

**THE QUALITY OF ENVIRONMENTAL IMPACT STATEMENTS**  
**- A REVIEW OF RECENT DEVELOPMENTS**

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**by**

**DERMOT G. MOLONEY**  
**BSc. (Env. Health), Grad. Dip. Env. Protection**

**Supervised by**

**Dr. Richard Thorn**

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## **DEDICATION**

**The author wishes to dedicate this dissertation to his wife who has been entirely supportive and patient.**

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## **ABSTRACT**

Environmental Impact Assessment (EIA) was first introduced to Ireland by the Local Government (Planning and Development) Act, 1976. Over the past twenty years a number of legislative developments have arisen and EIA is now recognised as an intrinsic part of national environmental policy.

The Environmental Impact Statement (EIS) is the single most tangible component of the EIA system and in most jurisdictions the document is widely accessible. In considering the efficacy of EIA, a great deal of attention has been given to the quality of EIS documentation.

This study reviews the literature pertaining to the quality of EISs submitted in Ireland and in other jurisdictions. The concept of the "legal minimum standard" for an EIS is considered and recent and impending developments in EIA are addressed. The study evaluates the quality of a sample of eight EISs which were submitted to the Environmental Protection Agency (EPA) in support of Integrated Pollution Control (IPC) licence applications. Each EIS was evaluated by means of a "Review Package" which was developed in the UK. The Review Package has been previously used to evaluate a representative sample of 40 EISs which were submitted in Ireland up to April 1992.

Comparisons are made between the evaluations of the eight EISs and the results of the earlier (1993) study. It is concluded that the quality of EISs has substantially improved. However, the author has identified significant difficulties with the application of the Review Package. These difficulties are discussed in conjunction with the obvious limitations pertaining to the interpretation of the author's findings. The study contributes to the body of knowledge pertaining to EIA. In particular, it addresses the notion of quality as an essential element of the EIA process. Recent and impending developments in EIA are considered and a series of conclusions and recommendations are made.

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# **1. INTRODUCTION**

## **1.1 GENERAL INTRODUCTION**

Environmental Impact Assessment (EIA) has been defined by Wood (1995) as:

**"...an anticipatory, participatory, integrative environmental management tool which has the ultimate objective of providing decision-makers with an indication of the likely consequences of their decisions relating to new projects or to new programmes, plans or policies."**

EIA evolved in the United States over a quarter of a century ago. The National Environmental Policy Act of 1969 (commonly referred to as NEPA) provided the first legislative framework for EIA and many jurisdictions have subsequently emulated the US/NEPA model. EIA was first introduced in Ireland in a limited mode under the provisions of the Local Government (Planning and Development) Act, 1976. The 1976 Act applied EIA to a very narrow range of activities, i.e. to certain industrial projects with a capital investment in excess of £5 million. The 1976 Act was eventually replaced by a series of enactments and statutory instruments brought about to transpose the provisions of the European Commission Directive on EIA (Directive 85/337/EEC) into Irish law.

## **1.2 IMPLEMENTATION OF THE EIA DIRECTIVE IN IRELAND**

The EIA Directive was originally introduced by circular letter. However, this was subsequently adjudged in the High Court to be ineffective (Scannell, 1991). As a direct consequence, EIA was incorporated into the pre-existing national planning and development control legislation. In addition, EIA was integrated with a range of other authorization procedures to deal specifically with projects not subject to planning and development control.

The main provision of the Directive requires Member States to ensure that projects likely to have significant effects on the environment are subjected to an assessment in advance



of the granting of consent. The type of project which is subject to an assessment and the general form of the assessment are outlined in the Directive. The developer is responsible both for compiling the details of the assessment (study) and for submitting, to the competent authority, a range of information pertaining to the nature and scale of the proposal and the impacts likely to arise. In instances where significant impacts are predicted, the developer is required to describe appropriate mitigation measures to avoid and/or reduce any significant adverse effects. The Directive provides for the involvement of designated environmental authorities and the general public. There is a specific requirement that information be made available and that consultation takes place before the competent authority issues a decision.

