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**EVALUATION OF THE PERFORMANCE  
OF THE EIA PROCESS**

**FINAL REPORT**

**VOLUME 1: MAIN REPORT**

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Member State reports

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## **SUMMARY**

This report presents the results of an evaluation of certain aspects of the performance of the environmental impact assessment (EIA) process within eight Member States of the European Union over the last few years. It deals with the quality of EIA reports, with modifications of projects as a result of EIA, and with the influence of changes to EIA procedures.

### Quality of EIA reports

Eight EIA reports from Belgium, Denmark, Greece, Ireland and Portugal were selected for review together with 24 EIA reports from Germany, Spain and the United Kingdom, giving a total of 112 EIA report quality assessments. Half the reviews related to EIA reports completed in 1990 or 1991 and half to reports released in 1994, 1995 or 1996. The main review mechanism employed by the different Member State reviewers was the Lee and Colley Review Package (Appendix A).

The overall proportion of satisfactory EIA reports sampled improved from 50% to 71% between the two time periods. For six of the Member States, an improvement in quality can be seen between the two time periods and the quality remained constant in the other two. In six of the Member States, a high percentage (ranging from 66-100%) of the reports in the later period were judged to be of a satisfactory overall quality, whereas this was the case for only two of the Member States in the early period. However, only 25% of the later reports in Belgium, and 50% in Denmark, were judged to be of a satisfactory quality. In Germany, the EIA reports in both periods tended to be of a better than average quality, obtaining satisfactory overall scores (Section 2.1.1).

In the early period, only 18% of the reports within the sample obtained an overall score of A ('very satisfactory') or B ('satisfactory') on a scale of A-F, and the vast majority of these reports was from Germany. In the later period, a limited number of reports in Denmark, Germany, Greece, Portugal, Spain and the United Kingdom obtained scores of A and B. The overall proportion of reports obtaining a score of A or B in the later period was 34%, and the overall proportion obtaining a C ('just satisfactory') score was 38%. Therefore, although an increase in quality has been observed, the overall quality for the majority of the reports in the

Member States in the later period was still only ‘just satisfactory’ (Section 2.1.1). Variations in EIA report quality in the Member State studies do not appear to be related directly to type of project (Section 2.1.2).

When EIA report review results using the Lee and Colley criteria were compared with those using the European Commission Review Checklist, the overall level of agreement was 76%. Only in one of the Member States (Belgium) was there found to be 100% agreement between the two criteria, but for the remaining Member States agreement was obtained for a high percentage of reports, with the United Kingdom recording 92% agreement. Where disagreement occurred:

- the difference in grades was only a single grade in all but one case;
- there was no consistency in the instrument which scored higher; and
- there was no relationship between project type and the level of agreement (Appendix B).

The improvement in the quality of EIA reports indicates that further progress has been made in implementing the provisions of the EIA Directive since 1991.

A number of factors appeared to be important in determining the quality of EIA reports, often acting in combination:

- legislation (recent Member State legislation had led to improvements)
- nature of consultants (‘good’ consultants produced better EIA reports)
- experience of participants (greater experience resulted in better quality EIA reports)
- scoping (public and agency consultation led to better EIA reports)
- length of EIA reports (short EIA reports were often of poor quality)
- nature of projects (better quality EIA reports were often associated with larger, more expensive, controversial projects) (Section 2.2).

The need to strengthen the treatment of alternatives and mitigation measures was identified. In addition, several measures to improve the quality of EIA reports were proposed by the

various Member State researchers:

- introduction of a formal scoping requirement
- adoption of a formal EIA report quality control mechanism
- accreditation of EIA consultants
- preparation of EIA guidelines
- strengthening of competent authority expertise
- EIA training for various participants in the EIA process
- provision of national EIA report and environmental information databases
- other measures (eg monitoring, research, closer integration of EIA into decision making, strategic environmental assessment) (Section 2.3).

#### Modifications of projects as a result of EIA

A detailed analysis of modifications to six United Kingdom projects, six German projects and six Spanish projects was undertaken to endeavour to identify the factors influencing the number of modifications and the effectiveness of consultation and public participation and to provide the basis for suggesting measures likely to increase the number of environmentally beneficial modifications (Appendix A).

Several modifications to the sample of projects have occurred as a result of the EIA process: 2.2 per project in the United Kingdom and Spain and 3.7 per project in Germany. It therefore appears that the EIA process is having a notable effect on the number of project modifications taking place in these three Member States. Most modifications were made at the pre-submission stage of the EIA process in the United Kingdom and Germany but most Spanish modifications occurred at the decision-making stage. There was no apparent trend over time in the number of modifications nor in the significance of modifications. In Germany and Spain the majority of modifications related to fauna and flora whereas in the United Kingdom the majority was concerned with landscape and visual impacts. Significant modifications to projects as a result of the implementation of the EIA process appear to have taken place in most of the other five countries studied (Section 3.1).

The consultees were more influential than the public in proposing modification measures in the

United Kingdom and Germany but the reverse was true in Spain. It appears that consultation and public participation influence modifications at both the pre-submission (where relevant) and the post-submission phases of the EIA process in most of the eight Member States studied.

There was no clear relationship between the number of modifications and EIA report quality in the three Member States but it appeared that with the United Kingdom and Spain (and in several of the other Member States), greater numbers of modifications were associated with higher quality reports. Similarly, no relationship could be established between either the experience of the participants in the EIA process or the size of the project and the number of modifications (Section 3.2).

Various measures were suggested by the eight Member State researchers to enhance the number and extent of environmentally beneficial modifications to projects:

- strengthening the treatment of alternatives (to ensure early consideration of modifications)
  - ensuring that scoping takes place (to encourage early recognition of the need for modifications)
  - strengthening the quality of EIA reports (to ensure that modifications ensue)
  - strengthening provisions for consultation and public participation (to increase the number of proposed modifications)
  - providing for monitoring (to ensure that modifications are implemented)
  - developing EIA guidelines (to strengthen the EIA process to ensure that modifications ensue)
  - training in EIA (to ensure that awareness of the need for modifications exists)
- (Section 3.3).

#### Influence of changes to EIA procedures

The main source of information on which this section was based was the set of responses to the request for information about the measures taken to ensure and/or simplify the integration of authorisation and EIA procedures, their effects, and proposals for change made by the eight

Member State researchers (Appendix A).

All the eight Member States have taken measures to modify EIA procedures, although not all the measures were classed as 'major'. In practice, while many of these measures could be classified as being designed to ensure integration, very few were simplifying measures. The measures include: provisions to improve screening, scoping, EIA report preparation, decision-making, monitoring, and consultation and public participation; guideline preparation; and time limitation (Section 4.1).

In the United Kingdom, the quality of EIA reports for major roads was believed to have improved as a result of the publication of new guidelines. The preparation of Greek EIA guidelines appears to have had a similar effect on EIA report quality. In Belgium, the various measures to make the EIA process more effective have led to some improvement in the quality of EIA reports.

In Denmark, reporting measures have led to increased participation in the EIA process by non-governmental organisations. In Portugal, improved opportunities for public participation appear to have led to an increase in the number of environmental modifications.

Various measures were suggested by the eight Member State researchers to ensure and/or simplify the integration of authorisation and EIA procedures which may be beneficial to environmental improvements to projects. In addition to suggestions similar to those made in Section 3.3, proposals to strengthen screening, to improve the use made of documentation and to undertake research were advanced. Three further proposals were made:

- further integration of EIA into other procedures (to enhance co-operation between authorities)
  - institution strengthening (to increase the number of modifications)
  - greater use of EIA report in decision making (to mitigate negative impacts)
- (Section 4.3)

## Recommendations

Many of the recommendations made to increase the quality of EIA reports, to increase the degree to which projects are modified and to increase consultation and public participation (Sections 5.1, 5.2 and 5.3) will be met in full or in part at EU level by the modification of the European Directive on EIA and the proposed directive on Strategic Environmental Assessment (SEA). These include the treatment of alternatives, screening, decision making, consultation and public participation and the adoption of SEA. However, the Commission should also consider ways of encouraging Member States to:

- adopt formal scoping requirements (this is probably the single most important measure to be adopted)
- institute formal checks on the quality of EIA reports
- set up national EIA report inventories and collections
- institute EIA monitoring and auditing.

In addition:

- the Commission should commission research into the performance of the EIA process as a whole, in all the Member States, once the revised Directive has been in force for 2-3 years
- the Commission should fund research and encourage detailed Member State research into scoping, into monitoring and auditing and into the costs and benefits of national EIA report collections.

## 1. INTRODUCTION

The Commission of the European Communities has asked the EIA Centre, University of Manchester, to carry out an evaluation of the performance of the environmental impact assessment (EIA) process. The contract states that the research undertaken has three purposes:

- a) To obtain assessments, more reliable than those currently available, of the quality of a representative sample of EISs [environmental impact statements or EIA reports] and to draw conclusions upon improvements resulting from the implementation of the Directive, in comparison with the last reporting period which ended in October 1991.
- b) To examine the extent to which (i) the quality of EISs and (ii) the effectiveness of consultative arrangements have contributed to environmentally favourable modifications to projects which have been authorised since the last reporting period.
- (c) To assess the influence of measures to ensure and/or simplify the integration of authorisation and EIA procedures, introduced since the last reporting period, on (i) the quality of EISs, (ii) the effectiveness of consultative arrangements and (iii) environmental improvements to projects (Appendix D).

The research project commenced in January 1996. The first task to be completed was the submission of a methodology report in February 1996 (Wood, Lee and Hughes, 1996). The empirical research undertaken fell into two main stages:

Stage 1: the selection and review of the quality of a number of EIA reports for projects within eight Member States; and

Stage 2: the carrying out of more detailed case studies, within three Member States, of a small number of specific projects chosen from those selected for EIA report review.

The interim report, submitted in May 1996, recorded the results of the Stage 1 research (Wood and Hughes, 1996). It summarised and interpreted the Member State findings to present an overview of EIA report quality within the European Union.

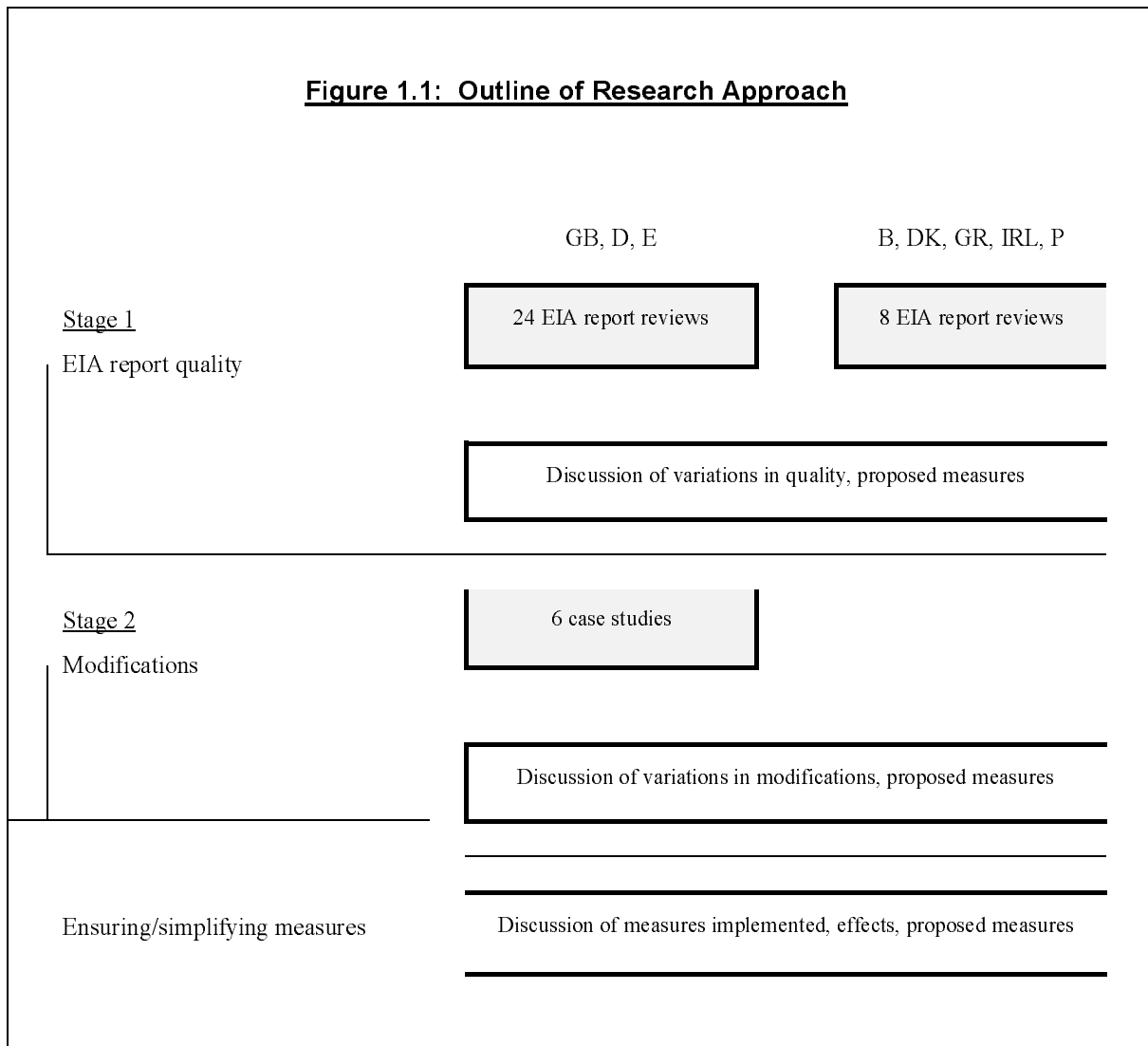
This final report describes the results of both the first and the second stage of the research. It

consists of two volumes. This volume is divided into three main sections, corresponding to the three purposes of the research. Section 2 analyses the quality of EIA reports in the European Union. This section reiterates much of the content of the interim report. Section 3, which is based partly on detailed case studies from Germany, Spain and the United Kingdom and partly on observations from all eight Member States, discusses project modifications arising from the EIA process. Section 4, which draws upon a basis similar to Section 3, analyses the influence of changes to EIA procedures. Conclusions relating to all three aspects of EIA are drawn in Section 5.

There are three appendices. Appendix A details the methodology employed for both Stage 1 and Stage 2 of the research. This appendix outlines the choice of Member States, the choice of cases for review, the review procedures adopted, the analysis undertaken and the other information collected during Stage 1 of the research. The second part of Appendix A details the methods employed to form conclusions about the influence of the EIA process on project modifications and about the influence of changes to EIA procedures. This appendix draws heavily on the content of the methodology report. The approach adopted to the research is outlined in Figure 1.1. Appendix B compares the results obtained utilising different criteria to review the quality of the same EIA reports and Appendix C contains the research contract.

Volume 2 consists of the eight Member State reports. Each report is divided into three main parts corresponding to the three purposes of the research. Thus the United Kingdom report deals first with the quality of EIA reports (ie. Stage 1 of the research). It then analyses both modifications to projects arising as a result of the EIA process, and the influence of changes to EIA procedures (Stage 2). This report, together with those on Germany and Spain, deals with modifications on the basis of six case studies and of expert opinion and changes mainly on the basis of expert opinion. The corresponding sections of the reports for the other five Member States, which draw upon expert opinion, literature review and observations of EIA practice, are much briefer.

**Figure 1.1: Outline of Research Approach**



## 2. QUALITY OF EIA REPORTS

The purpose of first part of the research was:

To obtain assessments, more reliable than those currently available, of the quality of a representative sample of EISs (environmental impact statements or EIA reports) and to draw conclusions upon improvements resulting from the implementation of the Directive, in comparison with the last reporting period which ended in October 1991.

