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Environmental statements

The quality of environmental impact statements: a review of those submitted in Cork, Eire from 1988–1993

Clodagh McGrath and Alan Bond

A total of 44 environmental impact statements (EIS)submitted to planning authorities in Cork, Ireland from 1988 to 1993 were evaluated using a technique developed at the EIA Centre, University of Manchester, UK. This package was very useful as a framework for EIS assessment, but requires further development for successful application to specific project types.

A substantial proportion of recent Irish EISs are unsatisfactory and weaknesses identified in earlier reviews remain. The current situation is influenced by the lack of scoping guidelines, deficiencies in legislation, and poor perceptions among developers and consultants of what constitutes an adequate EIS. It is hoped that new guidance produced by the Environmental Protection Agency will help to improve statement quality. This review can be used as a baseline against which to judge the effectiveness of the new guidance.

Keywords: environmental impact; Ireland; project appraisal

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THE QUALITY OF MANY environmental impact statements (EISs) has been criticised by numerous authors (Department of the Environment (DOE) Planning Research Programme, 1996; McMahon, 1996; Jones, 1994; O'Shea, 1994; Simpson, 1994 and Dancey and Lee, 1993). There is no formal mechanism to ensure quality of work, training, experience or of otherwise guaranteeing the capabilities of those in the business of producing reviews.

The current study addressed the issue of strengthening quality control by undertaking a systematic review of individual EISs in the Cork area. Cork County Council is the largest County Council in Ireland and has also received the most EISs over the years. The city has a long-established industrial tradition based on heavy industries centred on its deep water harbour. Cork harbour is host to 60% of Ireland's chemical and pharmaceutical industry. As such, any conclusions from this paper need to be taken in the context that only one planning authority is involved, and it is Ireland's most experienced in terms of dealing with EISs.

There are no formal arrangements as yet in Ireland for EIS review, although the new Environmental Protection Agency (EPA) is expected to have a role; indeed, it recently published draft guidance on the information to be contained in an EIS (EPA, 1995a) and advice notes on current practice in the preparation of EISs (EPA, 1995b). Aside from these documents, the main contribution to date regarding statement quality has been a study by Dancey and Lee (1993) which covered mostly pre-1992 EISs. The current

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study was therefore initiated to continue the process of reviewing EIS quality in Ireland, concentrating on the Cork area, with a view to establishing a baseline against which the success of the EPA guidance can be judged.

The main objectives were to:

- assess the quality of EISs in the Cork area; and
- pinpoint areas of strengths and weaknesses to determine what steps are required to improve this aspect of the environmental impact assessment (EIA) process.

To set the background for the research, the purpose of review and the profile of a reviewer will be discussed, before consideration is given to EIA in Ireland, appropriate review methodologies and the results which have been gained from previous reviews both in the UK and Ireland.

Need for review and reviewer profile

Elkin and Smith (1988) maintained that a review procedure can be used by the reviewer and the preparer of an EIS for ascertaining the quality of the document. There are two basic reasons for reviewing an EIS:

- to ensure that the environmental analysis discloses all the relevant environmental considerations associated with the project; and
- to let decision-makers know whether the benefits of the projects outweigh the costs, that is whether the environmental consequences are acceptable.

Furthermore, Ross (1987) maintained that there are three distinct aspects to look for in evaluating the EIS:

- Is the EIS suitably focused on the key questions which need to be answered to make a decision about the proposed action?
- Is the EIS scientifically and technically sound?
- Is the EIS clearly and coherently organised and presented so that it can be understood?

Only if all these questions have affirmative responses can the EIS play its proper role as an information source for decision-makers.

It is clear, therefore, that if review procedures are acknowledged during the preparation process, EIS contents will contain the information necessary to satisfy administrative requirements. Moreover, they will reflect the evidence needed by decision-makers to evaluate the content of the specific report. In fact, the EIS should become more analytical than encyclopaedic.

Who, though, makes a good reviewer? Fuller (1994) suggested a profile of an EIS reviewer consisting of three separate parts, which will be briefly explained.

An inquisitor

To review an EIS, a person requires a naturally questioning frame of mind. The question 'why' should always be at the forefront when reading the information provided.

A cynic

A level of healthy cynicism is essential to reviewing an EIS. Take nothing at face value and always be willing to test arguments or logic contained in the text.

A detective

The role of the reviewer is not to repeat the EIA to see if the same conclusions are reached. However, applying the mind of a detective will be invaluable. The reviewer should seek to identify: any missing information; clues to any indirect impacts which may not have been assessed and links not considered by the assessor. While reaching firm conclusions on any perceived inadequacies may be difficult, the important aspect for the reviewer is in asking the right questions.