The EIA Directive establishes the basic assessment procedures. However, considerable discretion is permitted in the transposition of these procedures into national law. A screening system facilitates the identification of projects subject to assessment, using certain criteria and thresholds where appropriate. All projects listed in Annex I of the Directive are subject to mandatory assessment whilst projects in Annex II are subject to EIA "where Member States consider that their characteristics so require" (Article 4 (2)). The developer can (and preferably should) consult with a range of authorities and the general public in advance of conducting any study. The findings of the study are submitted to the competent authority in a report known as an Environmental Impact Statement (EIS), however, in the UK the report is known as an Environmental Statement (ES). The competent authority assesses the EIS and considers its findings in conjunction with submissions made by interested parties. Additional or supplementary information may be required and the competent authority makes an authorization decision based on the findings of the EIS and the interaction of the respective parties. The term EIA is generally used to describe the entire process of assessment; from the initial screening stage right through to the final decision-making stage.

One of the provisions (Article 11) of the Directive was that:

"...five years after notification of this Directive, the Commission shall send the European Parliament and the Council a report on its application and effectiveness".

Although there were significant delays in the preparation of the report, the final version was published by the Commission of the European Communities (CEC, 1993) on the 2 April 1993. Having evaluated the extent of formal compliance with the overall requirements of the Directive, the Commission pronounced that by July 1991, the transposition of the EIA Directive into Member State law had not been completed in a number of cases. In an annex to the report (CEC, 1993: 76) which deals specifically with the implementation of the Directive in Ireland, it is concluded that the "requirements of the Directive have now been fully implemented".

### **1.3 INTEGRATED POLLUTION CONTROL AND EIA**

EIA can by no means operate in a legislative or administrative vacuum. Recent changes in the administration of environmental management and protection have, in fact, had a profound effect on the EIA process. The principal instrument of change was the establishment of the Irish Environmental Protection Agency (EPA) on the 26th of July 1993. The EPA is an independent public body with a wide range of statutory powers and duties. One of the main accomplishments of the Agency, to date, has been the introduction of a system of Integrated Pollution Control (IPC) licensing. The IPC licensing system has been in force since May 1994 and its primary function is to regulate potentially polluting processes based on BATNEEC principles. In setting up the EPA, the enabling Act of 1992 (EPA Act, 1992) effectively established "a new Institutional Framework" for the control of industrial pollution in Ireland. A number of legislative amendments provided for in the 1992 Act have been augmented by a series of statutory instruments and over the past number of years some fundamental regulatory changes were instituted in order to harmonize the EIA and IPC licensing systems.

The EIA and IPC licensing systems are independent yet, sometimes, largely inter-related. When a development becomes subject to EIA and IPC licensing, however, the EPA assumes responsibility for regulating those aspects of the development which relate to the risk of environmental pollution. Thus, when an EIS is submitted to a planning authority in support of an application for planning permission; and where that activity is, additionally, subject to an IPC licence - the planning authority considers the planning and development aspects only. The planning authority is compelled to consider the EIS and any supplementary information or submissions "only insofar as those matters do not relate to the risk of environmental pollution from the activity" - Article 6 of the European Communities (EIA) (Amendment) Regulations 1994. This restriction also applies to An Bord Pleanála in instances where the Board has to determine a planning appeal in connection with a development which is subject to IPC licensing.

The EC (EIA) (Amendment) Regulations, 1994 (S.I. No. 84 of 1994) have thus, according to Meehan (1994):

"...brought about one major qualitative change in the content of EISs: they must pass the scrutiny of the EPA.... Consequently, any EIS submitted as part of an IPC licence application is likely to be examined more rigorously on certain technical aspects of pollution than would have been the case in the planning process".

It is suggested that the quality of EISs submitted to the Agency should, therefore, improve.

#### **1.4 OBJECTIVES OF THIS DISSERTATION**

It is the intention of this study to assess the quality of eight EISs submitted to the EPA (in support of developments subject to IPC licensing) between May 1994 and September 1995. Although some of these EISs were originally submitted to Planning Authorities, each would have eventually been assessed by the EPA during the IPC licensing process. In 1993, a major review of the quality of Irish EISs was published by the Environmental Research Unit (ERU). This review (Dancey and Lee, 1993) was based on a methodology

which was developed at the EIA Centre, University of Manchester. The eight EISs were prepared subsequent to the Dancey and Lee (1993) study and should, therefore, reflect an overall improvement in EIS quality.