The research contract (Appendix C) specifies that:

the findings should include information on:

- i) evaluation of the overall quality of EISs and changes in overall quality since the last reporting period covered ...;
- ii) analysis of variations in quality according to such factors as nature of legislation in force, scale and type of development, experience in carrying out EIA, length of EIS, cost of studies;
- iii) listing, with supporting documentation, of measures, both at Member State and European Union level, most likely to enhance the quality of EISs.

Eight reports from Belgium, Denmark, Greece, Ireland and Portugal were selected for review together with 24 EIA reports from Germany, Spain and the United Kingdom, giving a total of 112 EIA report quality assessments. In order to enable an assessment to be made of the extent to which EIA report quality may have improved in recent years, half the reviews related to EIA reports completed in 1990 or 1991 (or, in a limited number of cases, 1992) and half to EIA reports released in 1994, 1995 or 1996 (and 1993 in a limited number of cases).

Wherever possible eight EIA reports for a single project type, divided between both time periods, were selected for review. The main review mechanism employed by the different Member State reviewers was the Lee and Colley Review Package (Appendix A).

This section of the report consists of three main parts, corresponding to the three requirements of the contract. All are based on the analysis of the EIA report review results presented in the individual Member State reports (Volume 2). These reports were compiled by Member State researchers utilising the methodology outlined in Appendix A. In particular, each of the Member State researchers completed summary tables (Table A.6) showing the review results for each project type for the two time periods (which provided the basis for Section 2.1) and the factors

influencing EIA report quality (Section 2.2). They also suggested measures to enhance the quality of EIA reports (Section 2.3).

## 2.1 Trends in overall quality of EIA reports

### 2.1.1 Overall quality

Table 2.1 shows a comparison between the number of reports within the sample that were of a satisfactory quality (C or above) for the two time periods. There are two main difficulties to be recognised when interpreting Table 2.1. First, it is possible that an EIA report classified as satisfactory by one Member State researcher might be regarded as being unsatisfactory by a researcher in another Member State. Every effort has been made to overcome this problem by adopting a consistent approach, with a standard example being provided to every researcher. Second, the size of the sample may lead to statistical errors, especially in the case of small sub-samples. The following discussion reflects these difficulties.

The overall proportion of satisfactory EIA reports improved from 50% to 71% between the two time periods. For six of the Member States, an improvement in the quality of the EIA reports sampled can be seen between the two time periods (Figures 2.1 and 2.2). The quality remained constant in Belgium and Greece. In the later period, in all of the Member States, more (or the same number of) projects were classified as being of a satisfactory overall quality compared with the early period. In six of the Member States, a high percentage (in the range of 66-100%) of the reports in the later period were judged to be of a satisfactory overall quality, with this being the case in only three of the Member States in the early period. However, only 25% of the later reports in Belgium and 50% in Denmark were judged to be of a satisfactory overall quality. In Germany, the EIA reports in both periods tended to obtain satisfactory overall scores.

The quality of treatment of the various review areas varied as shown in Table 2.1 and Figure 2.3:

Review Area 1 (Description of the development, the local environment and the baseline

conditions). In agreement with the findings of previous studies (see, for example, Lee and Dancey, 1993), this was one of the review areas which was performed best (Figures 2.3 and 2.4). In the later period, all Member States reported that at least 75% of the

**Table 2.1: Proportion of satisfactory EIA reports by Member State**

| Member State<br>(number of<br>EIA reports) | Satisfactory EIA Reports - scoring C or above (Early/Late) % |        |        |        |        |
|--|--|--------|--------|--------|--------|
|  | Review Area  |        |        |        |        |
|  | Overall  | 1      | 2      | 3      | 4      |
| Belgium (8)                                | 25/25  | 75/100 | 25/50  | 0/0    | 50/100 |
| Denmark (8)                                | 0/50   | 0/75   | 0/75   | 0/50   | 50/100 |
| Germany (24)                               | 92/100   | 92/100 | 83/100 | 83/100 | 83/100 |
| Greece (8)                                 | 75/75  | 75/100 | 75/75  | 75/75  | 75/100 |
| Ireland (8)                                | 25/75  | 25/75  | 25/75  | 0/50   | 50/50  |
| Portugal (8)                               | 50/75  | 50/100 | 25/75  | 50/75  | 50/100 |
| Spain (24)                                 | 25/67  | 17/83  | 25/58  | 25/75  | 50/92  |
| UK (24)                                    | 58/66  | 66/83  | 50/42  | 66/50  | 83/58  |
| Total                                      | 50/71  | 53/89  | 45/68  | 46/66  | 68/88  |

Results obtained using Lee and Colley Review Package

**Figure 2.1** and 2.2

fig 2.3

reports were of a satisfactory quality in this respect, and the average proportion of reports obtaining a satisfactory overall score improved from 53% to 89% between the two time periods. Omissions and deficiencies reported in this area relate to the provision of extensive and over-technical details relating to the project design/operation but insufficient coverage of all of the phases of the development, limited coverage of waste/residuals produced by the development and too narrow a definition of the environment affected.

#### Review Area 2 (Identification and evaluation)

This area was not so well performed, with only 68% of the reports being judged to have satisfactory scores in the later time period (Figures 2.3 and 2.5). However, there is an improvement between the two time periods, with five Member States reporting that at least 75% of the reports were of satisfactory quality in the later period, compared with two Member States in the early period. However, the following omissions/deficiencies were still reported to exist within this review area:

- limited details of scoping methods and coverage mainly confined to direct impacts;
- details of methods used for prediction and evaluation often not provided; and
- limited explanation given both to quantitative estimation of magnitude of impacts and to assumptions and value judgements used in the evaluation of impacts.

#### Review Area 3 (Alternatives and mitigation)

This was the least well performed area, although an improvement can be seen between the two time periods, with the overall proportion of reports obtaining a satisfactory score increasing from 46% to 66% (Figures 2.3 and 2.6). However, only four of the Member States reported that at least 75% of reports performed satisfactorily in this review area. The lack of coverage of alternatives was reported in a number of Member States and this was explained by the fact this is not required by legislation. Where alternatives were covered, this mainly related to site selection. Mitigation measures were not always covered in the reports and, where they were, details provided about

their implementation and effectiveness were often limited. Monitoring provisions were rarely covered in the

**Figure 2.4** and 2.5

fig 2.6 and fig 2.7

EIA reports.

#### Review Area 4 (Communication of results)

Again, as shown in previous studies, this was one of the better performed review areas, with 86% of the overall proportion of the reports in the later period being judged to be of satisfactory quality (Figure 2.3 and 2.7). Within 6 of the Member States a high percentage (ranging from 92% to 100%) of the reports in the later period were of satisfactory overall quality. Notwithstanding these conclusions, in many Member States it was reported that the quality of the non-technical summary was often poor and that the EIA reports were often too technical and contained excessive detail.

Table 2.2 shows the distribution of the overall grades of EIA reports for the two time periods. In the early period, only 18% of the reports sampled obtained an overall score of A or B (Figure 2.8), and the vast majority of these reports were from Germany (Table 2.2). In the later period, it can be seen that only a limited number of reports in Denmark, Germany, Greece, Portugal, Spain and the United Kingdom obtained scores of A and B. The overall proportion of reports obtaining a score of A or B in the later period was 34%, and the overall proportion obtaining a C (just satisfactory) score was 38% (Figure 2.8). Therefore, although an increase in quality has been observed, the overall quality for the majority of the reports in the Member States was still only just satisfactory.

#### Variation by Project Type

Table 2.3 summarises the review results from the different Member States by project type in order to determine whether there was any variation in quality between the different project types. The variations in EIA report quality in the Member States do not appear to be related directly to the type of project. For some project types (eg. dams and toxic waste disposal projects) the sample of reports may be too small to draw any useful conclusions. In addition, the quality of EIA reports for different project types within the different Member States was often variable. However, some general comments for each project type are provided below.

**Table 2.2: Distribution of grades of EIA reports by Member State**

| Member State<br>(number of EIA reports) | Distribution of overall grades (Early/Late) % |       |       |       |      |      |
|---|---|-------|-------|-------|------|------|
|   | A   | B     | C     | D     | E    | F    |
| Belgium (8)                             | 0/0   | 0/0   | 25/25 | 50/75 | 25/0 | 0/0  |
| Denmark (8)                             | 0/0   | 0/25  | 0/25  | 25/50 | 50/0 | 25/0 |
| Germany (24)                            | 0/17  | 58/58 | 33/25 | 0/0   | 9/0  | 0/0  |
| Greece (8)                              | 0/0   | 0/25  | 75/50 | 25/25 | 0/0  | 0/0  |
| Ireland (8)                             | 0/0   | 0/0   | 25/75 | 0/25  | 50/0 | 25/0 |
| Portugal (8)                            | 0/25  | 0/25  | 50/25 | 25/25 | 25/0 | 0/0  |
| Spain (24)                              | 0/0   | 0/17  | 25/50 | 25/33 | 42/0 | 8/0  |
| UK (24)                                 | 8/0   | 17/25 | 33/42 | 42/17 | 0/0  | 0/17 |
| Total                                   | 2/5   | 16/29 | 32/38 | 23/25 | 21/0 | 5/3  |

Results obtained using Lee and Colley Review Package

**Figure 2.8**

**Table 2.3: Summary of EIA report review results by project type**

| Project type (number of reports)       | % of reports obtaining overall satisfactory score (C or above) |             |
|--|--|-------------|
|  | Early period   | Late period |
| Roads (36)                             |  |             |
| Denmark (4)                            | 0  | 100         |
| Germany (8)                            | 100  | 100         |
| Portugal (8)                           | 50   | 75          |
| Spain (8)                              | 50   | 75          |
| UK (8)                                 | 25   | 75          |
| Sub-Total (36)                         | 50   | 83          |
| Extractive Industry (24)               |  |             |
| Belgium (8)                            | 25   | 25          |
| Germany (8)                            | 100  | 100         |
| Spain (8)                              | 0  | 50          |
| Sub-Total (24)                         | 42   | 58          |
| Waste disposal (16)                    |  |             |
| Germany (8)                            | 75   | 100         |
| Ireland (8)                            | 25   | 75          |
| Sub-Total (16)                         | 50   | 88          |
| Toxic waste disposal (12)              |  |             |
| Denmark (4)                            | 0  | 0           |
| UK (8)                                 | 100  | 75          |
| Sub-Total (12)                         | 67   | 50          |
| Holiday villages, hotel complexes (16) |  |             |

|                    |    |    |
|--------------------|----|----|
| Greece (8)         | 75 | 75 |
| UK (8)             | 50 | 50 |
| Sub-Total (16)     | 63 | 63 |
| Dams (8)           |    |    |
| Spain (8)          | 25 | 75 |
| Sub-Total (8)      | 25 | 75 |
| <b>Total (112)</b> | 50 | 71 |

Results obtained using Lee and Colley Review Package

*Motorways, express roads* - A marked improvement was observed between the two time periods and, in the later period, at least 75% of the reports were judged to have a satisfactory (C or above) overall score in all the Member States covered (Figure 2.9).

*Extractive industries* - 100% of the German reports were judged to have an overall satisfactory score in both time periods. However, the reports from Belgium and Spain were reviewed as being of poor quality within both time periods (Figure 2.10).

*Waste disposal* - the EIA reports within this project type were of the best overall quality. 75% of the German reports were regarded as being satisfactory in the early period and 100% in the later period. The Irish reports showed an improvement: 75% were satisfactory in the later period compared with 25% in the earlier period.

*Toxic waste disposal* - 100% of UK EIA reports were regarded as being satisfactory in the early period and 75% in the later period. The Danish reports were considered to be poor in both periods, with no reports obtaining a satisfactory score in either time period. However, the Danish sample only contained 4 reports, so these conclusions must be treated with caution.

*Holiday villages, hotel complexes* - 75% of Greek EIA reports were judged to be satisfactory in both time periods. Only 50% of the UK reports were satisfactory in both time periods.

*Dams* - only 8 reports from Spain were reviewed and from this small sample, it was found that there was an improvement in quality. The percentage of reports judged to be satisfactory overall improved from 25% to 75%.

## 2.2. Variations in the quality of EIA Reports

The various Member State researchers (Appendix A) indicate that a number of factors appear to be important in determining the quality of EIA reports, often acting in combination. These factors are summarised in Table 2.4. They may be grouped together under 6 main headings:

- legislation

**Figure 2.9 and 2.10**

**Table 2.4: Factors influencing variations in the quality of EIA reports**

| <b>Member State</b> | <b>Variations in the quality of EIA reports</b>   |
|---------------------|---|
| United Kingdom      | Recent guidance has had some effect on EIA report quality for particular project types. The type of consultancy and their experience in EIA are also important factors relating to the quality of EIA reports. Where participants have greater experience of EIA, this also contributes to better quality EIA reports. Scoping appears to be important in contributing to a good quality EIA report. Very short, and sometimes very long, EIA reports are often of poorer quality as are EIA reports prepared for smaller developments. More controversial projects generally lead to higher quality EIA reports. |
| Germany             | The experience and particular specialism of the consultant are of major importance for the quality of EIA reports, together with associated costs and time limits. Linked to the experience of those involved is an effective scoping process which contributes to the quality of EIA reports.  |
| Spain               | The experience of the proponent and the consultant are both important factors for the quality of EIA reports. The length of the EIA reports appear to be related to quality in that very short and very long reports are often of poorer quality.   |
| Belgium (Flanders)  | There appeared to be no relationship between quality and consultancy experience, report length, project size or preparation costs. The introduction of informal meetings for scoping and other discussions have led to improvements in quality.   |
| Denmark             | Modifications to the legislation have improved the quality of reports. The experience of the competent authorities may contribute to the quality of EIA reports as may the role of public participation. Quality also appears to relate to development type and length of EIA report, with shorter reports being of poorer quality.   |
| Greece              | Changes in the EIA legislation have brought about some improvements in EIA report quality. The experience of the competent authority involved appears to be of importance in determining the quality of EIA reports. The length of reports has some influence on quality but is not a major factor.   |
| Ireland             | The experience of the proponent or the consultancy had little bearing on the quality of the EIA report in this study, although previous studies have indicated that greater experience leads to better quality EIA reports. The length of the EIA report appears to be related to quality with the shorter reports being of poorer quality. The larger developments similarly appeared to be associated with better quality EIA reports.  |
| Portugal            | Recent legislation together with increased experience and training have led to improvements in EIA report quality.  |

- nature of consultancies
- experience of participants
- scoping
- length of EIA reports
- nature of projects.

The researchers reporting on the situation in Denmark, Greece and Portugal specifically mention the beneficial influence that EIA legislation had on the quality of EIA reports: recent EIA legislation (since 1990) was thought to have been a significant factor in explaining improvements in EIA report quality (Volume 2:5; 6; 8).

The Member State reports for the United Kingdom and Germany (Volume 2: 1; 2) refer to the importance of the nature of the consultancies retained to undertake EIA in determining the quality of EIA reports. This factor was not regarded by Member State researchers as an automatic determinant of EIA report quality (for example, there was no confirmation of this factor in Ireland) (Volume 2:7) but it was nevertheless felt to be significant in several Member States.

A similar but separate point relates to the experience of the participants in the EIA process (the proponent, the consultants and the competent authority) in determining the quality of EIA reports. This factor is mentioned in the reports for the United Kingdom, Germany, Spain, Denmark, Greece and Portugal but is not regarded as being influential in Ireland (Volume 2:7).

The importance of scoping, and particularly the involvement of the public, is mentioned as being a determinant of EIA report quality in the United Kingdom, Germany and Belgium. The researchers state that scoping appears to lead to improved EIA report quality in these countries.

While there is no causal relationship between length of EIA reports and their quality, it does appear that short EIA reports are frequently of unsatisfactory quality. The generally positive

relationship between EIA report length and quality is mentioned by the United Kingdom, Spanish, Danish, Greek and Irish researchers. The caveat that encyclopedic EIA reports were not always of high quality is reported in both the United Kingdom and the Spanish reports. In Belgium, there was no apparent relationship between EIA report quality and length.

