUTE KORINTHOS-TRIPOLIS-KALAMATA
930833009	Transport Project	Improvem.nat.road Thessaloniki-Serres-Promachona
940833020	Transport Project	Upgrading national road Thessaloniki-Serres-Promachona
930833015	Transport Project	Transit area - Port of Iraklion (930965032-940965032)
940833007	Transport Project	Container terminal to N. Ikonio
	Transport Project	Extension of Terminal of Corfu airport
930833007	Transport Project	Modernization of air traffic control system
	Transport Project	Modernisation de la circulation aerienne.
980833002	Transport Project	COHESION - DEDOUBLEMENT VOIE FERRE EXISTANTE RIVIERE AXIOS
930833012	Transport Project	Improvement alignment line Thessalonika-Alexandroupolis

Ireland

Irish projects

CF reference	Category	Project title
950761001	Environmental Project	River Boyne Catchment Protection Scheme
930761023	Environmental Project	Clonmel Main Drainage Scheme
950761009	Environmental Project	Clonmel Main Drainage Stage III
960761003	Environmental Project	Drogheda Main Drainage - Stage 2
940761006	Environmental Project	Greystones Sewerage Scheme (Stage II)
940761016	Environmental Project	Sligo Bay Waste Water Management Scheme
930761039	Environmental Project	Ballymount waste facility
980761004	Environmental Project	DUBLIN REGION WASTEWATER TREATMENT SCHEME. STAGE 4,SUBMARINE PIPELINE
	Environmental Project	Dublin regio Wastewater Treatment Scheme-Stage 5
930761036	Environmental Project	Limerick city water supply
940761020	Environmental Project	Lough Gill Regional Water Supply Scheme
960761007	Environmental Project	Dublin Region Water Supply - Stage 3
960761001	Environmental Project	Dublin Region Water Conservation Scheme
930765011	Transport Project	Dublin airport freight development
930765003	Transport Project	N11 Enniscorthy-Wexford
930765007	Transport Project	N1 Drogheda by-pass
980765001	Transport Project	N1 DROGHEDA BYPASS
930765042	Transport Project	N11 Arklow by-pass
960765001	Transport Project	DART: Rail extensions

Irish projects

CF reference	Category	Project title
960765002	Transport Project	Mallow-Tralee Track Upgrade
930765012	Transport Project	Bellview Rail Crossing
930765004	Transport Project	N25 Bellview Port access
930765026	Transport Project	Bellview Quay Extension
930765014	Transport Project	Dublin Port Lo-Lo Terminal
950765010	Transport Project	Vessel Traffic Management and Information System

Portugal

<i>Portuguese projects</i>		
CF reference	Category	Project title
931061014	Environmental Project	Assainissement de la costa do Estoril (931061014 - 961061018)
931061018	Environmental Project	Decharge multimunicip. de Baixo Mondego
941061013	Environmental Project	Remplacement de la vegetation dans des zones protegees
941061014	Environmental Project	Reseau de liaison des principales sources d'eau potable -Madeire
941061016	Environmental Project	Approvisionnement en eau a Lisbonne-renforcement capacite adducteur Ca
941061017-GR	Environmental Project	Système de traitement des eaux résiduaires de Portimo (941061017 - 961061002)
941061022	Environmental Project	Renforcement du systeme d'approvisionnement en eau d'Alvito
941061023	Environmental Project	Etude : dechets solides - Algarve
941061025	Environmental Project	Systeme de traitement des dechets solides de la rive gauche du Tage
941061026	Environmental Project	Triage et recyclage des dechets solides
951061006	Environmental Project	Assainissement du G. Porto Sud: sous-systeme de Valongo
951061008	Environmental Project	Systeme multimunicipal d'approvisionnement de Grand Porto Sud (1e phas