The primary objectives of this study are as follows:

- **To review the literature pertaining to the quality of EISs submitted in Ireland and in other jurisdictions.**
- **To consider the legal aspects of EIA and to appraise the concept of "the legal minimum standard" for an EIS.**
- **To consider the likely effects of recent and impending developments in EIA.**
- **To select a sample of 8 EISs submitted for EPA assessment and to evaluate their quality in accordance with the methodology developed by the EIA Centre/University of Manchester.**
- **To compare the results of the above evaluation with the findings of the ERU/EIA Centre study.**
- **To ascertain whether the quality of EISs has improved since the EPA assumed its role in EIA.**

The study will contribute to the body of knowledge pertaining to EIA in Ireland. In particular it will evaluate recent developments in the EIA process and it will make appropriate conclusions and recommendations.

## 2. QUALITY CONSIDERATIONS

### 2.1 EIA EFFECTIVENESS

EIA involves the interaction of developers, competent authorities and the public within complex legal and administrative frameworks. The EIA Directive and the International Convention on Transboundary EIA additionally facilitate the interaction of sovereign states in instances where impacts arising from a development in one jurisdiction are likely to be transmitted to another.

The application and *modus operandi* of EIA varies from one jurisdiction to another, however, a fundamental need to evaluate the efficacy of EIA is common to all. Throughout the literature, principles and practices have been advanced in order that quantitative and, more frequently, qualitative assessments of EIA efficacy can be facilitated. The Canadian Environmental Assessment Research Council (CEARC, 1988) has distinguished, *inter alia*, between efficiency and effectiveness in EIA. An EIA is regarded by CEARC as effective if predictions in the EIS were accurate; if mitigation measures met their objectives; and if the information generated through the EIA process contributed to the making of decisions. The efficiency criteria advocated by CEARC relate to matters such as the making of timely decisions and the cost of conducting the EIA.

The success or failure of any EIA system is dependent upon a wide range of factors and influences. The EIS is the single most tangible component of the EIA system and in most jurisdictions the document is widely accessible. It is not surprising, therefore, that a great deal of the "efficacy debate" in EIA revolves around the EIS document. Kennedy and Ross (1992) highlight the fact that one of the first EISs for a North American Industrial Project resulted in a legal judgement demanding "more in-depth EIS documentation". Originally, an eight-page EIS was submitted for the Trans-Alaska Pipeline Project and a court

injunction was granted against the development. Consequently, EISs became "long, heavy, multivolume documents" in the hope that project delay or failure would not arise. Some of the subsequent EISs were described as "voluminous, detailed and exhaustive documents, full of unnecessarily comprehensive data" (Beanlands and Duinker, 1983).

The Council on Environmental Quality (CEQ), recognising this problem as early as 1975, stated in their annual report (CEQ, 1975) that:

**"Too many statements have been deadly, voluminous and obscure and lacked the necessary analysis and synthesis. They have often been inordinately long, with too much space devoted to unnecessary description rather than to analysis of impacts and alternatives".**

Clark's (1990) account of the origins and evolution of EIA, reveals that shortly after President Carter came into office in 1977, CEQ began to lobby the new President to address the problems of NEPA. Speaking of NEPA in his first Environmental Message, President Carter stated:

**"In the seven years since its passage, it has had a dramatic and beneficial influence on the way new projects are planned. But to be more useful to decision-makers and the public, Environmental Impact Statements must be concise, readable and based upon competent professional analysis. They must reflect a concern with quality not quantity".**

The NEPA/EIA system was subsequently amended by the enactment of the Council on Environmental Quality (CEQ) Regulations in 1978. Two fundamental objectives in drafting these regulations were: to ensure that the length of EISs was reduced; and to make the EIA process become more focused and relevant.

It is almost certainly the case that problems with EIS quality have arisen in all jurisdictions.