Finally, there appears to be a positive relationship between the size of the project and the quality of the EIA report in several Member States. The United Kingdom and Irish reports state that the better EIA reports tended to relate to the larger projects (Volumes 2:1; 7). This appears also to be the case in Spain, though other factors may be more important. This may be because larger EIA budgets may be allocated to larger, more expensive, projects. Project size did not, however, appear to be an important factor in determining EIA report quality in Belgium. Type of project appears to be important in determining EIA quality in Denmark and in the United Kingdom. In Britain the more controversial projects generally were supported by better quality EIA reports.

### 2.3 Suggested measures to enhance the quality of EIA reports

It is clear from the reviews of the 112 EIA reports that measures are required to strengthen performance in Review Area 2 (identification and evaluation) and Review Area 3 (alternatives and mitigation). Such measures include the preparation of guidelines, the introduction of scoping and training (below). In addition, the improvement of EIA evaluation methods (below) and increased emphasis on the treatment of both alternatives and mitigation measures in EIA reports is advocated. The recently proposed changes to the European Directive should, when implemented, improve the treatment of both alternatives and mitigation measures in EIA reports.

A large number of measures to improve the quality of EIA reports is proposed by the various Member State researchers. These are summarised in Table 2.5 and can be grouped according to the following themes:

- introduction of scoping
- adoption of a formal EIA report quality control mechanism
- accreditation of EIA consultants
- preparation of EIA guidelines

- institution strengthening
- EIA training

**Table 2.5: Suggested measures to enhance the quality of EIA reports**

| Member State       | Measures to enhance the quality of EIA reports   |
|--------------------|--|
| United Kingdom     | Scoping needs to be encouraged and advice prepared on appropriate procedures. There needs to a formal review of EIA reports which should be publicly available and where reports are not of an acceptable standard there should be provision for refusal of the application. Accreditation of consultancies is needed together with training for various participants in the process. There needs to be better diffusion of EIA reports through a national reference point. Screening criteria need to be clarified to exclude minor projects. Greater emphasis needs to be given to alternatives in EIA reports. More guidance is needed on specific stages of the EIA process and of types of environmental impact. The monitoring of selected projects should be undertaken to provide feed-back to improve practice. |
| Germany            | Measures could include standard outlines for EIA reports with project related checklists and scoping checklists. The development of minimum standards for non-technical summaries, including length and content would be beneficial. There is a need for standards against which to assess environmental effects. Further research is needed on the treatment of the inter-relationships between aspects of the environment affected by developments. The relationship between EIA and other forms of legislation needs to be defined to reduce duplication of tasks.  |
| Spain              | Criteria for quality review are needed as is specific technical guidance on scoping and other tasks in the process. Proposed legislation will divide the EIA process into a <i>preliminary</i> and a <i>final</i> EIA allowing greater concentration on different aspects of the process during each of the divisions. When this is enacted, a national register of consultancies will be developed and entry in the register will be mandatory for preparing an EIA report.   |
| Belgium (Flanders) | There is a need for a formal, open scoping stage with a published report of its results. Independent panels or commissions to check report quality should be established. Reviews of the draft and final EIA reports should be publicly available. Monitoring and post-auditing of projects needs to be encouraged. Cumulative impact assessment needs to be given greater emphasis, as does the EIA of policies, programmes and plans.  |
| Denmark            | Clear guidelines are needed on the content of EIA reports and the methodology to be adopted in their preparation. A strengthening of supervision and control may also prove helpful. Further clarification of the existing regulatory framework would also be beneficial.  |
| Greece             | Formal scoping procedures are required that encourage consultation and public participation. Formal reviews of EIA reports would be beneficial. There needs to be greater control as to the consultancies that prepare EIA reports. Guidelines targeted at different project types are needed, which indicate appropriate methodologies for identification and assessment of significant impacts. Training programmes for all those associated with EIA would be beneficial. A nationwide system for acquisition and open provision of environmental information is needed.  |
| Ireland            | The preparation of guidelines on the EIA process would assist in improving the quality of EIA reports, particularly in relation to scoping procedures, mitigation and monitoring procedures. The existing publicly accessible reference collection and inventory of EIA reports should be maintained.  |
| Portugal           | Further training and the dissemination of information about the EIA process is needed for all participants in the process.   |

- provision of national EIA and environment databases
- other measures

The need for a formal and public scoping stage in the EIA process is mentioned by the United Kingdom, German, Belgian, Greek and Irish researchers. The introduction of scoping in a number of more mature EIA systems (eg the United States, Canada, Australia) is generally accepted to have had a beneficial effect on the quality of EIA and is advocated by many researchers and practitioners in the wider EIA community.

The adoption of a formal EIA report review mechanism such as the Lee and Colley Review Package or the EC Review Checklist is advocated in the United Kingdom, Spanish, Belgium and Greek reports. The results of using this mechanism should be made publicly available as they are, for example, in The Netherlands, where the EIA Commission undertakes, and publishes, EIA report reviews.

The accreditation of EIA consultants is advocated by the United Kingdom, Spanish and Greek researchers. There are many problems associated with accreditation (for example, the question of recognition of the firm, or the individual, or both) but this is a recommendation which is, perhaps, especially relevant at a time of acute competition within the environmental consultancy field.

The United Kingdom, German, Spanish, Danish and Irish researchers recommend the preparation of EIA guidelines. There is an increasing number of EIA guidelines available but there is a growing demand for guidelines targeted at particular types of projects (eg toxic waste disposal facilities) or specific EIA topics (such as the treatment of alternatives). The danger of producing such guidelines is that they may lead to a mechanistic adherence to the guidance rather than to a more enlightened approach to environmental amelioration.

Strengthening the competent authority capacity to deal constructively with EIA reports is mentioned by the Belgian and Danish researchers. This is particularly necessary where the

competent authority is a local rather than a national or regional body. The precise methods of strengthening institutions will vary from Member State to Member State but could involve the preparation of good practice guides for the different competent authorities, which are made publicly available.

The need for further EIA training of competent authority and consultancy staff is mentioned by the UK, Greek and Portuguese researchers. While there continues to be a need for EIA training, the demand has declined in recent years and it may be that more targeted EIA training is now necessary (eg on-the-job training arranged for small groups within particular organisations).

The United Kingdom and Irish researchers mention the need for national EIA report inventories and depositories and for national databases of environmental information. The advantages of Member States depositories of this type are evident in Ireland and in The Netherlands.

Other measures suggested by Member State researchers include:

- reduction of duplication with other controls;
- improved treatment of interrelationships between impacts and cumulative impacts;
- production of draft and final EIA reports;
- introduction of strategic environmental assessment;
- increased emphasis on the treatment of alternatives in EIA reports;
- introduction of EIA monitoring;
- improvement of public participation and consultation mechanisms;
- clear integration of EIA into decision-making; and
- further research into specific aspects of the EIA process (eg. screening, EIA evaluation methods).

Further details of these measures can be found in the Member State reports in Volume 2.

### **3. MODIFICATION OF PROJECTS AS A RESULT OF EIA**

The purpose of the second part of the research was:

To examine the extent to which (i) the quality of the EISs and (ii) the effectiveness of consultative arrangements have contributed to environmentally favourable modifications to projects which have been authorised since the last reporting period.

The research contract (Appendix C) specifies that:

the findings should include information on:

- i) evaluation of the extent to which projects are being modified, during the EIA process (either before or after submission of the EIS), due to the influence of the EIA process, and any trends in the same since the last reporting period ...;
- ii) analysis of variations in environmentally-related project modifications due to such factors as the quality of EISs, the effectiveness of consultative arrangements and any other significant factors;
- iii) listing, with supporting justification, of measures likely to enhance the effectiveness of the EIA process in bringing about environmentally-improving project modifications.

This section of the report consists of three parts. They are based on two main sources of information. The first source is the detailed analysis of modifications to six United Kingdom projects, six German projects and six Spanish projects presented in Volume 2 (1; 2; 3). These analyses were conducted by Member State researchers using the methodology outlined in Appendix A. In particular, the United Kingdom, German and Spanish researchers completed summary tables showing the various factors influencing the number of modifications and the effectiveness of consultation/participation (Table A.9). They also provided observations about both the extent of modifications and the reasons for variations in modifications (Volume 2). These observations were based both upon the specific results from the six project case studies undertaken in each of the three Member States and upon their expert knowledge of their national EIA systems (Appendix A).

The second source of information upon which this section of the report is based is the set of responses to the request for justified suggestions (Appendix A) about European Union or Member State measures likely to enhance the environmental modification of projects (Volume 2: 1; 2; 3). These views were based upon the researchers' expert knowledge of the United Kingdom, German and Spanish EIA systems. In addition, the researchers from Belgium,

Denmark, Greece, Ireland and Portugal also provided observations on the extent of reasons for variations in, and measures likely to foster, environmental modifications (Volume 2:4-8). These observations were based upon expert knowledge, supplemented by literature review and, where appropriate, interviews (Appendix A).

Section 3.1 deals with the extent of project modification and Section 3.2 with the reasons for the variation in the numbers of modifications. Section 3.3 discusses the various measures likely to enhance the modification of projects to benefit the environment.

### 3.1 Extent of modifications of projects as a result of EIA

Table 3.1 summarises the results from the 18 case studies of modifications undertaken in the United Kingdom, Germany and Spain. There are two main difficulties to be recognised when interpreting Table 3.1. First, it is possible that a modification classified as significant by those questioned by one Member State researcher might not be recorded as being significant by a researcher in another Member State. Thus, one researcher might record a particular modification while another might not. Every effort has been made to overcome this problem by sending a standard example to every researcher. Second, the small size of the sample means that it is difficult to generalise about the population from which it is drawn, because the results may not be statistically significant. The following discussion reflects these difficulties.

Table 3.1 demonstrates that modifications to projects subject to EIA took place in 17 of the 18 case studies as a result of the EIA process. It therefore appears that the EIA process is having a notable effect upon the number of project modifications taking place. Thus both the United Kingdom and Spain recorded a total of 13 modifications (or an average of 2.2 per project) and German projects were subject to 22 modifications (an average of 3.7 per project). Only one of the 18 projects studied was not subject to modification.

There is a clear indication from Table 3.1 that most modifications were undertaken by developers prior to submission of their applications for authorisation in the United Kingdom (10/13) and in Germany (16/22) (Figure 3.1). However, in Spain most modifications took place at the decision-

**Table 3.1: Factors influencing environmental modifications in the United Kingdom, Germany and Spain**

| Project by country | Overall EIA quality | Proponent type | EIA experience of proponent | EIA experience of consultant | EIA experience of competent authority | Year  | Length of EIA report | Size of project   | Total environmental modifications | Prior to submission | During review/consultation | During decision making |
|--------------------|---------------------|----------------|-----------------------------|------------------------------|---------------------------------------|-------|----------------------|-------------------|-----------------------------------|---------------------|----------------------------|------------------------|
| UK 1               | C                   | Public         | 1-4                         | 5+                           | 1-4                                   | Early | 308                  | 24km              | 3                                 | 2                   | 1                          | 0                      |
| UK 2               | D                   | Public         | 1-4                         | 5+                           | 0                                     | Late  | 112                  | 2.35km            | 0                                 | -                   | -                          | -                      |
| UK 3               | C                   | Private        | 1-4                         | 5+                           | 5+                                    | Early | 280                  | 0.5ha             | 2                                 | 0                   | 0                          | 2                      |
| UK 4               | C                   | Public         | 0                           | 5+                           | 5+                                    | Late  | 241                  | 25ktpa            | 3                                 | 3                   | 0                          | 0                      |
| UK 5               | B                   | Private        | 0                           | 5+                           | 0                                     | Early | 322                  | 350ha             | 4                                 | 4                   | 0                          | 0                      |
| UK 6               | C                   | Private        | 0                           | 5+                           | 5+                                    | Late  | 100                  | 1ha               | 1                                 | 1                   | 0                          | 0                      |
| Germany 1          | B                   | Public         | 5+                          | 5+                           | 5+                                    | Early | 130                  | 3.8-4.1km         | 1                                 | 1                   | -                          | -                      |
| Germany 2          | A                   | Public         | 1-4                         | 5+                           | 5+                                    | Late  | 237                  | 2.9-3.2km         | 1                                 | 1                   | -                          | -                      |
| Germany 3          | B                   | Public         | 0                           | 1-4                          | 1-4                                   | Early | 264                  | 7.8ha,            | 4                                 | 4                   | 0                          | 0                      |
| Germany 4          | C                   | Private        | 0                           | 5+                           | 0                                     | Late  | 519                  | 80ha              | 8                                 | 7                   | 1                          | 0                      |
| Germany 5          | C                   | Private        | 0                           | 1-4                          | 0                                     | Early | 107                  | 13ha              | 6                                 | 2                   | 4                          | 0                      |
| Germany 6          | B                   | Private        | 0                           | 5+                           | 5+                                    | Late  | 240                  | 10ha              | 2                                 | 1                   | 0                          | 1                      |
| Spain 1            | D                   | Private        | 0                           | 0                            | 5+                                    | Early | 89                   | 300m <sup>3</sup> | 1                                 | 0                   | 0                          | 1                      |
| Spain 2            | C                   | Private        | 0                           | 1-4                          | 5+                                    | Late  | 114                  | 0.56ha            | 2                                 | 1                   | 0                          | 1                      |
| Spain 3            | C                   | Public         | 5+                          | 1-4                          | 5+                                    | Early | 150                  | 10km              | 2                                 | 1                   | 0                          | 1                      |
| Spain 4            | C                   | Public         | 5+                          | 5+                           | 5+                                    | Late  | 750                  | 20km              | 3                                 | 0                   | 0                          | 3                      |

|         |   |        |    |     |    |       |     |                   |   |   |   |   |
|---------|---|--------|----|-----|----|-------|-----|-------------------|---|---|---|---|
| Spain 5 | C | Public | 5+ | 1-4 | 5+ | Early | 280 | 38hm <sup>3</sup> | 1 | 0 | 0 | 1 |
| Spain 6 | C | Public | 5+ | 1-4 | 5+ | Late  | 314 | 7hm <sup>3</sup>  | 4 | 3 | 1 | 0 |

**Figure 3.1**

making stage (7/13). However, the Spanish researchers report that opinions expressed during the earlier consultation and review stages were influential in the adoption of modifications during decision-making.

It appears that there is no clear trend over time in the number of modifications (Table 3.1). Indeed, 24 modifications are recorded in both the early period and the late period. Whilst the German case studies reflect this even balance in the number of modifications, the number in the United Kingdom decreased between the early and the late periods. The number of modifications in Spain, on the other hand, increased between the two time periods.

There appears, from the 18 case studies, to be no overall trend in the significance of the modifications arising from the EIA process. In the United Kingdom “just over three-quarters of the modifications were regarded as being of major significance whilst the remainder were of moderate significance” (Volume 2:1). However, most German modifications were of moderate significance and the Spanish report (Volume 2:3) states that “the most frequent project modifications are additional mitigation measures of minor significance.”

In both Germany and Spain the majority of modifications led to mitigation of impacts on fauna and flora. However, in the United Kingdom six of the 13 modifications relate to visual and landscape impacts. (It should be noted that British planners generally receive more training in visual aspects of land use planning than in ecological aspects.)

Table 3.2 summarises the points arising from the Belgian, Danish, Greek, Irish and Portuguese reports (Volume 2:4-8) in relation to the extent of modifications resulting from EIA. The case of Belgium is unusual in that few modifications to projects are apparently being made. In Ireland, 85% of a sample of 40 case studies were reported as being modified as a result of the EIA process. In Greece most projects were reported as being modified by EIA procedures. The same appears to be true of Denmark, especially with regard to local impacts. In Portugal, significant modifications to projects appear to be taking place as a result of the EIA process (Volume 2:8).