Portuguese projects		
CF reference	Category	Project title
951061009	Environmental Project	Systeme multimunicipal d'approvisionnement de Grand Porto-Nord (1e p
961061015	Environmental Project	Systeme multimunicipal d'approv. en eau du Grand Porto-Nord (2e Phase)
951061023	Environmental Project	Station d'incineration de dechets solides LIPOR II
961061001	Environmental Project	Traitement des residus solides urbains de la rive du Tage (Limarsul)
961061010	Environmental Project	Reseau intercom. de traitement des residus solides de Feira/Gaia
961061020	Environmental Project	Captage et traitement des eaux usees - Beirolas
961061022	Environmental Project	Reseau de collecte et trait. de dechets et residus solides urbains du Vale du Sousa
971061003	Environmental Project	Assainissement du systeme lagunaire de la Ria Formosa
941061012	Environmental Project	Systeme integre pour la depollution du Rio Ave
951061019	Environmental Project	Traitement des eaux usees de Lagoa
971061018	Environmental Project	COHESION - ASSAINISSEMENT SETUBAL
931065011	Transport Project	Circular Regional exterieur de Lisboa
931065012	Transport Project	Liaison routiere Porto de Sines
931065028	Transport Project	Penafiel-Amarante A4 motorway
931065015	Transport Project	Amenagement et developpement Port de Leixoes ph 1
951065003	Transport Project	Reamenagement et modernisation du Port de Leixoes ph 2
931065014	Transport Project	Terminal de Conteneurs et plateforme Porto Setubal
941065001	Transport Project	Systeme integre d'Information du Port de Setubal
941065002	Transport Project	VTS-Port de Setubal
931065013	Transport Project	Dragage Canal de Barra et Canal Norte (Setubal)
941065005	Transport Project	Nouvelle traversee du Tage a Lisbonne
941065006	Transport Project	Pont de Freixo et viaduc d'accès
941065007	Transport Project	Modernisation de la ligne Beira Alta
	Transport Project	IP3 - LIAISON IP3 (FAIL) A IP5

Portuguese projects

CF reference	Category	Project title
	Transport Project	IP3 - CONTOURNEMENT DE CASTRO DAIRE (1e PHASE) - TUNNEL DE CASTRO DAIRE
961065006	Transport Project	Amenagement du terminal multipurpose du Port de Sines
961065001	Transport Project	Modernis. de la ligne Nord-Mise a quatre voies entre B. de Prata et Al
971065001	Transport Project	Linha do Norte III - Pampilhosa/Quintans
971065002	Transport Project	LIGNE DU NORD - TROCO ALBERGARIA/ALFARELOS
971065003	Transport Project	A6 - Montemor/Evora
961065002	Transport Project	A3 - Braga Oeste/Ponte de Lima
	Transport Project	IP2 - TRONCON ENTRE LA EN 216 ET LA EN 102

Spain**Spanish projects**

CF reference	Category	Project title
931161057	Environmental Project	Regeneracion de las Playas de Isla Cristina
931161059	Environmental Project	Regeneracion de las Playas de Benalmadena -2a f.
931161058	Environmental Project	Regeneracion de las Playas de la Barrosa
931161071	Environmental Project	Protection contre les crues du Rio Nalon
931161023	Environmental Project	Control erosion B.H. Nord
931161036	Environmental Project	Parque Nacional De Ordesa y Monte Perdido
9511610041	Environmental Project	Forestation et lutte contre l'erosion (B.H. du Sud et du Guadalquivir)
9511610091	Environmental Project	Forestation et lutte contre l'erosion - B.H. du Jucar-Levante
9511610103	Environmental Project	Forestation et lutte contre l'erosion - Bassin hydrographiqu du Segura
961161040	Environmental Project	Forestation et lutte contre l'erosion - B.H. du Duero
961161042	Environmental Project	Forestation et lutte contre l'erosion - B.H. des Iles Baleares