Lee-Wright (1993) maintains that in EIA:

**"...the poor presentation of environmental statements is perhaps the greatest single failure of the industry....Most ESs are still an all-too obvious collection of disparate reports which are not reconciled or integrated prior to their submission."**

Glasson (1994) commenting on the EIA process in Britain states that British

EISs frequently lack balance. Additionally, he states:

"They tend to be too skewed towards the early stages of the process, focusing on project and baseline environment description, and with much less consideration of impact identification, prediction and evaluation."

The 1993 Commission of the European Communities' report addressed "the application and effectiveness" of EIA throughout the European Community. The report (CEC, 1993: 42) considered a number of important issues regarding the extent of compliance with the provisions of Directive 85/337/EEC, in Member States. One of the conclusions of the report was:

"...whilst there is little doubt that a minority of EISs are of good, and sometimes of outstanding quality, there are substantial numbers in most Members States which are not of a satisfactory standard. In other words, there is a considerable quality problem".

## 2.2 DISCIPLINES INVOLVED IN EIA

Many EIA commentators refer to a single dimension or aspect of EIS quality and not to the EIS as an integrated whole. It would appear, in fact, that many commentators use the literature as a medium for lobbying on behalf of their particular profession or discipline. This lobbying is indicative of the ubiquitous power struggle within the EIA process, where certain professions are seen to be jostling for position. Kennedy and Ross (1992) remark that EIS compilers are, generally, technical specialists with strong interests in sometimes narrow subject areas and that their specialization makes them "reluctant to dismiss their impact areas as irrelevant". This tenacity, combined with the absence of a formal scoping procedure, has resulted in a plethora of poor quality EISs.

One of the conclusions of a review of British EISs, highlighted the failure of the documents to address socio-economic impacts (Glasson and Heaney, 1993). This particular study concluded that less than 50% of the EISs reviewed gave any consideration to social or

economic impacts and of those that claimed to address these issues, the emphasis was more on economic components than on social factors. Consequently, the authors submit that socio-economic impacts should be given a higher profile within the EIA process. This socio-economic shortfall is somewhat echoed by Erickson (1995: 7) who states that:

"...impact assessment during the first two decades of its development typically emphasised quantifiable physical, chemical and biological entities and processes. When attention was given to the social environment, again, quantifiable attributes such as the various statistics of cost-benefit analysis or numbers of displaced households received primary if not sole attention".

Glasson (1994) contends that despite "some legislative impetus", social and economic impacts have continued to be given little attention in EISs. Furthermore, he contends that:

"Some authors do see socio-economic impact assessment (SIA) as a separate field and they raise the very legitimate concern that SIA as an integral part of EIA runs the risk of marginalization and superficial treatment."

In the field of ecological assessment many authors (including: Spellerberg and Minshull 1992 and Smith 1993) have highlighted the poor quality of ecological sections of EISs.

In what is widely regarded as the definitive work on EIA in Ireland, Goodwillie (1991) states that:

"So often one finds that the ecological section of the EIS has been appended to the design sections and has had no effect at all on the final choice of process or route. Indeed in some cases it appears that the designers have not read the results at all, so great are the contradictions. In this case the planning authority has to insist that the EIS is re-written to take account of the ecological constraints".

Shortly after the formal adoption of the EIA Directive, in February 1986 the World Health Organization (WHO) Regional Office for Europe convened a meeting of experts from eleven countries to address ways of strengthening the Environmental Health component of EIA. One of the contentions of WHO, at that time, was that the health of affected communities should be a fundamental consideration in the approval of development projects (WHO, 1987). Based on WHO experience up to 1987, it was concluded that health did not receive sufficient attention in such decisions. As a result of decisions and programmes



which were initially formulated by the WHO meeting of experts (24-28 February 1986), a comprehensive body of literature and guidance has evolved, virtually culminating in the establishment of an independent discipline known as Environmental Health Impact Assessment (EHIA). Based on a series of training seminars which were originally held in 1987 and 1988, a comprehensive publication (Turnbull, 1993) espouses the "state of the art" doctrines of EHIA. Despite the fact that this specialized discipline was developed in response to "deficiencies in the methodologies of assessing the soft environment sectors", EHIA is now recognised as an adjunct to EIA (Fry, 1995).