**Table 3.2: Observations about environmental modifications in Belgium, Denmark, Greece, Ireland and Portugal**

| Member State | Observations  |
|--------------|---|
| Belgium      | No specific research is available which assesses the extent of project modification. However, analysis of the case studies suggests that few modifications are occurring. Alternatives are not studied in detail and developers appear unwilling to consider alternatives. Although mitigation measures are proposed, it is not clear if they achieve realisation.  |
| Denmark      | On the whole modifications are being carried out, but they relate primarily to local environmental effects. Effects beyond the local level do not encourage modifications to the same extent.   |
| Greece       | The EIA reports for the eight tourist developments have led to environmentally related project modifications. Although the extent to which projects are being modified is not significantly greater in the more recent reports, modifications are being incorporated into standard authorisation procedures. Interviews with key EIA personnel in government have highlighted that other types of project are being modified during the EIA process and that they influence the location, design and size of the project. The extent to which projects are modified is noted to depend upon the specific project. |
| Ireland      | As there is no conclusive data in Ireland for the issuing by a competent authority of the reasons for a particular decision, there are no substantial data on the influence of EIA on project modifications. Nevertheless, although 85% of a sample of 40 EIA reports were modified, in 60% of the 40 cases the consideration of alternatives and mitigation measures was inadequate. A similar conclusion can be drawn from the eight waste disposal cases. EIA report quality did not affect the extent of modifications.   |
| Portugal     | Modifications are being to made to projects as a result of the EIA processes and are being made at a variety of stages within the process by numerous bodies. The use of a preliminary EIS focusing on the selection of alternatives and the actions of developers at the project conception stage are shown to be key factors which have led to modifications for road and motorway projects.  |

### 3.2 Reasons for variations in numbers of project modifications

This sub-section discusses some of the possible influences on the number and extent of project modifications. It commences with a discussion of the effect of consultation and participation arrangements, then discusses the influences of EIA report quality before analysing the significance of the experience of the participants, the size of projects and other factors.

#### 3.2.1 Consultation and public participation

Table 3.3 summarises the findings from the 18 case studies relating to the factors influencing consultation and public participation. In the United Kingdom it is apparent that responses by consultees had a greater influence on modifications than responses by the public, with consultees having a major influence in three of the six cases (public zero) and a moderate influence in one case (public two) (Volume 2:1). The consultees and the public proposed five modifications prior to the submission of the EIA report, and three subsequently.

A similar pattern was evident in Germany where one modification of major significance was suggested by the consultees (but none by the public) together with three modifications of moderate significance (one by the public) (Volume 2:2). In Spain, however, the public was more influential than the consultees, suggesting five modifications of major significance (three by the consultees) and one of moderate significance (none by the consultees) (Volume 2:3).

The involvement of consultees and the public prior to submission of EIA reports was an important factor in proposing modifications to projects in the United Kingdom (Volume 2:1) and in Spain (Volume 2:3) since several modifications were suggested at this stage. It is apparent that the public review stage of the EIA process in Spain did not have a significant influence on the number and extent of modifications except where projects were particularly controversial (Volume 2:3).

Table 3.4 summarises the observations about reasons for variations in numbers of project modifications made by Member State researchers. It appears that consultation and public participation influence modifications at both the pre-submission (where appropriate) and post-submission phases of the EIA process. In Ireland, consultation and public participation now occur at a stage early enough to enable design modifications to be made without incurring subsequent delays (Volume 2:7).

**Table 3.3: Consultation and public participation in the United Kingdom, Germany and Spain**

| Project by country | CPP at scoping stage | CPP at EIA report stage | No of public groups/ consultees consulted | Number of means of consultation | Number of locations at which EIA report available | Length of time EIA report available | Price of EIA report | Number of CPP responses |
|--------------------|----------------------|-------------------------|---|---------------------------------|---|-------------------------------------|---------------------|-------------------------|
| UK 1               | y                    | y                       | 14  | 2                               | 3   | 1 month                             | 100 ECU             | 54                      |
| UK 2               | y                    | -                       | 5   | 2                               | 2   | 1 month                             | not for sale        | 20                      |
| UK 3               | y                    | y                       | 10  | 3                               | 2   | several months                      | unknown             | 4                       |
| UK 4               | y                    | y                       | 20  | 5                               | 5   | several months                      | 63 ECU              | 470                     |
| UK 5               | y                    | y                       | 25  | 2                               | 1   | several months                      | 32 ECU              | 56                      |
| UK 6               | y                    | y                       | 20  | 2                               | 2   | 12 months                           | 25 ECU              | 500                     |
| Germany 1          | n                    | n                       | unknown                                   | 0                               | -   | -                                   | -                   | -                       |
| Germany 2          | y                    | n                       | 17  | 2                               | -   | -                                   | -                   | -                       |
| Germany 3          | y                    | y                       | 26  | 3                               | 3   | 1 month                             | -                   | 1000+                   |
| Germany 4          | y                    | y                       | 25  | 3                               | 1   | 1 month                             | -                   | 40                      |
| Germany 5          | y                    | y                       | 24  | 3                               | 3   | 1 month                             | -                   | 100                     |
| Germany 6          | y                    | y                       | 26  | 2                               | 3   | 1 month                             | -                   | 24                      |
| Spain 1            | y                    | y                       | 8   | letters and EIS                 | 2   | 30 days                             | -                   | 4                       |
| Spain 2            | y                    | y                       | 25  | letters and EIS                 | 2   | 30 days                             | -                   | 3                       |
| Spain 3            | y                    | y                       | 19  | letters and EIS                 | 2   | 30 days                             | -                   | 48                      |
| Spain 4            | y                    | y                       | 60  | letters and EIS                 | 2   | 55 days                             | -                   | 26                      |
| Spain 5            | y                    | y                       | 13  | letters and EIS                 | 2   | 30 days                             | -                   | 6                       |

|         |   |   |    |                 |   |         |   |    |
|---------|---|---|----|-----------------|---|---------|---|----|
| Spain 6 | y | y | 27 | letters and EIS | 2 | 30 days | - | 17 |
|---------|---|---|----|-----------------|---|---------|---|----|

**Table 3.4: Observations about variations in number of project modifications in Belgium, Denmark, Greece, Ireland and Portugal**

| Member State | Observation  |
|--------------|--|
| Belgium      | Motivation of developer- The developer's willingness to consider alternatives is an influential factor. Although the eight extractive industry projects were shown to be different in design, it was stated in many cases that no alternatives existed.  |
| Denmark      | <p>Consultation and public participation (CPP)- Consultation arrangements for certain projects have led to a widening of the scope of initial investigations and subsequently have led to modifications with a stronger environmental emphasis.</p> <p>Quality- An improvement in the quality of EIA reports for road projects over time has been associated with the initiation of modifications. A similar improvement in report quality cannot be observed for waste disposal projects, although this does not mean that modifications are not being carried out.</p> <p>General- Thoroughness at each stage of the EIA procedure for road projects has led to modifications.</p>   |
| Greece       | <p>CPP- Consultation by relevant public authorities, research institutes, universities and environmental organisations formally or informally influences the degree of modification at both pre and post EIA report submission stages. The degree of public opposition to a project will also effect report quality and the degree of modification.</p> <p>Experience of participants- Experience of competent authorities in Greece is influential in 2 ways: a) through the informal guidance and consultation procedures at the pre-EIA report submission stage, and b) during requests for additional information at the post-EIA report submission stage. The experience of the developer and the consultant directly effects quality which in turn is related to modifications at the pre-EIA report submission stage.</p> <p>Guidelines- Project specific guidelines for tourism and road projects have led to modifications at the report preparation stage.</p> |
| Ireland      | CPP- Consultation is happening at an early stage in order to enable modifications to the design when the situation is still flexible and so as to avoid later delays.  |
| Portugal     | Quality-The quality of some EIA reports has been associated with the introduction of procedural changes.   |

### 3.2.2 EIA report quality

The relationship between EIA report quality and the number of modifications is shown in Table 3.1.

It is difficult to establish a precise relationship because of the limited number of cases and the complexity of the relationship between the factors. However, it appears that, in the United Kingdom, the better quality EIA reports were associated with projects where the greater numbers of modifications had been made. In Germany, although the relationship is even less clear, it seems that the weaker EIA reports related to projects which were modified the most. Some association between better quality EIA reports and the modifications of projects at the pre-submission stage was discernible in Spain.

In Denmark, improvements in the quality of EIA reports for roads have resulted in greater initiation of modifications (Table 3.4 and Volume 2:5). However, the same relationship does not appear to hold for waste disposal projects. In Portugal it appears that there is a direct relationship between the quality of EIA reports and the extent of modifications.

### 3.2.3 Experience of participants

There was no clear relationship between the number of project modifications in the United Kingdom and the EIA experience of the proponent, the consultant and the competent authority in the six cases (Table 3.1). However, the two competent authorities having least EIA experience were associated with projects having both no modifications and the most modifications (four). In Germany, the two projects having the greatest number of modifications were associated with the least experienced competent authorities and with the least experienced developers (Table 3.1). In Spain, on the other hand, the more experienced proponents and consultants tended to be associated with the largest number of modifications.

In Greece, it appears that the more experienced competent authorities were associated with projects having the largest number of both pre- and post-EIA report submission modifications (Volume 2:7).

### 3.2.4 Project size

There did not appear to be any relationship between project size and the number of modifications except in Spain (Table 3.1). Here, the larger projects tended to be modified more than the smaller projects.

### 3.2.5 Other factors

Project specific guidelines produced in Greece have resulted in increasing numbers of modifications coming forward at the report preparation stage of the EIA process (Table 3.4 and Volume 2:6). The motivation of the developer was regarded as an important factor in considering alternative approaches and other modifications in both Germany (Volume 2:2) and Belgium (Volume 2:4).

### 3.3 Suggested measures to increase the modification of projects

Table 3.5 summarises the suggestions made by Member State researchers about the European Union and Member State measures likely to increase the number and extent of environmentally beneficial modifications to projects. The main suggestions relate to increased emphasis on alternatives, scoping, EIA report quality, consultation and participation, monitoring, the production of guidelines and training.

The need to strengthen the treatment of alternatives is emphasised by the United Kingdom, German, Spanish and the Belgian researchers. In all four countries it is felt that better treatment of alternatives would result in better avoidance and mitigation of impacts (Volume 2:2; 3; 4).

The German, Spanish, Danish and Greek researchers all emphasise the need for scoping in EIA. It is felt that scoping results in early recognition of the need for modification and better opportunities for modifications to be made. The Danish researcher felt that changes to the European Directive on EIA were necessary to introduce scoping (Volume 2:5).

The United Kingdom, German and Danish reports emphasise the importance of improving the quality of EIA reports to ensure that modifications ensue. The United Kingdom report recommends that details of mitigation measures and subsequent modifications should be outlined in the EIA report.

The Spanish report (Volume 2:3) suggests various measures to strengthen consultation and public participation. These include increased availability of information, increasing the number of statutory consultees, extending consultation and participation to further information submitted after the EIA report and to decision making and using a more diverse and appropriate set of consultation and

public participation methods. The United Kingdom and Irish reports also emphasise the importance of consultation and public participation (Volume 2:1; 7).

**Table 3.5: Suggested measures to increase the number and extent of environmentally beneficial project modifications**

| Member State | Measure  |
|--------------|--|
|              | <i>Treatment of alternatives</i>   |
| UK           | Easiest and less costly approach is to consider alternatives at the design stage   |
| Germany      | Mandatory treatment required   |
| Spain        | Modification measures should be clearly stated in the EIS. In order to avoid impacts, alternatives should be proposed.   |
| Belgium      | Alternatives need to be considered in order to stimulate further investigation   |
|              | <i>Scoping</i>   |
| Germany      | This should be mandatory and extended to municipalities and nature protection groups   |
| Spain        | Scoping should be redefined so that it focuses on determining significant impacts and subsequently the need for project modifications                                  |
| Denmark      | Amend EIA Directive to open scoping to public participation  |
| Greece       | Regulatory provision is required to determine formal consultation arrangements for each project at the pre-EIA report submission stage.                                |
|              | <i>Consultation and Public Participation (CPP)</i>   |
| UK           | CPP should occur at all stages of the EIA process  |
| Spain        | Establish diverse and more appropriate CPP methods at each stage (i.e. public meetings, questionnaires)  |
|              | Make different documents more readily available to the public, (e.g. purchase)   |
|              | Increase number of consultees to be consulted  |
|              | Extension of CPP to the review of further information at the post EIS submission stage   |
|              | Extension of CPP to the decision making stage  |
| Ireland      | Formal procedures are required to ensure that consultation takes place at an early stage in the consent process in light of the involvement of two government agencies |
|              | <i>Monitoring</i>  |
| UK           | It is important to check that construction is undertaken as specified in approval. Monitoring also enables feedback into practice to take place.                       |
| Greece       | Legislative change needed to ensure that environmentally improving project modifications are taking place.   |
|              | <i>Guidelines</i>  |
| Spain        | Published guidance needed on CPP and the role of EIA in avoiding impacts   |
| Denmark      | Guidelines needed to strengthen EIA report methodology so as to lead to improved report  |

|         |  |
|---------|--|
|         | quality and discussion of impacts.   |
| Greece  | Guidelines needed to clarify procedures and reduce ambiguity   |
|         | <i>EIA report preparation</i>  |
| UK      | Details of mitigation measures and subsequent modifications should be outlined in the EIA report                         |
| Germany | Changes in content requirements  |
| Denmark | It is important that the Nordic EIA Review Checklist emphasises the importance of quality in both reports and procedures |
|         | <i>Training</i>  |
| Greece  | Better methodological awareness would be created by organised training of developers, authorities and consultants        |

The United Kingdom and Greek reports emphasise the need for monitoring in EIA. This is seen as a Member State measure necessary to ensure that environmentally beneficial project modifications are implemented (Volume 2:6).

The need for EIA guidelines is mentioned in three Member State reports. Guidelines for consultation and public participation in EIA to avoid and mitigate environmental impacts are recommended in the Spanish report (Volume 2:3). Guidelines to strengthen EIA report quality, and especially the treatment of predicted impacts are suggested by the Danish researcher (Volume 2:5). Finally, the Greek report indicates the need for guidelines to clarify procedures and reduce ambiguity (Volume 2:6).

Training of competent authority, developer and consultancy personnel is highlighted in the Greek report (Volume 2:6). This is seen as a necessary step to increasing methodological awareness and hence increased modification of projects.

#### 4. INFLUENCE OF CHANGES TO EIA PROCEDURES

The purpose of the third part of the research was:

To assess the influence of measures to ensure and/or simplify the integration of authorisation and EIA procedures, introduced since the last reporting report, on (i) the quality of EISs, (ii) the effectiveness of consultative arrangements and (iii) environmental improvements to projects.

The research contract (Appendix C) specifies that:

the findings should include:

- i) a brief summary of any major measures taken, since the last reporting period to ensure and/or simplify the integration of authorisation and EIA procedures in the Member States for which case studies have been undertaken;
- ii) an evaluation of any significant beneficial or prejudicial effects of these measures on EIS quality, the effectiveness of consultative arrangements and environmental improvements to projects;
- iii) listing, with supporting justification, of any types of both ensuring and simplifying measures which may be beneficial to environmental improvements to projects.

This section of the report consists of three parts: measures to modify EIA procedures (Section 4.1), effects of measures to modify EIA procedures (Section 4.2), and recommended measures to improve EIA procedures (Section 4.3). The main source of information on which this section is based is the set of responses to the request for information about the measures taken to ensure and/or simplify the integration of authorisation and EIA procedures (Appendix A) their effects, and proposals for change made by the eight Member State researchers (Volume 2). These observations were based on expert knowledge of the various EIA systems, supplemented by literature review and, where appropriate, interviews (See Appendix A - Methodology).