EIS quality in Ireland

Guidelines for EIA in Republic of Ireland

Specifically, relating to EIA, the EPA has decided to exercise the option available to it under section 72 of the EPA Act 1992 to draw up guidelines on the preparation and content of EISs (EPA, 1995a; 1995b). The guidelines are intended to provide developers, competent authorities and the public at large with an agreed basis for determining the adequacy of the issues addressed and methodology of EISs.

The guidelines are divided into two parts. The first examines, and offers guidance on good practice for, the general structure and content of the EISs (EPA, 1995a). It is intended to describe and provide a checklist for a range of topics which could be relevant. The guidelines avoid reference to specific technical standards of measurement or to definitive authorities. It is hoped that competent specialists will be aware of the most up-to-date requirements in their own field.

The Irish Environmental Protection Agency has drawn up guidelines for preparing EISs: the first part offers guidance on the general structure and content; the second gives greater detail on topics to be covered for particular types of project

A second volume contains greater detail on the topics which could be covered when preparing an EIS for a particular class of project (EPA, 1995b). The projects are grouped into generic types which have similar development and/or operational characteristics. This volume also contains material and information which may be of more general assistance, for example, sources of information and extracts of relevant legislation.

Since the implementation of Directive 85/337/EEC (European Council Directive on the assessment of the effects of certain public and private projects on the environment) in Ireland, there have been a number of reviews carried out (Meldon, 1993; Commission of the European Communities, 1993; Dancey and Lee, 1993). These are briefly described in turn below:

Meldon EIA theory and practice in Ireland

This study analysed a number of EISs and found some recurring problems concerning their quality and consistency. These include:

- bias;
- lack of balance — emphasis on some relatively unimportant areas with very little information about others which may be significant;
- the methodology employed in the preparation of EISs varies widely both in standard and competence, with predictions and forecasts based on inadequate evidence;
- lack of public accessibility; and
- poor scoping.

Report on EEC Directive

Member States' reviewers also concluded that there was a considerable quality problem in respect of EISs. In a number of Member States, only a minority of EISs were of 'satisfactory' quality, although there was evidence that the standard of environmental impact studies was increasing as experience with the process developed.

The report highlights ways in which the benefits obtainable through implementation of the Directive may be fully realised. These include strengthening the quality control of EISs and reviewing them.

Dancey and Lee EIS quality in Ireland

The review package developed by Lee and Colley (1992) was used in Dancey and Lee's review of EISs submitted in Ireland between 1988 and April 1992. The findings on the quality of 40 EISs were similar to those of the UK reviews. A high proportion of the EISs (60%) were unsatisfactory, compared with 57% in the Lee and Brown (1992) UK study.

The review of Irish EISs also found the quality to be increasing over time, and reported significant improvements between EISs submitted in 1988/89 (8% satisfactory) and those submitted in 1991/92 (65% satisfactory). Various factors associated with quality that had been identified in the UK studies were analysed and the results suggest that:

- the quality of EISs for Part I projects is higher than those for Part II projects (Part I and II correspond respectively to Annex I (those that require an EIA under all but exceptional circumstances) and Annex II (those that require an EIA if their nature, size and location suggest they might have significant environmental effects) of the Directive;
- a higher percentage of EISs for manufacturing projects are satisfactory compared with other development categories;
- EISs for agriculture and infrastructure projects are of least satisfactory quality;
- the quality of EISs improves with the use of a multi-disciplinary team;
- a higher percentage of satisfactory EISs are associated with experienced EIS authors and experienced competent authorities;
- best performance is associated with EISs for medium-sized developments; and
- EISs of more than 100 pages tend to be of higher quality than shorter ones. EISs less than 25 pages tend to be of poor quality.

Methodology

To ensure objectivity in review and facilitate comparison between the results observed and those reported from the previous studies, the review package developed at the EIA Centre, University of Manchester (Lee and Colley, 1992), was used to assess EIS quality. This was initially designed to assist in assessing the quality of EISs submitted in response to regulations on EIA in the UK.

The package has been successfully used in a number of UK studies of EIS quality with substantial agreement being obtained by different reviewers in the assessment of the same EISs. Because of the similarity between Ireland and the UK in respect of regulatory requirements on the information to be contained in an EIS, the package is considered to be applicable, without amendment, to the Irish situation and has also been used by Dancey and Lee to assess the quality of 40 Irish EISs submitted between 1988 and April 1992 (Dancey and Lee, 1993).