Spanish projects

CF reference	Category	Project title
961161046	Environmental Project	Forestation et lutte contre l'erosion - B.H. du Segura
971161012	Environmental Project	Assainissement integral de la Baie de Santander - Phase II
931161025	Environmental Project	Sewage Ceuta
931161026	Environmental Project	Sewage Melilla (paseo maritimo)
951161015	Environmental Project	Epuracion d'eau - Murcia-Este
9511610248	Environmental Project	Assainissement et epuration en milieu urbain, 1995, Catalogne
961161030-GR	Environmental Project	Saneamiento integral de Madrid 1-2-3 (9611610301 - 9611610302 - 9611610303)
941161018	Environmental Project	Epuracion d'eau Mar Menor-Sur
9511610245	Environmental Project	Assainissement et epuration a San Sebastian
941161026	Environmental Project	Infrastructure et aménagement environnemental - Gestion des residus ur
951161022D	Environmental Project	Dechets urbains de Barcelone (1995)
9511610256	Environmental Project	Gestion de residus solides urbains, 1995, Rubi (Barcelone)
9511610251	Environmental Project	Gestion de residus solides urbains en Catalogne
9511610254	Environmental Project	Recyclage de dechets a Tudela
951161042	Environmental Project	Traitement des dechets urbains aux Canaries
9511610431	Environmental Project	Gestion de dechets dans les Asturies
9511610431bis	Environmental Project	Station de solidification et d'inactivation de dechets en Asturies
9611610251	Environmental Project	Reamen. et degazage decharge de dechets solides urbains de Logroño
9611610252	Environmental Project	Transport et selection pneumatiques de dechets urbains a Amezola (Bilb
971161001	Environmental Project	Centre de traitement de dechets speciaux incinerables
971161044	Environmental Project	Centres de traitement de DSU et fermeture de decharges enCastille-Leon

Spanish projects

CF reference	Category	Project title
971161046	Environmental Project	Traitement des residus solides urbains et cloture de decharges en Anda
	Environmental Project	Actuaciones a ejecutar en la gestión de residuos en la Comunidad Autónoma de La Rioja
9511610437	Environmental Project	Traitement de dechets et decontamination de sols dans Pays Basque
951161022E	Environmental Project	Renovation urbaine de Ciutat Vella 1995-1998
9511610252	Environmental Project	Gestion de residus urbains 1995
9611610192	Environmental Project	Environnement urbain 1996 a San Sebastian de los Reyes
961161031-GR	Environmental Project	Medio Urbano en Madrid 1996 (961161031 - 931161032 - 961161034)
961161037	Environmental Project	Reduction de la pollution sonore sur la premiere ceinture de Barcelone
971161009	Environmental Project	COHESION - ENVIRONNEMENT URBAIN EN CATALOGNE
931161066	Environmental Project	Connection du reservoir de la Vinuela
931161067	Environmental Project	Station de traitement des eaux - Pamplona
941161001	Environmental Project	Epuration d'eau Aljarafe III
941161011	Environmental Project	Approvisionnement en eau - 2
9511610244	Environmental Project	Plan d'epuration des eaux residuaires de Leganes
951161027	Environmental Project	Approvisionnement en eau en Espagne
931161081	Environmental Project	Approvisionnement d'eau - Tunnel d'Aramo
961161012	Environmental Project	Stations d'epuration des eaux residuaires a Jaca et a Sabi?anigo
961161038	Environmental Project	Bassin de regulation et de traitement primaire de l'effluent a Barcelo
971161002	Environmental Project	Assainissement des eaux residuaires urbaines dans le bassin hydrograp
971161017	Environmental Project	Stations d'epuration des eaux residuaires en Binefar, Calamocha, Cari?
971161040	Environmental Project	Approvisionnement en eau potable et assainissement des eaux residuaire

Spanish projects

CF reference	Category	Project title
971161042	Environmental Project	Approvisionnement en eau dans plusieurs municipalites de la Castille e
981161032	Environmental Project	COHESION - CONSTRUCTION DE NOUVEAUX RESERVOIRS DE REGULATION DANS LA STATION DE TRAITEMENT DE VENTA-ALTA - REGION DU GRA
981161042	Environmental Project	COHESION - INTERCONNECTION DES BASSINS DE JARAMA-LOYOZA ETALBERCHE
981161052	Environmental Project	COHESION - APPROVISIONEMENT EN EAU A ALBACETE
991161006	Environmental Project	COHESION - CAPTAGE ET ADDUCTION D'EAU A LA VILLE DESALAMANCA
931161011	Environmental Project	Saica-B.H.Ebro
931161014	Environmental Project	Control erosion Oriental Pyrenees
931161082-GR	Environmental Project	Restauracion de la cubierta Vegetal y control de (931161082GR - 941161032 - 961161009)
951161036	Environmental Project	Construction de collecteurs et de stations d'epuration-Valence
971115001	Mixed Project	Centres de surveillance du trafic maritime et de lutte contre la pollu
931165031	Transport Project	Aeroport de Hierro
931165001	Transport Project	Autovia de Valencia (1ere phase)
931165002	Transport Project	Autovia Rias-Bajas (1ere phase)
951165004	Transport Project	Autoroute Rias Bajas (2) (Tr. Camarzana de Tera-Rio Mente-San Ciprian)
961165004	Transport Project	Autoroute Rias Bajas - Tr. Rio Mente - Fumaces Galicia
961165009	Transport Project	Route express Rias Bajas: troncon Benavente-Camarzana de Tera
941165002	Transport Project	Autovia Rias Bajas (Troncon Orense-Porri?o)
931165006	Transport Project	N340 Adra
931165008	Transport Project	Autovia Zaragoza-Huesca (1ere phase)
931165009	Transport Project	N-III Tramo Requena-Chiva