##### 4.1 Measures taken to modify EIA procedures

Table 4.1 lists the main measures taken since 1991 to ensure and/or simplify the integration of authorisation and EIA procedures in the Member State and to improve EIA report quality. These have been classified according to their nature: major and other measures. It is notable that all the eight Member States have taken measures to modify EIA procedures, although not all the measures have been classified as 'major' by the researchers.

**Table 4.1: Measures to modify EIA procedures and their effects**

| Member State | Measure   | Major/<br>Other | Effect   |
|--------------|---|-----------------|--|
|              | <i>Screening</i>  |                 |  |
| UK           | Greater number of projects now require EIA  | Major           | -  |
| Denmark      | Greater inclusion of Annex II projects  | Major           | Greater experience gained by authorities                           |
| Greece       | Threshold criteria for tourism projects   | Major           | Positive effect on EIS quality                                     |
| Ireland      | Changes to threshold criteria for forestry  | -               | -  |
|              | <i>Scoping</i>  |                 |  |
| Spain        | Scoping opened up to more consultees/public groups  | Other           | Open EIA process   |
| Belgium      | Organisation of scoping/draft meetings  | Other           | Limited EIA report quality improvement                             |
|              | <i>EIA report preparation</i>   |                 |  |
| UK           | Best practice guide for EIA report preparation  | -               | -  |
| Belgium      | Co-ordinator responsible for EIA report preparation   | Other           | Limited EIA report quality improvement                             |
| Denmark      | Outcome of CPP to be considered in EIA report   | -               |  |
|              | <i>Decision making</i>  |                 |  |
| UK           | Local authorities required to make formal statement that environmental information has been considered in decision making | Major           | Beneficial effect on report quality and number of modifications    |
| UK           | Best practice guide on the treatment of EIA reports by the LPA  | Major           | -  |
| Greece       | Circular to upgrade siting approval process   | Major           | Significant effect on EIA report quality for site approval process |

|          |   |       |   |
|----------|---|-------|---|
| Greece   | Transfer of duties to local authorities for specific projects                           | Major | Reduced role of Central Government and report quality                   |
|          | <i>Monitoring</i>   |       |   |
| Greece   | Development of an inspectorate system   | Major | -   |
|          | <i>Consultation and Public Participation (CPP)/ Information Improvements</i>            |       |   |
| UK       | Extension of information availability   | Major | -   |
| Germany  | Several states have developed separate units to support EIA practice                    | -     | More uniform application and an increase in quality                     |
| Spain    | Development of public EIA database to monitor procedural activities for each submission | Other | -   |
| Spain    | Outcome of CPP to be published  | Other | Increased opportunities for inspection                                  |
| Belgium  | Consultation regulation for EIA reports   | Other | Limited improvement to EIA report quality                               |
| Denmark  | Authorisation conditions to be published at the same time as the EIA report             | Major | Enhanced awareness of links within the process                          |
| Denmark  | Outcome of CPP to be considered in the EIS  | Major | Beneficial  |
| Greece   | Development of an information system  | Major | -   |
| Portugal | Increase in number of public hearings   | Major | Project improvements  |
| Portugal | Improved information distribution-use of leaflets                                       | Major | Better availability of materials and project improvements               |
|          | <i>Guidelines</i>   |       |   |
| UK       | Sectoral and procedural guidelines have been introduced                                 | Major | Manual for road schemes has had positive effect on report quality       |
| Germany  | Numerous guidelines have been introduced relating to sectoral and general areas         | -     | Improvement to the EIA process and to the level of project modification |
| Belgium  | Development of Guidelines   | Other | Limited improvement in EIA report quality                               |

|         |  |       |   |
|---------|--|-------|---|
| Greece  | Guidance for report preparation for tourism and informal guidelines for roads/construction           | Major | Beneficial effects on quality of EIS                  |
| Greece  | Guidelines for all projects  | Major | -   |
| Ireland | EPA produced draft guidelines in 1995. Along with notes these specify EIS content and EIA procedures | -     | -   |
|         | <i>Duration of the EIA process</i>   |       |   |
| Germany | Attempts to speed up the EIA process   | Other | Difficult to say- expected that quality will diminish |
| Greece  | Time scale established for initiation and completion of the EIA process                              | Major | Hesitations expressed by consultants                  |
| Denmark | Publication requirements (see above)   |       |   |
|         | <i>General</i>   |       |   |
| Germany | Various legal and administrative changes to the EIA system   | -     | -   |
| Germany | Statutory provision to enable competent authorities to bring in external expertise                   | Major | -   |
| Spain   | Preparation of training courses focusing on EIA activities to be carried out by the developer        | Other | -   |
| Spain   | Better co-ordination between the proponent's project planning and EIA process                        | Other | Less costly process                                   |
| Belgium | Development of an association of environmental professionals to give advice                          | Other | Limited improvement to EIA report quality             |
| Denmark | Regulation to strengthen the role of EIA   | Major | Enhanced awareness of links within the process        |
| Denmark | Good practice guide for developers   | Major |   |

There are two main difficulties to be recognised when interpreting Table 4.1. First, it is possible that a measure classified as major by one Member State researcher might be regarded as of being of lesser significance by a researcher in another Member State. However, so far as possible, a consistent approach has been taken in summarising the information provided for the purposes of this section of the report.

Second, Member State researchers have recorded all the measures taken since 1991 to strengthen EIA systems, rather than confining themselves only to those measures “to ensure and/or simplify the integration of authorisation and EIA procedures in the Member States” (contract, Section ci). In practice, while many of these measures could be classified as being designed to ensure integration, very few are simplifying measures. The following discussion should therefore be read as relating to all the procedural and guidance measures taken to improve Member State EIA systems over the last five years.

Member State measures to strengthen EIA procedures relate to nearly every stage of the EIA process. They include measures to improve screening, scoping, EIA report preparation, decision-making, monitoring and consultation and public participation. Further measures relate to the preparation of guidelines and to limitations of the time devoted to the EIA process. Germany has introduced various legal changes and several of the Länder have set up new administrative units to deal with EIA.

The United Kingdom, Denmark, Greece and Ireland have all introduced screening measures. The changes in Denmark are probably the most far-reaching since they ensure that more Annex II projects are subject to EIA than was previously the case. However, in the UK, EIA is now required for certain categories of development not included in Annex II: wind generators, motorway service areas and coast protection works.

Both Spain and Belgium have introduced measures to improve the scoping stage of EIA process which they did not classify as major. General measures to strengthen EIA report preparation have been taken in the United Kingdom by publication of a good practice guide to preparing EIA reports in Belgium by appointing a co-ordinator and in Denmark by the approval of regulations. The UK government has also published a best practice guide on the treatment of EIA reports by local

planning authorities which relates to both EIA report review and to decision-making. UK local authorities must now make a formal statement that the environmental information (which includes the EIA report) has been formally considered in decision-making. Greece has taken measures to strengthen decision-making by, *inter alia*, upgrading the siting approval process. It has also transferred some decision-making powers from central to local authorities.

Only Greece has taken any measures to strengthen monitoring. However, several countries (the United Kingdom, Germany, Spain, Belgium, Denmark, Greece and Portugal) have taken measures to improve consultation and public participation. Portugal has increased the number of public hearings taking place prior to decision making.

EIA procedural guidelines have been produced in the United Kingdom, in Belgium, in Greece and in Ireland. Four Member States have introduced measures intended to limit the duration of the EIA process: Germany, Spain, Denmark and Greece.

#### 4.2 Effects of measures to modify EIA procedures

Table 4.1 lists the main effects of the various measures taken to strengthen the EIA process. Member State researchers have not always been able to specify the effects of each of the measures taken on EIA report quality, on the effectiveness of consultative arrangements or on environmental improvements to projects. In particular, it did not prove possible to establish a causal relationship between the measures described and their effects on the detailed case study project EIAs in the United Kingdom, Germany and Spain. The principal reasons for this were the limited number of case studies, especially those relating to recent EIAs, in the three Member States and the complexity of the relationships between the factors and the outcomes in the case studies.

More generally, in all eight Member States, many of the measures may have been introduced too recently for their effects to have become evident. Another reason for the difficulty in specifying effects may be that some of the Member State measures are difficult to unravel from each other, or from the effects of changes to the procedures with which the Member State EIA process is associated (as in the case of Germany (Volume 2:2)). Nevertheless, wherever possible, observations about the actual or potential effects of the measures have been made.

In the United Kingdom it appears that the various measures introduced since 1991 to strengthen the EIA process have had a beneficial effect on both EIA report quality and on the number of environmentally beneficial project modifications. These effects, however, have been of an individually minor significant nature. Their significance is difficult to establish, given the growth in EIA experience of the developers, the consultants and the competent authorities. The one exception to this is the effect of the guidelines on the EIA of highways on EIA report quality, which is widely believed to be significant (Volume 2:1).

In Germany, the introduction of EIA units to support EIA practice has been beneficial. However, it is believed that the measures to speed up the EIA procedures may curtail public participation which may, in turn, result in a reduction in the number of EIAs and in some diminution in the quality of EIA practice (Volume 2:2).

In Spain, it is thought that measures to improve the co-ordination between proponents, project planning and the EIA process should lead to earlier submission of EIA reports and to a less costly approval process. The introduction of scoping, it is felt, should lead to a more open and participate EIA process (even though these increased opportunities to comment relate mainly to institutional participants) and to an improvement in the quality of EIA practice (Volume 2:3).

The various measures to make the EIA process more effective taken in Belgium have led, it is believed, to some limited improvements in the quality of EIA reports (Volume 2:4).

The Danish measures to improve the integration between EIA and other procedures appear to have led to an enhanced awareness of the links between the consideration of mitigation measures and the conditions to which project authorisations are subject. The Danish screening measures are regarded as being beneficial because they provide the relevant authorities with greater opportunities to gain EIA experience. The measures to increase consultation and public participation by reporting them in the EIA report have led to increased participation by non-governmental organisations in the EIA process and to improved discussions (Volume 2:5).

In Greece, the measures to strengthen decision-making by upgrading the siting approval process appear to have had a beneficial effect on the quality of siting approval reports which could, in turn,

lead to improvements in the quality of EIA reports. The transfer of decision-making powers for smaller projects from central government to the less experienced local authorities may, it is suggested, result in EIA reports which are of poorer quality and in fewer beneficial modifications being proposed than in the case of larger projects. The preparation of Greek EIA guidelines appears to have had a beneficial effect on the quality of EIA reports and on the number of environmental improvements to projects. It is too early to judge the effect of the measures to limit the duration of the EIA process but reservations about their ramifications on the quality of EIA practice have been expressed by some environmental consultants (Volume 2:6).

The improved opportunities for public participation arising from the increase in the number of public hearings in Portugal appear to have led to an increase in the number of environmental modifications made to projects during the EIA process (Volume 2:8).

#### 4.3 Suggested measures to improve EIA procedures

Table 4.2 summarises the main suggestions made by researchers about European Union or Member State measures to ensure and/or simplify the integration of authorisation and EIA procedures which may be beneficial to environmental improvements to projects in the Member State. In practice, many Member State researchers found it difficult to distinguish between these ‘ensuring and simplifying’ measures and the ‘EIA process effectiveness’ measures suggested in Section 3.3, since both are concerned with improving the environmental quality of projects. This section of the report should therefore be read in conjunction with Section 3.3.

Suggestions made by Member State researchers relate to the integration of procedures, to institution strengthening, to the need for research, to the need for guidelines and to various aspects of the EIA process. These include: the treatment of alternatives; screening; scoping; EIA documentation; decision-making and monitoring. Few of the proposed improvements to the EIA process are new but their familiar nature should not detract from the need to implement them. None of the Member State researchers proposed simplifying measures.

The need for greater integration of procedures was mentioned by the United Kingdom, the Danish and the Greek researchers. In Denmark it was felt that EIA procedures needed to be integrated with additional sectors at both the European Union level (eg in relation to the Directive on integrated

pollution control, and at national level) (Volume 2:5). The need for national measures to enhance co-operation between relevant authorities in Greece was stressed (Volume 2:6).

**Table 4.2: Suggested measures to improve EIA procedures**

| Member State | Measure  | Level of Measure MS/EU |
|--------------|--|------------------------|
|              | <i>Integration of procedures</i>   |                        |
| UK           | Greater integration needed to reduce duplication of effort   | EU/MS                  |
| Denmark      | Further coupling of procedures other than those for EPA and EIA required to finalise tiering procedure | MS and EU              |
| Greece       | Formal measures for inter-authoritative co-operation and CPP   | -                      |
|              | <i>Institution Strengthening</i>   |                        |
| Spain        | Strengthening of competent authority in order to enable better dialogue                                | -                      |
|              | <i>Research</i>  |                        |
| UK           | Should cover procedural and methodological issues  | MS/EU                  |
| Germany      | Exploration of how EIA can speed up the licensing procedure- not related to integration                | MS                     |
|              | <i>Guidelines</i>  |                        |
| Germany      | Project orientated EIA guidelines needed- not related to integration                                   | MS                     |
|              | <i>Alternatives/mitigation/modifications</i>   |                        |
| Germany      | Need for mandatory review  | MS/EU                  |
| Greece       | Regulations needed to make examination of alternatives and mitigation measures mandatory               | -                      |
| Greece       | Provision for ensuring that process starts early enough to allow modification                          | -                      |
|              | <i>Screening</i>   |                        |
| UK           | Clarification and definition of significant and/or precise criteria and thresholds needed              | MS                     |
| Germany      | Should be mandatory  | MS/EU                  |

|         |   |       |
|---------|---|-------|
| Germany | Need to consider type of project and sensitivity of ecosystem                     | MS    |
| Greece  | Community level measures to focus EIA on significant issues                       | EU    |
|         | <i>Scoping</i>  |       |
| UK      | Guidance is needed on how to maximise scoping                                     | MS/EU |
| Germany | Should be mandatory   | MS/EU |
| Spain   | A preliminary EIA report should be prepared                                       | MS    |
| Greece  | Community level measures to focus EIA on significant issues                       | EU    |
| Denmark | Open up scoping to the public   | EU    |
|         | <i>Information/Documentation</i>  |       |
| Germany | Standards for the “general comprehensive summary”                                 | EU    |
| Germany | Quality review for summary of environmental impacts                               | EU    |
| Germany | Summary document should be publically available                                   | MS    |
| Spain   | EIS to be used more extensively in reaching decisions                             | -     |
| Spain   | Structure the process so as to provide relevant information at each stage         | -     |
|         | <i>Decision making</i>  |       |
| UK      | Greater use of EIA report should be used in decision making                       | MS    |
| Spain   | EIS to be used more extensively in reaching decisions                             | -     |
| Greece  | Formal procedure to specify way in which improvements accounted for               | -     |
| Ireland | Integration and clarification of functions of relevant planning authority and EPA | MS    |
|         | <i>Monitoring/post-auditing</i>   |       |
| Spain   | Need to use as quality controls are currently a weak area in Spain                | -     |

Only the Spanish report mentioned institution strengthening. It was felt that there was a need to strengthen the capacity of the competent authority in dealing with proponents, especially in the early stages of the EIA process (Volume 2:3).

The need for research into the extent to which EIA slows the time required to complete licensing procedures was stressed by the German researchers, to overcome the lack of empirical evidence about whether or not EIA delays decision-making. The need for research into various procedural and methodological issues was stressed in the United Kingdom report. The development of national guidelines for the EIA of particular types of project was also suggested in the German report (Volume 2:2). The Appendix also refers to the need for European Union procedural guidelines on the production of non-technical summaries.

The need to make the examination of project alternatives mandatory was stressed by the German and Greek researchers. This was felt to be necessary to ensure that modifications to projects were suggested early enough to make their adoption feasible. The modifications to the EIA Directive currently under consideration should help to meet this recommendation.

The desirability of European Union/Member State measures relating to screening was mentioned in the United Kingdom, German and the Greek reports. The currently proposed modifications to the EIA Directive may meet these suggestions.