The review package contains advice for reviewers and a list of criteria to be used in each EIS review. All these criteria were observed in this study and the strategy of review outlined in the package was followed, with the exception of a recommendation for using two independent reviewers for all EISs. This is a major departure from recommended practice and justification for this approach is offered below.

The criteria described in the package are arranged in an hierarchical structure comprising four levels of review. These levels are:

Table 1. Four areas of review and corresponding categories

1	Description of the development, local environment and baseline conditions
	1.1 Description of the development
	1.2 Site description
	1.3 Waste
	1.4 Area likely to be affected
	1.5 Baseline conditions
2	Identification and evaluation of key impacts
	2.1 Definition of impacts
	2.2 Identification of impacts
	2.3 Scoping
	2.4 Prediction of impact magnitude
	2.5 Assessment of impact significance
3	Alternatives and mitigation of impacts
	3.1 Consideration of feasible alternatives
	3.2 Scope and effectiveness of proposed mitigation measures
	3.3 Commitment of the developer to the mitigation methods
4	Communication of results
	4.1 Layout of EIS
	4.2 Presentation of information within the EIS
	4.3 Avoidance of bias in the presentation of information
	4.4 Inclusion of a clearly written non-technical summary

Source: Lee and Colley, 1993

- overall assessment;
- review areas;
- review categories; and
- review sub-categories.

The four areas of review with categories (but not sub-categories) are presented in Table 1, whilst quality assessment is expressed using the Lee and Colley (1992) review package ratings (Table 2).

Sample selection

The Environmental Research Unit (ERU) has prepared an inventory of EISs submitted in Ireland since 1988 (Brangan, 1991; 1992; 1993). According to these reports there had been 50 EISs prepared in the Cork area between 1988 and 1993. Of these, 44 submitted between April 1988 and the end of 1993 were available and thus were selected for review.

For the purpose of this study, the development projects for each EIS were categorised as in the ERU inventory. This categorisation is based on the first schedule to the EIA Regulations, 1989 (SI 349) which is itself based on Annex I and Annex II of EC Directive 85/337. There were no EISs submitted in Cork under Part I of the EIA Regulations (Annex I projects).

The majority of development categories are represented in this review sample. Table 3 presents data on the 44 selected EISs submitted in Cork and the representative proportion of each category of development.

Re-evaluation of EISs

To promote objectivity in review, Lee and Colley recommend that each EIS should be independently reviewed by two reviewers who should attempt to reconcile any significant differences in a final joint review. The authors do support those recommendations. However, it was not possible to have two

Table 2. EIS quality assessment ratings

Symbol	Explanation
A	Relevant tasks well performed, no important task left incomplete
B	Generally satisfactory and complete, only minor omissions and inadequacies
C	Can be considered just satisfactory despite omissions and/or inadequacies
D	Parts are well attempted but, must as a whole be considered unsatisfactory because of omissions or inadequacies
E	Not satisfactory, significant omissions or inadequacies
F	Very unsatisfactory, important task(s) poorly done or not attempted
n/a	Not applicable, the review topic is not applicable or is irrelevant in the context of this Statement

Source: Lee & Colley, 1992

independent reviewers for each EIS in this study; all 44 were reviewed by C McGrath. To overcome this potential source of bias, a number of randomly chosen EISs were selected for further study. This entailed reviewing the statements after a month had elapsed.

Where significant differences emerged during re-evaluation, the EISs were reassessed and issues were resolved. Based on the findings of the re-evaluation studies and on experience gained through these and the initial review and assessment of the 44 EISs, the results were re-evaluated and some minor changes

Table 3. EISs submitted in Cork between July 1988 and December 1993, classified by category and sub-category

Section	Project category and sub-category	No of EISs
1	Agriculture	
c	Afforestation	2
2	Extractive industry	
d	Stone, sand, gravel, clay	11
3	Energy production	
j	Hydroelectricity	1
6	Chemical industry	
a	Treatment of intermediate products, production of chemicals	3
b	Production of pesticides, pharmaceuticals, paints, varnishes	9
7	Food industry	
b	Animal and vegetable products packing	1
i	Sugar factories	1
8	Textile, leather, wood, paper industries	
b	Manufacture of fibre or particle board or plywood	2
10	Infrastructure	
a	Industrial estate developments	1
b	Urban developments	1
d	Construction of roads, bridges, harbours or aerodromes	3
e	Canalisation/flood relief	1
11	Other developments	
a	Holiday villages, hotels	4
c	Industrial/domestic waste disposal	1
d	Waste water treatment	2
f	Scrap iron storage	1