Spanish projects

CF reference	Category	Project title
931165014	Transport Project	Deviation Lardero
931165018	Transport Project	Autopista Trinidad-Montgat
931165019	Transport Project	Madrid-Valencia (fuente la Higuera-Silla-1ere phase)
931165021	Transport Project	Valencia-Tarragona-Barcelona (1re phase)
941165005	Transport Project	Tunnel de Somport
941165008	Transport Project	Autovia Costa del Sol (Tr. San Roque - Guadiaro)
951165001	Transport Project	Route express de Baix Llobregat
951165002	Transport Project	Route expresse Zaragosse-Huesca (tr. Gallego-Huesca)
951165009	Transport Project	Autoroute connexion Guipuzcoa-Navarre
961165001	Transport Project	Route G.C.-1 - Tr. Hoya de la Plata-Echangeur Potabilizadora et Tunne
961165003	Transport Project	Autoroute Sevilla-Granada-Almeria- Tr. Guadix-Hueneja
961165005	Transport Project	Autoroute de Castilla - Tr. Salamanca-Fuentes de O?oro
961165006	Transport Project	Route express N-1 Lasarte - A-8 Arrizeta. Guipuzcoa
961165008	Transport Project	Autoroute Madrid-Valencia: section Minglanilla-Caudete de las Fuentes
971165001	Transport Project	Autoroute de contournement de Las Palmas - Gran Canaria
	Transport Project	Autovía de Levante a Francia por Aragón. Tramo Huesca-Nuevo
	Transport Project	Autovía Lleida a Francia por Barcelona. Tramo Variante de Cervera
941165007	Transport Project	Corridor mediter. 200/220 km/h Tr. Valence-San Vicente Calders Phase I
951165006	Transport Project	Modernisation reseau ferroviaire conventionnel
931165020	Transport Project	Masarabique (TGV Sevilla)
971165002	Transport Project	COHESION - METRO DE MADRID ACCES A L'AEROPORT DE BARAJAS

Spanish projects

CF reference	Category	Project title
931165022	Transport Project	Madrid-Barcelona (TGV-1ere phase)
981165003	Transport Project	COHESION - TGV MADRID-BARCELONE-FRONTIERE FRANCAISE TRONCONRICLA ZARAGOZA
991165001	Transport Project	COHESION - PROJET TGV MADRID-BARCELONE-FRONTIERE FRANCAISETRONCON SARAGOSSE-LLEID
	Transport Project	Actuaciones de Linea de Alta Velocidad Madrid-Barcelona-frontera francesca. Tramo Madrid-Lleida
951165007	Transport Project	Ligne ? grande vitesse Madrid-Barcelone (tr. Calatayud-Ricla Zaragosse
981165004	Transport Project	COHESION - TGV MADRID-BARCELONE-FRONTIERE FRANCAISE TRONCONCHILOECHES-CALATAYUD
981165002	Transport Project	L.A.V. Madrid-Barcelona-Frontiere Fr. Tr: Madrid-Chiloeches
931165026	Transport Project	VTS Detroit de Gibraltar
941165003	Transport Project	Autovia Bailen-Granada
931165027	Transport Project	VTS Atlantique septentr. (Finistere-Coruna)