The Danish researchers suggested the need for European Union measures to open scoping up to the public since experience had demonstrated that this had led to environmentally beneficial modifications (Volume 2:5). The Spanish report suggested that measures were necessary to ensure that a preliminary EIA report (a cross between a scoping document and a draft EIA report) was prepared. This was believed to provide more effective integration of environmental considerations at an early stage of project planning (Volume 2:3). The United Kingdom, German and Greek researchers also proposed scoping measures.

Measures to improve the use made of EIA documentation were suggested in the German report. This stressed the need for measures to improve the quality of non-technical summaries to ensure that greater use was made of them. The Spanish researchers echoed the need for the EIA report to be

used more extensively in making decisions.

Equally, the United Kingdom and Spanish researchers felt that measures to ensure that greater use was made of the EIA report in decision-making were necessary. This suggestion was endorsed in the Greek report which suggested that formal procedures were necessary to ensure that environmental improvements are incorporated in the decision-making process.

The need for measures to improve monitoring was stressed by the Spanish researchers. This was needed to ensure that mitigation measures are implemented during project construction and during operation (volume 2:3).

## 5. CONCLUSIONS

This report has presented the results of an evaluation of the performance of the environmental impact assessment (EIA) process. It has dealt with the quality of EIA reports, with modifications of projects as a result of EIA, and with the influence of changes to EIA procedures.

### 5.1 Quality of EIA reports

The purpose of the first part of the research was:

To obtain assessments, more reliable than those currently available, of the quality of a representative sample of EISs [environmental impact statements or EIA reports] and to draw conclusions upon improvements resulting from the implementation of the Directive, in comparison with the last reporting period which ended in October 1991.

The overall proportion of satisfactory EIA reports within the sample improved from 50% to 71% between the two time periods. For six of the Member States, an improvement in the quality of the EIA reports sampled can be seen between the two time periods and the quality remained constant in the other two. In the later period, in all of the Member States, more (or the same number of) projects were classified as being of a satisfactory overall quality compared with the early period. In six of the Member States, a high percentage (ranging from 66-100%) of the reports in the later period were judged to be of a satisfactory overall quality, whereas this was the case for only two of the Member States in the early period. However, only 25% of the later reports in Belgium, and 50% in Denmark, were judged to be of a satisfactory quality. In Germany, the EIA reports in both periods tended to obtain satisfactory overall scores (Section 2.1.1).

In the early period, only 18% of the reports sampled obtained an overall score of A ('very satisfactory') or B ('satisfactory') on a scale of A-F, and the vast majority of these reports was from Germany. In the later period, a limited number of reports in Denmark, Germany, Greece, Portugal, Spain and the United Kingdom obtained scores of A and B. The overall proportion of reports obtaining a score of A or B in the later period was 34%, and the overall proportion obtaining a C ('just satisfactory') score was 38%. Therefore, although an increase in quality has been observed, the overall quality for the majority of the reports in the Member States in the later period was still only 'just satisfactory' (Section 2.1.1). Variations in EIA report quality in the Member State studies do not appear to be related directly to the type of project (Section 2.1.2).

The improvement in the quality of EIA reports indicates that further progress has been made in

implementing the provisions of the EIA Directive since 1991.

A number of factors appeared to be important in determining the quality of EIA reports, often acting in combination:

- legislation (recent Member State legislation had led to improvements)
- nature of consultants ('good' consultants produced better EIA reports)
- experience of participants (greater experience resulted in better quality EIA reports)
- scoping (public and agency consultation led to better EIA reports)
- length of EIA reports (short EIA reports were often of poor quality)
- nature of projects (better quality EIA reports were often associated with larger, more expensive, controversial projects) (Section 2.2).

When EIA report review results using the Lee and Colley criteria were compared with those using the European Commission Review Checklist, the overall level of agreement was 76%. Only in one of the Member States (Belgium) was there found to be 100% agreement between the two criteria, but for the remaining Member States agreement was obtained for a high percentage of reports, with the United Kingdom recording 92% agreement. Where disagreement occurred:

- the difference in grades was only a single grade in all but one case;
- there was no consistency in the instrument which scored higher; and
- there was no relationship between project type and the level of agreement (Appendix B).

## 5.2 Modifications of projects as a result of EIA

The purpose of the second part of the research was:

to examine the extent to which (i) the quality of EISs and (ii) the effectiveness of consultative arrangements have contributed to environmentally favourable modifications to projects which have been authorised since the last reporting period.

Several modifications to the sample of projects have occurred as a result of the EIA process: 2.2 per project in the United Kingdom and Spain and 3.7 per project in Germany. It therefore appears that the EIA process is having a notable effect on the number of project modifications taking place in these three Member States. Most modifications were made at the pre-submission stage of the EIA process in the United Kingdom and Germany but most Spanish modifications occurred at the

decision-making stage. There was no apparent trend over time in the number of modifications nor in the significance of modifications. In Germany and Spain the majority of modifications related to fauna and flora whereas in the United Kingdom the majority was concerned with landscape and visual impacts. Significant modifications to projects as a result of the implementation of the EIA process appear to have taken place in most of the other five countries studied (Section 3.1).

The consultees were more influential than the public in proposing modification measures in the United Kingdom and Germany but the reverse was true in Spain. It appears that consultation and public participation influence modifications at both the pre-submission (where relevant) and the post-submission phases of the EIA process in most of the eight Member States studied.

There was no clear relationship between the number of modifications and EIA report quality in the three Member States but it appeared that in the United Kingdom and Spain (and in several of the other Member States), greater numbers of modifications were associated with higher quality reports. Similarly, no relationship could be established between either the experience of the participants in the EIA process or the size of the project and the number of modifications (Section 3.2).

### 5.3 Influence of changes to EIA procedures

The purpose of the third part of the research was:

To assess the influence of measures to ensure and/or simplify the integration of authorisation and EIA procedures, introduced in the last reporting period, on (i) the quality of EISs (ii) the effectiveness of consultation arrangements and (iii) environmental improvements to projects.

All the eight Member States have taken measures to modify EIA procedures, although not all the measures were classed as 'major'. In practice, while many of these measures could be classified as being designed to ensure integration, very few are simplifying measures. The measures include provisions to improve screening, scoping, EIA report preparation, decision-making, monitoring, consultation and public participation, guideline preparation and time limitation (Section 4.1).

Many of the measures have been introduced too recently for their effects to have become evident. In addition, it proved to be difficult to isolate the effect of particular measures from those of other measures and from the effects of changes to related procedures. In some instances observations about the potential effects, rather than the actual effects, of recent measures were made.

In the United Kingdom, the quality of EIA reports for major roads was believed to have improved as a result of the publication of new guidelines. The preparation of Greek EIA guidelines appears to have had a similar effect on EIA report quality. In Belgium, the various measures to make the EIA process more effective have led to some improvement in the quality of EIA reports.

In Denmark reporting measures have led to increased participation in the EIA process by non-governmental organisations. In Portugal improved opportunities for public participation appear to have led to an increase in the number of environmental modifications. Generally it is believed that the various measures taken will improve the quality the EIA practice where they have not already done so. Reservations were expressed, however, about the potentially deleterious effects of measures to speed up the EIA procedure in Germany and to transfer decision making powers to smaller bodies in Greece (Section 4.2)

#### 5.4 Recommendations

There was considerable similarity between the recommendations made by Member State researchers to increase the quality of EIA reports, to increase the degree to which projects are modified and to ensure and/or simplify the integration of authorisation and EIA procedures which may be beneficial to environmental improvements of projects. The main recommendations were:

- institution (especially competent authority) strengthening (to increase the influence of EIA and hence the number of modifications to projects) (Sections 2.3 and 4.3).
- strengthening the treatment of alternatives (to ensure early consideration of modifications) (Sections 2.3 and 3.3).
- strengthening screening (to ensure that all significant projects are assessed) (Section 4.3).
- ensuring that scoping takes place (to encourage early recognition of the need for modifications) (Sections 2.3 and 3.3).
- strengthening the quality of EIA reports (to ensure that mitigation is fully considered and that modifications ensue) (Sections 2.3 and 3.3).
- adoption of a formal EIA report quality control mechanism (to strengthen the quality of EIA reports) (Section 2.3).
- accreditation of EIA consultants (to strengthen the quality of EIA reports) (Section 2.3).

- strengthening provisions for consultation and public participation (to increase the number of proposed modifications) (Section 3.3).
- further integration of EIA into other procedures (to enhance co-operation between authorities and to increase the effect of EIA on decisions) (Section 4.3).
- greater use of EIA report in decision making (to mitigate negative impacts) (Sections 2.3 and 4.3).
- providing for monitoring (to ensure that modifications are implemented) (Sections 2.3 and 3.3).
- developing EIA guidelines (to strengthen the EIA process to ensure that modifications ensue) (Sections 2.3 and 3.3).
- training in EIA (to ensure that awareness of the need for modifications exists) (Sections 2.3 and 3.3).
- provision of national EIA report and environmental information databases (to diffuse good EIA practice and increase the accuracy of predictions) (Sections 2.3 and 4.3).
- introduction of strategic environmental assessment (to ensure that environmental impacts are considered very early in the planning process) (Section 2.3).
- research into various aspects of EIA (to improve the effectiveness of EIA) (Sections 2.3 and 4.3).

Many of these recommendations to increase the quality of EIA reports, to increase the degree to which projects are modified and to increase integration of EIA and authorisation procedures (Sections 2.3, 3.3 and 4.3) will be met in full or in part at EU level by the modification of the European Directive on EIA and the proposed directive on strategic environmental assessment (SEA). These include the treatment of alternatives, screening, decision making, consultation and public participation and the adoption of SEA. The European Commission has recently commissioned research on a number of aspects of EIA, including the cost-effectiveness of EIA (which subsumes work on delays to the grant of authorisations engendered by EIA). It has also recently published guidelines on screening and on scoping as well as having supported EIA training measures for many years. The European Commission should ensure that these measures are implemented and, where necessary, extended.

Most of the remaining recommendations require action by Member States, either with or without

EU support or direction: strengthening the capacity of bodies responsible for EIA; scoping; checks on the quality of EIA reports, accreditation of consultants; setting up Member State EIA databases; monitoring; integration of EIA into other procedures; and research into various aspects of EIA. The merits, and means, of implementing these measures should be explored at both EU and Member State levels.

In particular, the Commission should consider ways of encouraging Member States to:

- adopt formal scoping requirements
- institute formal checks on the quality of EIA reports
- set up national EIA report inventories and collections
- institute EIA monitoring and auditing
- undertake research into various aspects of the EIA process.

The introduction of scoping is probably the single most important measure to be adopted. The introduction of this stage of the EIA process should be achieved when next the Directive is amended. In the meanwhile, the European Commission should disseminate its scoping guidelines widely. It should also fund research to investigate the effect of scoping on decisions (and in particular on the number of modifications) to follow up the findings from the current study (Section 3.2). The results of the proposed research could then be used to encourage Member States to introduce scoping and to agree further amendment of the EIA Directive.

Formal checks on the quality of EIA reports could be introduced by amending the Directive to require competent authorities to check that minimum EIA report quality criteria are met. In the meanwhile, the European Commission should disseminate its review checklist widely and also ensure that the results of the current research on EIA report quality are made widely known. These actions could be used to encourage Member States to institute their own checks (as, for example, currently takes place in the Netherlands).

National EIA report inventories and collections could be introduced by amending the Directive to require that Member States set them up where they have not already done so. In the meanwhile, the Commission could encourage those Member States which have collections to emphasise their advantages at Member State Experts meetings, at EIA workshops and by arranging for a publication

about EIA report collections to be released. Such a document might be published by the Commission and consist of descriptions of the Member State collections which have been set up and their costs and benefits.)

National EIA monitoring and auditing could be required by amendment of the EIA Directive. This would be appropriate to ensure that implementation monitoring takes place (so that mitigation measures are instituted). However, impact monitoring and auditing may more properly be conducted on a sample basis. The European Commission should commission research, to supplement that already undertaken, on monitoring and auditing and disseminate the results to Member States to encourage them to undertake their own studies and put their own requirements in place.

It is clear that comparative research designed to extend the exploratory work described in this report and to produce robust empirical evidence about the effects of a particular type of EIA measure (eg integrating measures) on different aspects of the EIA process (eg EIA report quality) usually involves the expenditure of considerable resources to ensure that large enough samples are studied. It is therefore recommended that:

- the Commission should fund research into the performance of the EIA process as a whole, in all the Member States, once the revised Directive has been in force for 2-3 years.
- in the meanwhile, as outlined above, the Commission should fund research and encourage Member State research, into the effect of scoping on decisions (the current research indicates that this may not require a very large sample), into monitoring and auditing and, if appropriate, into the costs and benefits of national EIA report collections.

## References

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## **APPENDIX A: METHODOLOGY**



This appendix is divided into two parts. The first deals with Stage 1 of the research and the second with Stage 2. The Stage 1 methodology involved the choice of Member States and of EIA reports to be reviewed, the review of the quality of EIA reports, the analysis of the EIA report review results and the collection of other information. Stage 2 of the research required that a number of case studies be undertaken to enable findings to be made about modifications to projects as a result of the EIA process and about the influence of changes to EIA procedures. The second part of this appendix describes the choice of projects investigated, the methods used to determine the extent to which projects were modified as a result of EIA, the effectiveness of consultation arrangements and the influence of changes to EIA procedures together with the approach to analysing the results of the case studies.

## **A.1. STAGE 1: REVIEW OF EIA REPORTS**

### **A.1.1 Choice of EIA reports to be reviewed**

Annex 1 to the contract specified that the sample should contain cases ‘in at least three contrasting Member States and should include a minimum of four project types, including examples of both Annex I and Annex II projects’. Given the variability in EIA report quality between Member States, it was considered important to ensure that a majority of the Member States, with good representation from both the north and the south of the European Union, were included in the sample. Accordingly, eight EIA reports from Belgium, Denmark, Greece, Ireland and Portugal were selected for review together with 24 EIA reports from Germany, Spain and the United Kingdom, giving a total of 112 EIA report quality assessments.

In order to enable an assessment to be made of the extent to which EIA report quality may have improved in recent years, half the reviews related to EIA reports completed in 1990 or 1991 (or, in a limited number of cases, 1992) and half to EIA reports completed in 1994, 1995 or 1996 (or 1993 in a limited number of cases). Wherever possible eight EIA reports for a single project type, divided between both time periods, were selected for review.

In order to establish an agreed quality base-line for the reviews to be conducted in the eight Member states, a copy of an EIA report from the United Kingdom was sent to each researcher, together with the review summary sheet agreed by the two reviewers from the EIA Centre. This was done to

ensure that there was comparability between the way in which the review criteria were applied between Member States. Each Member State researcher ensured that the pairs of reviewers allocated to review EIA reports within Member States worked to a similar standard so that the quality assigned to different EIA reports within Member States was comparable

However, in some Member States the population of EIA reports was too small to allow four EIA reports for each of the appropriate time periods to be selected and it was necessary to review EIA reports for two types of project. In Germany, Spain and the United Kingdom, three different types of project were selected, and eight EIA reports were reviewed for each type (four from 1990 or 1991 and four from 1994, 1995 or 1996).

The types of projects selected are shown in Tables A.1 and A.2. In total, six types of project were selected. The number of EIA report quality assessments for each type of project was considered to be sufficient to enable meaningful conclusions about trends in EIA quality to be drawn, thus meeting Purpose a) of this study.

#### A.1.2 Review of quality of EIA reports

A number of different (though basically similar) EIA report review checklists has been produced (eg Lee and Colley, 1992; European Commission, 1994; VROM, 1994). It was proposed that the Lee and Colley review package should be employed as the basic instrument for EIA report evaluation in this study. This approach, which relies upon the use of a hierarchy of detailed review criteria has been tested using pairs of different reviewers in different Member States (see, for example, Lee and Dancey, 1993) and has been found to be robust and reliable. Nearly all the Member State researchers associated with the EIA Centre in this study had considerable experience of using the Lee and Colley review package.