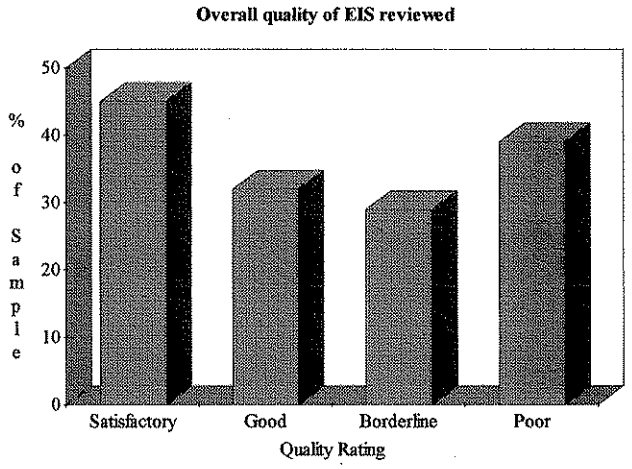

Figure 1. Overall quality of EISs reviewed

made where appropriate. The method of re-evaluation was as follows:

- Quality ratings were applied to the EIS and compared to those that had been given one month previously.
- Any discrepancies were investigated by consulting the EIS.
- A final rating sheet was completed and a summary was written for each EIS assessment, describing the strengths and weaknesses in respect of each of the four review areas.

This use of the Lee and Colley review package, although not ideal, does mean that consistent results have been obtained which are directly comparable between all 44 of the reviewed EISs.

Method of analysis of results

The percentage of EISs assessed at each quality level (A, B...F) was calculated. Similar calculations were performed for all review area, category and sub-category levels in order to analyse the variation in quality between EISs and highlight particular areas of strength and weakness.

The following information was also recorded for later analysis of other factors affecting EIS quality:

- Project categorisation under Irish regulations.
- Length of EIS.
- Number of disciplines involved in EIS preparation.
- Previous EIS experience of developer and consultant.

Results of review

Variation between review areas and categories

The results were analysed to determine the overall quality of the EISs, to identify variation in performance at review area and category level and to highlight particular strengths and weaknesses at the

The percentage of EISs assessed at each quality, review area, category and sub-category level was calculated in order to analyse the variation in quality between EISs and highlight particular areas of strength and weakness

sub-category level. The quality ratings listed below apply throughout this report.

Quality	Symbol
Satisfactory	A, B or C
Unsatisfactory	D, E or F
Good	A or B
Borderline	C or D
Poor	E or F

The decision to introduce three further categories of good, borderline and poor is a result of the desire to obtain more meaningful data on the quality of statements for presentation purposes. This technique has also been employed by Oxford Brookes University in their assessment of the quality of environmental statements carried out for the DOE (DOE Planning Research Programme, 1996).

Overall findings on EIS quality

The overall findings on EIS quality are summarised in Figure 1. The majority of EISs were found to be unsatisfactory (55%) and, of these, more than half were rated 'poor'. Of those considered satisfactory, the majority were rated 'B'.

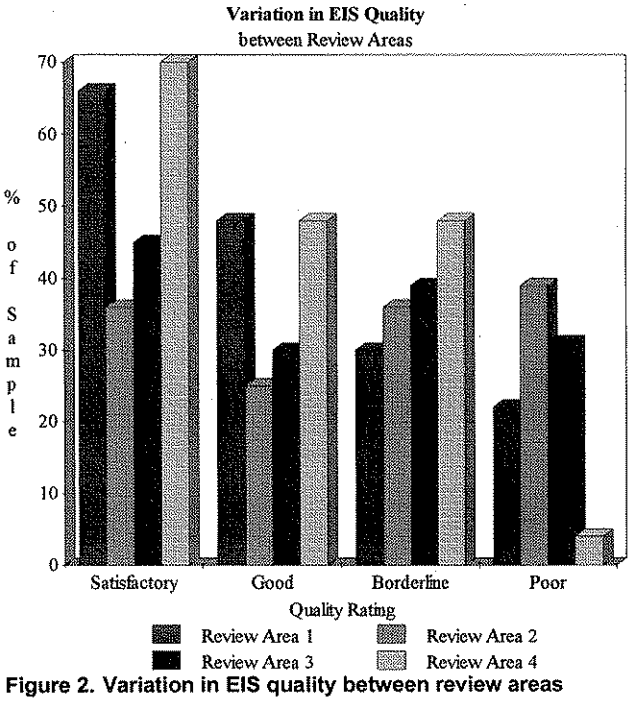

Figure 2. Variation in EIS quality between review areas

Quality of EISs submitted in Cork

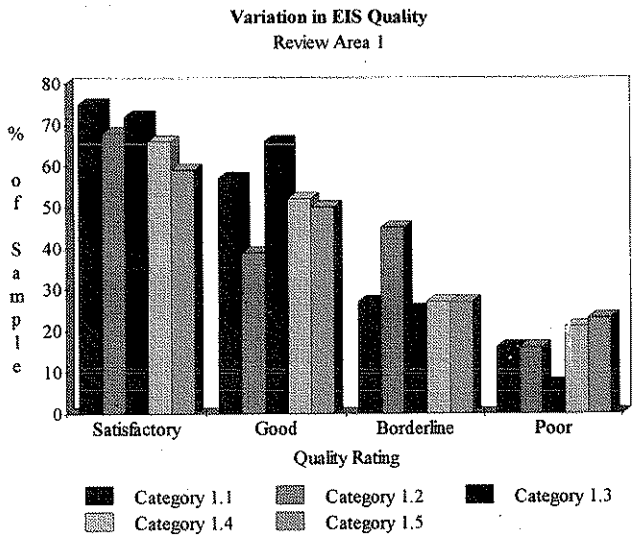

Figure 3. Variation in EIS quality within review area 1

Quality variation at review area level

Figure 2 shows, for each review area, the percentages of the sample rated as 'satisfactory', 'good', 'borderline' and 'poor'. An adequate description of the development, local environment and baseline conditions (review area 1) was found in 66% of the EISs. Satisfactory coverage of alternatives and mitigation of impacts was found in 45% of the sample, although this review area (3) was not found to be applicable to a large proportion of EISs in the sample. The worst performed was review area 2 (identification and evaluation of key impacts) for which only 36% were considered satisfactory; whilst the best performed was for the communication of results (review area 4) where 70% of EISs were rated satisfactory.

Quality variation at category level

There are 17 categories in all. The variation in quality between these categories, taken directly from the review package, is illustrated in Figures 3–6.

Summary of best- and worst-performed categories

Tables 4 summarises the best- and worst-performed sub-categories. The former includes those for which more than 70% of EISs were assessed as 'good', whilst the worst-performed list includes those for which either less than 40% of the sample obtained a 'satisfactory' rating and/or more than 40% of the sample obtained a 'poor' rating.