The number of EIA reports chosen, the choice of EIA report quality review instrument and the careful management of the review process were such that it is considered that conclusions could be drawn about EIA report quality that were not only reasonably meaningful within Member States but were also generally comparable across Member States. Each researcher presented the agreed result of each of the reviews to the EIA Centre in the form of the Lee and Colley two page summary sheet completed in English.

**Table A.1: Member State EIA reports reviewed**

| Member State   | Project Type                      | Annex   | 1990/91(92) | (1993)/94/95/<br>96 | Total    |
|----------------|-----------------------------------|---------|-------------|---------------------|----------|
| Germany        | Motorways, express roads          | I.7     | 4           | 4                   | } } 24 } |
|                | Extractive industry               | II.2    | 4           | 4                   |          |
|                | Waste disposal                    | II.11.c | 4           | 4                   |          |
| Spain          | Motorways, express roads          | I.7     | 4           | 4                   | } } 24 } |
|                | Extractive industry               | II.2    | 4           | 4                   |          |
|                | Dams                              | II.10.f | 4           | 4                   |          |
| United Kingdom | Motorways, express roads          | I.7     | 4           | 4                   | } } 24 } |
|                | Toxic waste disposal              | I.9     | 4           | 4                   |          |
|                | Holiday villages, hotel complexes | II.11.a | 4           | 4                   |          |
| Belgium        | Extractive industry               | II.2    | 4           | 4                   | 8        |
| Denmark        | Motorways, express roads          | I.7     | 2           | 2                   | } } 8    |
|                | Toxic waste disposal              | I.9     | 2           | 2                   |          |
| Greece         | Holiday villages, hotel complexes | II.11.a | 4           | 4                   | 8        |
| Ireland        | Waste disposal                    | II.11.c | 4           | 4                   | 8        |
| Portugal       | Motorways, express roads          | I.7     | 4           | 4                   | 8        |
| TOTAL          |                                   |         |             |                     | 112      |

**Table A.2: Types of project EIA reports reviewed**

| Project Type                      | Annex   | Member State   | Total |
|-----------------------------------|---------|--|-------|
| Motorways, express roads          | I.7     | Germany (8) Spain (8)<br>United Kingdom (8)<br>Portugal (8) Denmark(4) | 36    |
| Toxic waste disposal              | I.9     | United Kingdom (8) Denmark (4)   | 12    |
| Extractive industry               | II.2    | Germany (8) Spain (8)<br>Belgium (8)                                   | 24    |
| Dams                              | II.10.f | Spain (8)  | 8     |
| Holiday villages, hotel complexes | II.11.a | Greece (8) United Kingdom (8)  | 16    |
| Waste disposal                    | II.11.c | Germany (8) Ireland (8)  | 16    |
| TOTAL                             |         |  | 112   |

In order to compare the European Commission (1994) review guidelines with the Lee and Colley (1992) review package, Member State researchers also evaluated the recent EIA reports selected for review (ie those for 1994, 1995 and 1996 - and 1993 in a few cases) and in some cases the EIA reports for both periods (Germany, Ireland, Portugal) utilising the EC guidelines. Table A.3 shows the summary sheet that the reviewers were requested to complete for each of the reviews. Agreed summary sheets, completed in English for each of the EIA reports reviewed using both sets of review criteria, were returned to the EIA Centre.

#### A.1.3 Analysis of EIA report review results

Each Member State researcher was requested to submit a report to the EIA Centre on the work that they completed for Stage 1 of the study. In particular, they were requested to provide a summary table for each type of project, which showed the differences in EIA report quality as revealed using the Lee and Colley review package between the periods 1990/1991(2) and (1993)/94/95/96 (Table A4). These tables were collated by the EIA Centre to present an overall view of the quality of the EIA reports (Contract, Section ai). These collated findings are presented in Section 2.1: Trends in overall quality of EIA reports).

In addition, researchers provided a table for each Member State project type which summarised the differences between EIA report reviews using the Lee and Colley (1992) review package and the European Commission (1994) guidelines (Table A.5). The results of these tables were collated by the EIA Centre and the findings are presented in Appendix B: Comparison of EIA Report Quality Review Instruments.

Within their reports the Member State researchers were asked to discuss the overall quality of EIA reports in each Member State and to analyse any observed differences in quality between the two time periods. This analysis focused on the main types of deficiencies in the quality of EIA reports and the principal reasons for these. They were also asked to analyse the reasons for any differences between EIA report reviews using the two EIA report review instruments.

Previous research (see, for example, Lee and Colley, 1991; Wood and Jones, 1991; Lee and Brown, 1993; Kobus and Lee, 1993; Lee, Walsh and Reeder, 1994; Wood, 1995; Glasson et al, 1996) suggested that a number of factors could influence the quality of EIA reports. These included: the experience of the proponent, of the consultant and of the competent authority; the nature of the legal

**Table A.3: Comparison of EIA report reviews**

**TITLE OF EIA REPORT:**

**AUTHOR OF EIS:**

**PROPONENT:**

**COMPETENT AUTHORITY:**

**CATEGORY:**

**YEAR OF PREPARATION:**

**LENGTH:**

| <b>Aspects of EIA Report</b>                           | <b>EC EIA Review Checklist</b>   | <b>Lee &amp; Colley Review Package</b>                                      |
|--|--|---|
| Description of project/development                     | <b><u>Section 1</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review categories 1.1, 1.2, 1.3</u></b><br>A    B    C    D    E    F |
| Alternatives   | <b><u>Section 2</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review category 3.1</u></b><br>A    B    C    D    E    F             |
| Description of the environment and baseline conditions | <b><u>Section 3</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review categories 1.4, 1.5</u></b><br>A    B    C    D    E    F      |
| Mitigation measures and monitoring                     | <b><u>Section 4</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review categories 3.2, 3.3</u></b><br>A    B    C    D    E    F      |
| Impact identification and evaluation                   | <b><u>Section 5</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review area 2</u></b><br>A    B    C    D    E    F                   |
| Non-technical summary                                  | <b><u>Section 6</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review category 4.4</u></b><br>A    B    C    D    E    F             |
| Difficulties compiling information                     | <b><u>Section 7</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor |   |
| General approach                                       | <b><u>Section 8</u></b><br>Complete    Acceptable    Inadequate<br>Excellent Good Satisfactory Inadequate Poor | <b><u>Review categories 4.1, 4.2, 4.3</u></b><br>A    B    C    D    E    F |
| OVERALL APPRAISAL                                      | Excellent Good Satisfactory Inadequate Poor  | A    B    C    D    E    F  |

Comments:

**Table A.4: EIA report review results** (Lee and Colley Review Package)

Member State .....

Project type .....

Number of EIA reports.....

| review assessment | 1990/91(92) |             |   |   |   | 1994/95/96 |             |   |   |   | Difference |             |   |   |   |
|-------------------|-------------|-------------|---|---|---|------------|-------------|---|---|---|------------|-------------|---|---|---|
|                   | Overall     | review area |   |   |   | Overall    | review area |   |   |   | Overall    | review area |   |   |   |
|                   |             | 1           | 2 | 3 | 4 |            | 1           | 2 | 3 | 4 |            | 1           | 2 | 3 | 4 |
| A                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| B                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| C                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| D                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| E                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| F                 |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |
| TOTAL             |             |             |   |   |   |            |             |   |   |   |            |             |   |   |   |

N.B. Totals should always equal number of EIA reports reviewed for this project type

**Table A.5: Comparison of EIA report review results** (Lee and Colley Review Package and EC Checklist)

requirements; the existence of scoping, the date of the EIA report; the length of the EIA report; the cost of the EIA; and the nature and size of the project. These factors were incorporated into a summary table (Table A6).

Each Member State researcher was requested to complete this summary table for the EIA reports reviewed for each type of project, using information available from the EIA report reviews and other readily available information (eg knowledge about the experience of proponents, consultants and competent authorities and about the cost of EIAs) to complete the table. Telephone inquiries were carried out in some instances to clarify details. With the use of this table, together with his or her existing knowledge of the EIA system in their Member State (based, for example, upon literature reviews, awareness of EIA practice, previous interviews, previous EIA report reviews), each researcher was requested to analyse variations in EIA report quality. In particular, researchers examined the influence of such factors as the nature of the legislation in force, the scale and type of development, the experience of the proponents or their consultants in carrying out EIA, the length of the EIA report and the cost of studies, to the extent that this information was readily available (see Table A6). The researchers' views on the relative significance of each of these factors in determining EIA report quality were thus based on expert opinion and, where it was available, as factual information (eg costs of EIA, size, cost of projects).

The EIA Centre analysed and interpreted the findings from all the Member States on the variations in quality and the factors that influence the quality of EIA reports to provide an overall view (Contract, section aii). This analysis is presented in Section 2.2 (Variations in the quality of EIA reports) and is based both upon the Member State summary tables and on the expert views expressed in Volume 2.

Each Member State researcher was also requested to list the measures which he or she believed needed to be taken at both Member State and European Union levels in order to enhance the quality of EIA reports in the relevant Member State. References to supporting documentation or other justification of the recommendations were requested. The views expressed by Member State researchers are based upon existing knowledge of the EIA system in their Member State (above) and upon the findings of their analysis of trends and variations in EIA report quality. The EIA Centre analysed and summarised these recommendations, presenting them for both the European Union and for the Member States (Contract, section aiii). Details of this analysis are presented in Section 2.3

(Measures to enhance the quality of EIA reports).

**Table A.6: Factors influencing EIA report quality**

Member State ..... Project type .....

| <b>EIA report number</b>                                       | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> | <b>6</b> | <b>7</b> | <b>8</b> |
|--|----------|----------|----------|----------|----------|----------|----------|----------|
| Overall EIA report quality<br>(Lee and Colley)                 |          |          |          |          |          |          |          |          |
| Proponent  |          |          |          |          |          |          |          |          |
| EIA experience of<br>proponent                                 |          |          |          |          |          |          |          |          |
| Consultant   |          |          |          |          |          |          |          |          |
| EIA experience of<br>consultant                                |          |          |          |          |          |          |          |          |
| Competent authority  |          |          |          |          |          |          |          |          |
| EIA experience of<br>competent authority                       |          |          |          |          |          |          |          |          |
| Legislation in force   |          |          |          |          |          |          |          |          |
| Year of EIA report   |          |          |          |          |          |          |          |          |
| Length of EIA report   |          |          |          |          |          |          |          |          |
| Size of project  |          |          |          |          |          |          |          |          |
| Cost of EIA (where known)                                      |          |          |          |          |          |          |          |          |
| Other factors<br>(e.g. pre-submission<br>discussions, scoping) |          |          |          |          |          |          |          |          |

N.B. EIA experience of proponent, consultant and competent authority to be measured in terms of numbers of EIA reports (0, 1-4, 5 or more).

## **A.2. STAGE 2: DETAILED EIA CASE STUDIES**

### **A.2.1 Choice of projects investigated**

Annex 1 to the contract required the EIA Centre to examine the extent to which (i) the quality of EIA reports and ii) the effectiveness of consultative arrangements have contributed to environmentally favourable modifications to projects which have been authorised since October 1991. This task involved the undertaking of detailed case studies of modifications which have been made to projects authorised (but not necessarily constructed) between October 1991 and the present. The contract specified that the case studies must be undertaken in at least three contrasting Member States and include a minimum of four project types including examples of both Annex I and Annex II projects. Since one aim of the case studies was to relate EIA report quality to project modifications, the sample of cases was drawn from the population of project EIA reports reviewed in Stage 1 of this study.

Six projects from Germany, Spain, and the United Kingdom were selected from the 24 for which EIA report reviews were carried out in each of these three Member States. The first step to be undertaken by each Member State researcher was to determine which projects have been authorised to date. The second step was to select three cases from among the EIA reports for 1990 and 1991 or, if necessary 1992. One case was chosen to represent each of the three types of project for which EIA reports were reviewed in each Member State. The third step was to select a further three cases (one for each type of project) from amongst the projects authorised following submission of an EIA report in 1994 or 1995. The six detailed case studies (Table A.7) were selected partly on the basis of the availability of information and documents.

### **A.2.2 Investigation of modification of projects as a result of EIA**

In order to achieve the purpose of Stage 2 of the study, it was necessary to obtain information for each case studied, about the nature and extent of project modifications, about their environmental significance and about the extent to which these modifications would be linked to the quality of the relevant EIA report and to the effectiveness of consultation and public participation (CPP). This information was obtained by administering a questionnaire, either during face-to-face interviews, or over the telephone. In each case, at least two interviews were conducted, one with the competent authority dealing with the case and one with the developer or the developer's consultant. Relevant documents relating to each case were reviewed, where these could be obtained. On the basis of

previous research findings, the following types of information were requested in each case, to the

**Table A.7: Detailed case studies of authorised projects in the United Kingdom, Germany and Spain**

| Country | Project Type                   | Annex    | Title  | Location               | Year |
|---------|--------------------------------|----------|--|------------------------|------|
| UK      | Motorway, express road         | I.7      | M66 Manchester Outer Ring Road (A575-M62: Denton to Middleton)   | Greater Manchester     | 1991 |
| UK      | Motorway, express road         | I.7      | M5 Widening, Junctions 18-19   | Avon                   | 1994 |
| UK      | Toxic waste disposal           | I.9      | Proposed Clinical Waste Incinerator at Leighton Hospital, Crewe  | Cheshire               | 1992 |
| UK      | Toxic waste disposal           | I.9      | Special Controlled Waste Deposit at Distington Landfill Site   | Cumbria                | 1994 |
| UK      | Holiday village, hotel complex | II.11(a) | Great Linford Country Park   | Buckinghamshire        | 1992 |
| UK      | Holiday village, hotel complex | II.11(a) | Parkside Hotel and Swimming Pool   | Cambridge              | 1994 |
| Germany | Motorway, express road         | I.7      | UVS Ortsumgehung Haubersbronn/Miedelsbach L1148  | Baden-Württemberg      | 1990 |
| Germany | Motorway, express road         | I.7      | UVS Westumgehung Ludwigsburg   |                        | 1994 |
| Germany | Waste disposal (incinerator)   | II.11c   | UVU Müllheizkraftwerk (MHKW) Pirmasens   | Rheinland-Pfalz        | 1991 |
| Germany | Waste disposal (landfill)      | II.11c   | UVU für eine Entsorgungsanlage in Rosenow  | Mecklenburg-Vorpommern | 1994 |
| Germany | Extractive industry            | II.2c    | UVS Kiesgrubenerweiterung Karlsdorf-Neuthard   | Baden-Württemberg      | 1990 |
| Germany | Extractive industry            | II.2c    | UVS Kiesgrubenerweiterung Dettenheim   | Baden-Württemberg      | 1994 |
| Spain   | Motorway, express road         | I.7      | Conexion de la via borde de Hortaleza con la CN-VI. Anejo. Estudio de Impacto Ambiental.   | Madrid                 | 1990 |
| Spain   | Motorway, express road         | I.7      | Autovia Madrid-Valencia. Tramo Minglanilla-Caudete de las Fuentes. Puntos kilométricos 226-260.                                  | Cuenca-Valencia        | 1994 |
| Spain   | Extractive industry            | II.2     | Cantera denominada "Rincones" en Ceniceros.  | La Rioja               | 1990 |
| Spain   | Extractive industry            | II.2     | Estudio de impacto ambiental de la explotación para arenisca "Obeso" sita en Puentenansa (Rionansa).                             | Cantabria              | 1995 |
| Spain   | Dams                           | II.10    | Estudio de impacto ambiental del embalse de "El Atance" en el rio Salado.  | Guadalajara            | 1990 |
| Spain   | Dams                           | II.10    | Estudio de evaluacion de impacto ambiental y proyecto de medidas de corrección derivado de la construcción del embalse de Ibiur. | Guipuzcoa              | 1994 |



extent that they were available:

- \* Competent authority, relevant competent authority officer, consultancy, project location, EIA report quality, EIA report and application submission date, decision date.
- \* List of environmental modification measures proposed during the life of the project.
- \* For each environmentally beneficial modification, a record was made of:
  - the nature of the modification (type, location, category)
  - the impact the modification was intended to mitigate
  - the significance of the modification
  - the anticipated (or actual) effectiveness of the modification
  - any residual or secondary impacts, including negative side effects
  - the stage of the EIA process at which the modification was proposed (prior to submission of the application and the EIA report, during review and consultation, during competent authority decision making)
  - the proposer of the modification
  - whether the modification arose as a result of preparing the EIA report
  - whether the modification arose as a result of analysing the EIA report
  - whether the modification arose from consultation and public participation
  - whether the modification was influential in determining the decision.
  - whether the modification was reflected in the conditions attached to the project authorisation.