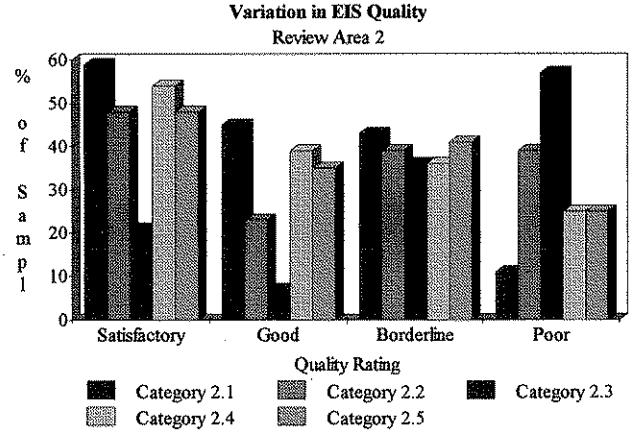

Figure 4. Variation in EIS quality within review area 2

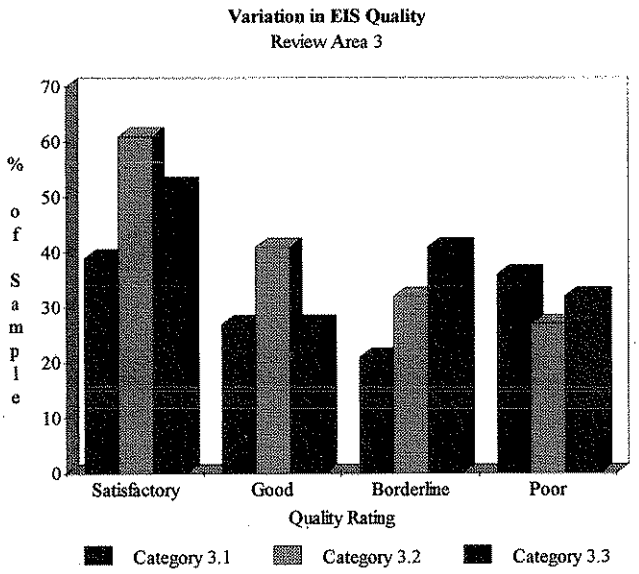

Figure 5. Variation in EIS quality within review area 3

The descriptions of the purposes and objectives of the development and the introduction to the statement were generally satisfactorily performed in all the EISs reviewed. Most EISs provided adequate maps and on-site environment descriptions. A high proportion described the potential impacts of the project and identified key impacts associated with the development proposal. The main strengths of the EISs were their presentation, layout of information and overall emphasis within the document.

Variation in quality with selected factors

Type of project

Table 5 presents a summary of the variation in quality observed between different categories of

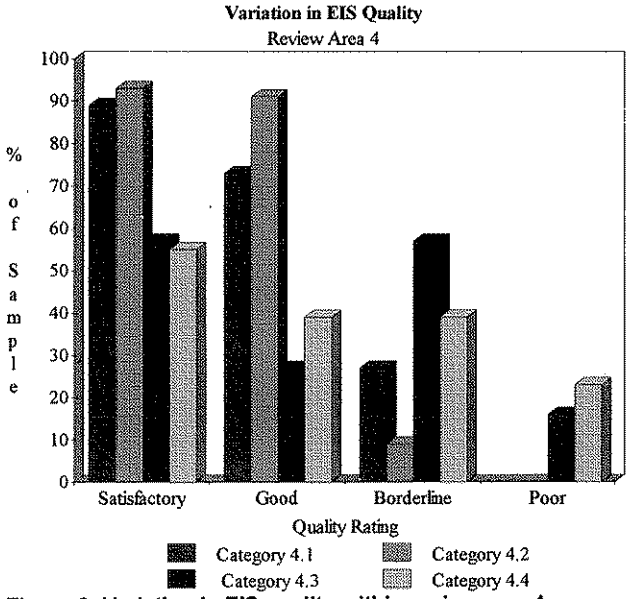

Figure 6. Variation in EIS quality within review area 4

Table 4. Summary of best- and worst-performed sub-categories

Category		EIS assessment	
		%	%
Best-performed categories		**satisfactory**	**good**
1.1.1	Purpose and objectives of the development	100	93
4.1.1	Introduction	100	93
4.2.1	Presentation of information in a manner comprehensible to the non specialist	98	94
4.2.2	Definition of technical terms, acronyms and initials	86	84
1.3.2	Handling/treatment and disposal of wastes	77	73
4.2.3	Statement should be presented as an integrated whole	75	70
		%	%
Worst-performed categories		**satisfactory**	**poor**
3.1.3	Alternatives rejected should be reconsidered if unexpectedly severe adverse impacts are identified during investigation	11	24
2.3.2	Arrangements to collect opinions and concerns of relevant parties	13	62
2.3.1	Contacting general public and special interest groups	20	64
3.1.2	Alternative processes, designs and operating conditions	25	32
3.1.1	Alternative sites	37	36
2.2.2	Brief description of impact identification methods	38	46
2.3.3	Identification and selection of key impacts for more intense investigation	40	33

development. The number of EISs reviewed for each project type is listed and the percentage found to be satisfactory is given with a further breakdown of the percentage that were rated 'good', 'borderline' and 'poor'. The different sub-category developments which are included in the broader project categories, have been grouped together for ease of discussion.

Considering the categories with a reasonable sample size, the EISs for extractive industry were poorest in quality. Only 27% were satisfactory and 55% were poor. The quality of EISs for infrastructure and 'other' developments was better, with both receiving a 50% satisfactory rating.

Of the EISs for chemical industries reviewed, 75% were satisfactory and of them 50% were considered 'good'. The highest proportion of EISs reviewed were in this development category. Therefore the high percentages achieved here will obviously affect the overall rating of the EISs.

In summary, bearing in mind the small sample size in some categories, the results indicate that the chemical industry, infrastructure and other development projects tend to be associated with EISs of higher quality than other project types. Unsatisfactory EISs

Table 5. Variation in quality of EISs for different categories of development

Project type	Category	No of EISs	% EIS rated as:			
			Satis-factory	Good	Border-line	Poor
1	Agriculture	2			100	
2	Extractive industry	11	27	18	27	55
3	Energy production	1				100
6	Chemical industry	12	75	50	33	17
7	Food industry	2			100	
8	Textile, leather, wood and paper industries	2				100
10	Infrastructure	6	50	50	17	33
11	Other developments	8	50	37.5	25	37.5

are more often associated with extractive industry, agriculture, energy production, and the textile industry.

Variation with EIS length

The quality of the EISs reviewed was compared on the basis of the length of the statement. Figure 7 shows the percentage of EISs rated as 'satisfactory', 'good', 'borderline' and 'poor' for each of four document sizes.

The results indicate that, in common with other studies (Lee and Brown, 1992; Dancey and Lee, 1993; McMahon, 1996), there is a positive correlation between length and increased quality of the EISs. There were 15 EISs of 1–20 pages reviewed and only one of these was rated 'satisfactory' while 12 were rated 'poor'. Fourteen EISs had between 21–50 pages, and these were rated evenly in all categories. This correlation, as can be seen in Figure 7, is the same for all the different page categories.

Variation with number of disciplines involved

Figure 8 shows the relationship between the quality of EISs and the number of disciplines involved in EIS

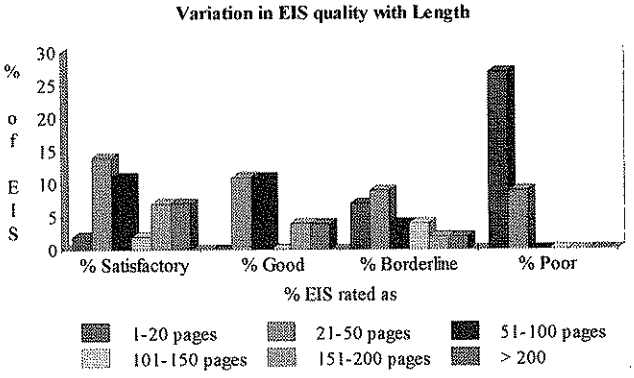

Figure 7. Variation in EIS quality with length

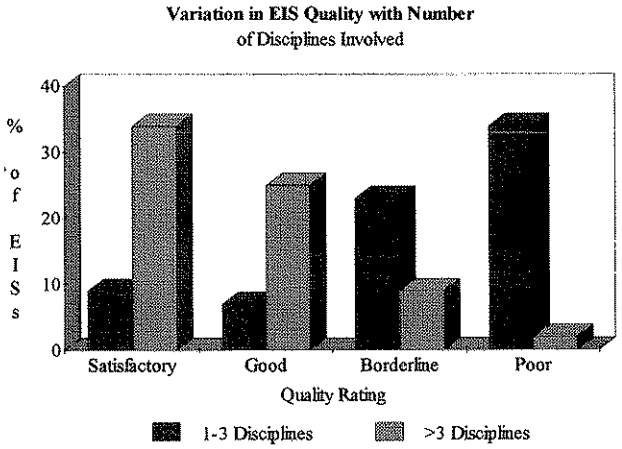

Figure 8. Variation in EIS quality with number of disciplines involved

preparation. Better quality EISs are associated with the use of a broad range of disciplines. One-third of those prepared by a team involving more than three disciplines were 'satisfactory', a quarter were 'good' and only one was rated 'poor'.

In contrast only four of the EISs that involved fewer than three disciplines were rated 'satisfactory', 23% were 'borderline' and 34% were 'poor'. All the poor EISs involved only one or two disciplines, whereas all the good ones involved between four and ten disciplines.

Variation with experience of consultant

The relationship between the experience of the main consultants involved in EIS preparation and the quality of the EISs was examined. Experience was calculated as the number of times each consultant had been listed as the main consultant for previous EIS submissions in Ireland. Inventories prepared by the ERU were used and all EISs submitted prior to the one being reviewed were considered. Variation in quality was compared at three different levels of experience.

- Inexperienced — No previous EISs submitted
- Limited experience — Between one and two EISs submitted
- Experienced — Three or more EISs previously submitted

The results summarised in Table 6 indicate a positive correlation between EIS quality and increased consultant experience. Although the majority of satisfactory EISs were prepared by experienced consultants with a broad range of disciplines, it must also be borne in mind that there were four satisfactory EISs that were prepared by inexperienced consultants with a broad range of disciplines. There are a few reasons for this:

- Many of the consultants considered to be inexperienced may have been involved in EIS preparation but are not listed as the main consultant in the ERU inventory.