Table A.8 lists the information which Member State researchers were asked to obtain about modifications arising in each of the case studies (to the extent that this was feasible). Member State researchers completed Table A.8 for the various modifications of major or moderate environmental significance to each of the six projects on the basis both of known facts and of opinions formed from interviews or document analysis. These summary sheets were returned to the EIA Centre as an annex to the Stage 2 reports.

### A.2.3 Effectiveness of consultation arrangements

The formal requirements which exist for consultation and public participation in each of the three Member States was recorded by the Member State researchers. The information set down included, for each case study: the stages at which CPP should take place, the consultees who should be consulted, the length of time which should be available to consultees and the public to comment,

where and when

**Table A.8: Detailed Stage 2 case study summary sheet**

Title of EIA report:  
 Author of EIA report:  
 EIA report quality Overall.... (Area 1.... Area 2.... Area 3.... Area 4....)  
 Project proponent: (type)  
 EIA experience of proponent: (No. of previous EIA reports: 0, 1-4, 5 or more)  
 Location of project:  
 Consultancy:  
 EIA experience of consultancy: (No. of previous EIA reports: 0, 1-4, 5 or more)  
 Competent authority:  
 EIA experience of competent authority: (No. of previous EIA reports: 0, 1-4, 5 or more)  
 Date of submission of EIA report and application for authorisation:  
 Date of decision:  
 Legislation:  
 Length of EIA report: (pages)  
 Size of project: (hectares, tonnes, etc.)  
 Cost of EIA: (where known, ECU)

**Part A: Modifications**

Environmental modification measures proposed during life of project (N.B. only modifications resulting in environmental improvements which are of major or moderate - not minor - significance should be listed)

- 1)
- 2)
- (etc.)

|   | Modification 1 | Modification 2 | Modification ..... |
|---|----------------|----------------|--------------------|
| Modification measure (name)   |                |                |                    |
| Type (avoidance, reduction, remedy)                                   |                |                |                    |
| Location (on-site, off-site)  |                |                |                    |
| Category (size, site layout, technical, aesthetic, ecological, other) |                |                |                    |
| Impact mitigated (name)   |                |                |                    |
| Significance of modification (major, moderate)                        |                |                |                    |
| Residual or secondary impacts including negative side effects (name)  |                |                |                    |
| Stage at which modification   |                |                |                    |

|  |  |  |  |
|--|--|--|--|
| arose (prior to submission, during review/consultation, during decision-making)              |  |  |  |
| <b>Prior to submission</b>   |  |  |  |
| Modification proposer (developer, consultant, competent authority, consultee, public, other) |  |  |  |
| Modification arose as direct result of EIA report preparation (yes/no)                       |  |  |  |
| <b>During review/consultation</b>  |  |  |  |
| Modification proposer (d, c, a, e, p, o)   |  |  |  |
| Modification arose as direct result of competent authority analysis of EIA report (yes/no)   |  |  |  |
| Modification arose as a direct result of consultation based upon EIA report (yes/no)         |  |  |  |
| <b>During decision-making</b>  |  |  |  |
| Modification proposer (d, c, a, e, p, o)   |  |  |  |
| Modification arose as direct result of EIA process (yes/no)                                  |  |  |  |
| Influence of modification on decision (major, moderate, minor, none)                         |  |  |  |
| Way modification reflected in authorisation (conditions, agreement, letter, oral, etc)       |  |  |  |

Part B: Consultation and public participation

|   | Legal requirement | Actual practice |
|---|-------------------|-----------------|
| Stage at which CPP takes place:<br>prior to EIA report submission (yes/no)<br>Following EIA report submission (yes/no)  |                   |                 |
| Consultees and public groups consulted (numbers of main types)  |                   |                 |
| Means of consultation (letter, EIA report, non-technical summary, public meeting, other)                                |                   |                 |
| Number of EIA reports, non-technical summaries available for inspection   | —                 |                 |
| Number of locations at which EIA report available for inspection  | —                 |                 |
| Length of time EIA report available for inspection  |                   |                 |
| Number of consultees/members of public inspecting report  | —                 |                 |
| Availability of EIA report for purchase (yes/no)  |                   |                 |
| Price of EIA report   | —                 |                 |
| Number of EIA reports purchased   | —                 |                 |
| CPP responses received (numbers of formal responses, letters, petitions, telephone calls, etc)                          | —                 |                 |
| Means of dealing with CPP responses in competent authority recommendation report (collating, summarising, mentioning in |                   |                 |

|  |  |  |
|--|--|--|
| report, mentioning orally, other)  |  |  |
| Integration of CPP responses into decision- making (fully considered, poorly considered, not considered)                           |  |  |
| Extent to which consultee responses influenced modifications ( <u>major</u> , <u>moderate</u> , <u>minor</u> , <u>not at all</u> ) |  |  |
| Extent to which public responses influenced modifications (ma,mo,mi,n)   |  |  |
| Extent to which consultee responses influenced decision (ma,mo,mi,n)   |  |  |
| Extent to which public responses influenced decision (ma,mo,mi,n)  |  |  |
| Extent to which quality of EIA report influenced CPP responses (ma,mo,mi,n)  |  |  |

the EIA report should be available, whether the EIA report should be available for purchase and what procedures for integrating the responses from CPP into the decision making process are supposed to apply.

Member State researchers then recorded, in relation to the six cases they each examined, the extent to which these provisions were actually implemented and their effectiveness in attracting useful responses. On the basis of the findings from previous research, the information requested included, to the extent that it was available:

- the stage(s) of the EIA process at which CPP took place
- the consultees and public groups who were consulted
- the means by which the consultees and public groups were consulted (letter, EIA report/non-technical summary, public meeting, etc)
- how many EIA reports and/or non-technical summaries were distributed
- when and where the EIA report was available for inspection
- how many consultees and members of the public inspected the EIA report
- whether the EIA report was available for purchase and at what price
- how many EIA reports were purchased
- the number of consultee and public responses received (formal responses, letters, petitions, telephone calls, etc)
- how the responses from CPP were summarised by the competent authority
- how the responses from CPP were integrated into the decision-making process
- the extent to which CPP resulted in modifications to the project
- the extent to which CPP influenced the decision on the project
- the extent to which EIA report quality influenced CPP responses.

Table A.8 lists the information which Member State researchers were asked to obtain about the effect of consultation and public participation in each of the case studies. Member State researchers completed summary sheets for CPP for each of the six case studies and return these to the EIA Centre as an annex to their Stage 2 reports.

In order to provide further clarification of information requirements and to establish a common quality standard for the recording of information, the EIA Centre sent a completed copy of Table A.8 for a UK case study to the German and Spanish researchers. This covered both modifications

and the effectiveness of consultation arrangements.

#### A.2.4 Analysis of results from case studies

In addition to the detailed case study summary sheets, each of the three Member State researchers prepared a summary table based on their six case study investigations. Table A.9 lists the factors influencing (a) environmental modifications to projects, and (b) consultation and public participation. The EIA Centre sent a copy of Table A.9 to the German and Spanish researchers with one column completed for the exemplar case study.

Once Table A.9 had been completed, each Member State researcher was asked to discuss the relationships between numbers and types of modifications and the various factors listed. In particular, researchers were asked to describe:

- The extent to which the six projects have been modified, during the EIA process (either before or after submission of the EIA report), due to the influence of the EIA process, and any trends in these modifications since 1991 (Contract, section bi)
- Variations in environmentally-related modifications to the six projects due to such factors as the quality of EIA reports and any other significant factors
- Any European Union or Member State measures likely to enhance the effectiveness of the EIA process in bringing about environmentally-improving project modifications in the Member State (Contract, section biii)
- Any significant beneficial or prejudicial effects of Member State measures to integrate authorisation and EIA procedures (if any have been taken) on environmental improvements to the six projects (Contract, section cii)
- Any types of European Union or Member State measures to ensure and/or simplify the integration of authorisation and EIA procedures which may be beneficial to environmental improvements to projects in the Member State (Contract, section ciii).

Each Member State researcher was also asked to discuss the relationships between the effectiveness of consultation arrangements and the various factors listed. In particular, they were asked to describe:

- The relationship between environmentally-related project modifications and the effectiveness of consultation arrangements (Contract, section bii)
- Any significant beneficial or prejudicial effects of Member State measures to integrate

authorisation and EIA procedures (if any have been taken) on the effectiveness of consultative

**Table A.9 Factors influencing environmental modifications and effectiveness of consultation/participation**

| Project number                                       | 1 | 2 | 3 | 4 | 5 | 6 |
|--|---|---|---|---|---|---|
| Overall EIA report quality                           |   |   |   |   |   |   |
| Proponent type                                       |   |   |   |   |   |   |
| EIA experience of proponent                          |   |   |   |   |   |   |
| Consultant (if any)                                  |   |   |   |   |   |   |
| EIA experience of consultant                         |   |   |   |   |   |   |
| Competent authority                                  |   |   |   |   |   |   |
| EIA experience of competent authority                |   |   |   |   |   |   |
| Legislation  |   |   |   |   |   |   |
| Year   |   |   |   |   |   |   |
| Length of EIA report                                 |   |   |   |   |   |   |
| Size of project                                      |   |   |   |   |   |   |
| Cost of EIA  |   |   |   |   |   |   |
| Number of environmental modifications                |   |   |   |   |   |   |
| Number of modifications (prior to submission)        |   |   |   |   |   |   |
| Number of modifications (during review/consultation) |   |   |   |   |   |   |
| Number of modifications (during decision-making)     |   |   |   |   |   |   |
| Stages at which CPP took place                       |   |   |   |   |   |   |
| Number of consultees and                             |   |   |   |   |   |   |

|   |  |  |  |  |  |  |
|---|--|--|--|--|--|--|
| public groups consulted                           |  |  |  |  |  |  |
| Number of means of consultation                   |  |  |  |  |  |  |
| Number of locations at which EIA report available |  |  |  |  |  |  |
| Length of time EIA report available               |  |  |  |  |  |  |
| Number of inspections made                        |  |  |  |  |  |  |
| Price of EIA report                               |  |  |  |  |  |  |
| Number of EIA reports purchased                   |  |  |  |  |  |  |
| Number of CPP responses                           |  |  |  |  |  |  |

arrangements (Contract, section cii)

These analyses were presented in the form of reports to the EIA Centre on the United Kingdom, Germany and Spain (Volume 2:1; 2; 3).

While the more detailed case study analysis of project modifications were confined to the United Kingdom, Germany and Spain, researchers in the other five Member States were asked to submit observations about each of these issues based upon their knowledge of their national EIA system, supplemented (where necessary) by a limited number of telephone interviews with relevant EIA personnel in government, consultancies, etc and other readily available sources of information. These observations from acknowledged experts in EIA, were used to supplement the case study analyses.

The EIA Centre then interpreted, analysed and summarised the submissions relating to modifications and consultation and public participation from the three Member States, presenting them in the form of findings about the implementation of the EIA Directive, based upon the 18 detailed case studies supplemented by the material synthesised from the other five Member State reports. These findings and recommendations for improving the effectiveness of the EIA Directive, are presented in Section 3 (Modifications of projects as a result of EIA) and Section 4 (Influence of changes to EIA procedures).

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**APPENDIX B**  
**COMPARISON OF EIA REPORT QUALITY REVIEW**  
**INSTRUMENTS**

In order to compare the European Commission Review Checklist with the Lee and Colley Review Package, Member State researchers were requested to evaluate the recent EIA reports using both sets of review criteria as described in Appendix A (Methodology). In some cases (Denmark, Germany, Ireland and Portugal), the researchers also reviewed the EIA reports from the early time period using the EC Review Checklist. Researchers were requested to complete summary sheets (Table A.3) and submit them to the EIA Centre for the reports that were reviewed using both sets of criteria. In addition, each researcher also completed Table A.5 summarising the comparison and provided more detailed comments based on the supplementary questions listed. Table B.1 presents a summary of the findings within the Member States.

Overall, the level of agreement between the two review instruments was 76%. Only in one of the Member States (Belgium) was there found to be 100% agreement between the results obtained using the two sets of criteria, but for the remaining Member States agreement was obtained for a high percentage of reports, with the United Kingdom recording 92% agreement (Figure B.1).

Where disagreement occurred:

- the difference in grades was a single grade in all but one case;
- there was no consistency in the instrument which scored higher; and
- no one project type was found to show greater disagreement than others.

The EC Review Checklist can be more easily adapted to the different country/project context by determining the relevance of the particular question posed. The majority of the researchers reported that they found this to be useful, though this view was not unanimous. Where the determination of relevance was believed to be of less help, the value of the 'non-applicable' grading in the Lee and Colley package was acknowledged, showing the need for some sort of adaptation of the criteria to different country/project contexts. Two of the Member State researchers reported that it did seem unnecessary to determine the relevance of all the criteria.

The use of additional criteria enables the EC Review Checklist to be more project specific and to incorporate the additional legislative requirements of individual Member States. Four researchers specifically reported that they found it useful to add additional criteria, although one of these only did so in one case. Only two researchers reported that they believed it not to be useful.

**Table B.1: Comparison of EIA report quality using Lee and Colley Review Package and EC Review Checklist**

| Member State<br>(number of EIA<br>reports) | Agreement | Disagreement                                    |                                       |
|--|-----------|---|---------------------------------------|
|  |           | Lee and Colley Review<br>Package scoring higher | EC Review Checklist<br>scoring higher |
| Belgium (4)                                | 100%      | 0%  | 0%                                    |
| Denmark (8)                                | 63%       | 0%  | 37%                                   |
| Germany (24)                               | 83%       | 17%   | 0%                                    |
| Greece (4)                                 | 75%       | 25%   | 0%                                    |
| Ireland(8)                                 | 63%       | 12%   | 25%                                   |
| Portugal(8)                                | 63%       | 25%   | 12%                                   |
| Spain (12)                                 | 67%       | 0%  | 33%                                   |
| UK (12)                                    | 92%       | 0%  | 8%                                    |
| <b>Total (80)</b>                          | 76%       | 10%   | 14%                                   |

**Figure B.1**

No general agreement was shown on which instrument was easier to use, with five researchers selecting Lee and Colley; one selecting the EC Review Checklist and two stating that both had their disadvantages and advantages. It was acknowledged that the researchers' greater familiarity with the Lee and Colley Review Package influenced the perception that it was easier to use.

The majority of the researchers found the encouragement to include comments contained in the EC Review Checklist to be useful. They believed that the Checklist was more easily adaptable to different project/country contexts. Some researchers found the wording, coverage and emphasis of the Checklist to be better than the Lee and Colley Package.

The majority of the researchers reported that they found the grading system used in the EC Review Checklist to be too limited, with only three options (complete, adequate and inadequate). The two scoring systems (grade and judgement) were reported to be confusing and the majority of the researchers found it difficult to obtain an overall appraisal and preferred the hierarchical arrangement of the Lee and Colley Package. Generally, the Checklist was criticised for being too detailed and for being very time-consuming to use.



**APPENDIX C**  
**EUROPEAN COMMISSION RESEARCH CONTRACT**