Table 6. Variation in EIS quality with experience of consultant

No EISs previously submitted	% of EISs rated as:			
	Satisfactory	Good	Borderline	Poor
None	4	2	7	20
1–2	7	4	14	7
>2	34	25	11	9

- Individuals and other sub-contractors used by 'inexperienced' consultants may have had previous experience and training in EIA and EIS preparation.
- At least three of the consultants represented in this review sample have been involved in other EISs in the UK. One of these was classed as 'inexperienced' in the study.

Summary and conclusions

Overall findings are that over 50% of the EISs were unsatisfactory: of the 44 reviewed, 14 were rated good, 14 borderline and 16 were poor (Figure 1). The statements were most frequently rated satisfactory for the communication of results (area 4) and most frequently rated unsatisfactory for the treatment of alternatives (area 3) and for public participation. The purpose of the development and the introduction were the best-performed categories and the worst-performed were those relating to the consideration of alternatives and to public participation (3.1 and 2.3 respectively).

An adequate description of the environment was provided in less than three quarters of the statements whereas less than a third were rated as 'satisfactory' for alternatives and scoping.

This supports the findings of a recent UK DOE study which concluded that the quality of EISs was held back by poor scoping (Anon, 1996).

Table 7 summarises the main findings on other factors associated with EIS quality, that is, project type, EIS length, the use of a multi-disciplinary team and the experience of the consultant. Quality variation between different project types was examined for those development categories which were

Overall, 50% of the EISs reviewed were unsatisfactory: they were most frequently satisfactory for the review area communication of results and most frequently unsatisfactory for the treatment of alternatives and for public participation

Table 7. Main findings on other factors associated with EIS quality

Highest percentage of satisfactory associated with:	Lowest percentage of satisfactory EISs associated with:
Chemical industry — 75% satisfactory	Extractive industry — 27% satisfactory
Longer EIS (>21 pages) — 41% satisfactory	Short EISs (<21 pages) — 2% satisfactory
>3 disciplines involved in EIS preparation 34% satisfactory	<3 disciplines involved in EIS preparation 9% satisfactory
>2 EISs previously submitted 34% satisfactory	No EIS previously submitted 2% satisfactory

represented by EISs in the sample. Among these, the highest percentage of satisfactory ratings was given to EISs for the chemical industry whereas the majority of statements for extractive projects were assessed as unsatisfactory. Higher percentages of satisfactory ratings were also associated with longer EISs, the use of a multi-disciplinary team in EIS preparation and the use of experienced consultants.

Techniques and reviewer experience

The EIA Centre review package was found to be very useful as a framework for EIS assessment and quality rating although the timing of EIS reviews in relation to reviewer experience may affect the outcome of the assessment as there is a learning curve involved. It takes some time for an inexperienced reviewer to become familiar with both the review package and its application in the context of different types of development. The package guidelines need to be supplemented at times with personal criteria on the type and quality of specific information necessary for satisfactory treatment of particular categories and subcategories. The current study (in common with the experience of O'Shea, 1994) found that the reviewer's own method of evaluation develops and improves with increased experience during assessments, as a more balanced and consistent rating strategy evolves.

This study and also similar reviews (for example, McMahon, 1996), highlighted the importance of project-specific guidelines for information to be contained in an EIS. In addition it is essential to adopt a clear strategy when using the review package in the weighting of various factors at sub-category level, and in the application of overall category ratings. It is important to have clearly specified criteria for the minimum information required to justify a satisfactory rating. These specifications are particularly important for those categories/sub-categories which refer to broad ranges of tasks and information. The development of project-specific guidelines and a standardised review strategy would be useful to those in both EIS preparation and review.

The quality of EISs in the future should give a good indication of the extent to which available guidelines have been utilised and how effective they are. However, there are no formal procedures for EIS review in Ireland. Certain developments which require licensing will be obliged to submit a copy of the statement to the EPA which may make submissions or observations as it considers appropriate (EPA Act, 1992).

The EPA anticipates that review of these statements will highlight any deficiencies and give an indication of the adequacy of the guidelines and the extent to which they are being used. The information obtained in this manner will enable steps to be taken, where appropriate, to improve the process. However, if EIS quality is to be monitored in the future, regular systematic reviews using standardised procedures are required.

In the current study and in earlier reviews, strengths and weaknesses of EISs have been highlighted, and recommendations put forward for improvement of the EIS process. These recommendations include the development of detailed guidelines. Use of the guidelines being developed by the EPA should facilitate further improvements in EIA in Ireland. EIS reviews should be continued in the future to provide information on the effectiveness of the guidelines introduced and the EIA process in general, and to identify aspects of the process which require modification or further investigation.

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