There are many examples of this form of evolution in EIA policy and practice. The evolutionary process is initiated in the literature by articulating the perceived weaknesses in specific EIA domain. A form of consensus is eventually engendered and policy and practice changes are refined and subsequently instituted. Although this may be an oversimplification of a somewhat complex process, this type of development arises at a range of different levels including: regionally, nationally and internationally. A significant body of EIA literature has, thus, been generated through an interaction of academic, professional, and sectoral interests. A recently published digest (Roe et al, 1995), while not claiming to be exhaustive, provides details of some 600 sets of Impact Assessment Guidelines. This emerging science, generally converges on the lessons of past EIA experience and on the improvement of future practices. The literature spans a great many disciplines, helping to ensure that EIA continues to be both integrative and progressive.

Innovative and pragmatic approaches will need to be developed so that EIA can adapt and respond to future and current challenges. Checks and controls are essential, however, to focus our attention on the substantive object of EIA. Erickson (1995: 60) reinforces this viewpoint by stating:

"The scientific and technical difficulties inherent in impact assessment often obscure the fact that the objective of impact assessment is not the furthering of scientific knowledge, but the improvement of decision making by forcing consideration of a range of possible consequences of human actions that, historically, has been ignored in favor of political expedience and narrow economic interest".

The ideal is, thus, a conscientious and well-informed science which, periodically, evaluates its motives whilst continually striving for improvement.

### **3. EIS QUALITY**

#### **3.1 METHODOLOGIES FOR ASSESSING EIS QUALITY**

The efficacy of EIA, concerns and involves a wide range of players and stakeholders who interact at various stages of the EIA process. While developments in EIA policy and practice are of fundamental interest to proponents, professionals and authorities alike; the general public's involvement is likely to increase when the local environment is threatened. It is the concern about the long term effects of projects, the lack of personal control and the pace of intrusion into social and cultural environments that embodies the public perception of risk (Renn, 1992). When faced with the prospect of a potentially detrimental project, the average individual is most concerned about whether the EIA system can work for him. The efficacy of the EIA process in these instances is likely to be judged by the degree to which the individual has appeared to influence the decision-maker. Where there is determined opposition to a project, the EIS is frequently castigated and denounced. Although the objector's strategy may be motivated by genuine environmental concerns, frequently the denouncement of EISs is disingenuous.

The EIS is always a central document in any EIA process and it is not surprising that a great deal of emphasis has been put on the integrity and merit of EIS documentation. The competent authority in most jurisdictions is compelled not only to review the EIS, but additionally, to highlight any shortcomings and to request the developer to remedy them. This form of EIS review is generally focused on a single development proposal in the context of an application for some form of authorization. EIS review is also undertaken, however, by the systematic analysis of a set of EISs independently of all authorization procedures. The latter type of review is generally described as "comparative review" and various methodologies have been developed to analyse and compare EIS quality.

### 3.2 REVIEWING EIS QUALITY

To facilitate the comparative analysis of a number of EISs submitted in support of planning applications for quarrying developments, O'Sullivan (1991), used a scoring system to rate the quality of information provided in each EIS. A list of topics ("environmental parameters") was developed based on their relevance to quarrying activities. Each topic was individually evaluated under three separate headings ("information types"): "Baseline Studies, Predicted Impacts and Mitigation Measures". O'Sullivan's framework determined, for example, that "dust" and "noise" were relevant "environmental parameters". Accordingly, the quality of the information presented in the EISs was evaluated with reference to: baseline dust and noise studies; predicted dust and noise impacts; and mitigation measures for dust and noise. A total of ten "environmental parameters" were used and each was graded under the three "information types". In this review, a complete absence of data scored 0, while generalized statements scored 1 and quantifiable information scored 2. The framework developed by O'Sullivan is used to make comparisons between the EISs, however, it is acknowledged that it "cannot in any way be considered a rigorous approach".

In a recent publication (Institute of Public Administration, 1994) guidance is offered to local authority personnel on how to evaluate EISs. A checklist was, additionally, compiled for use in the evaluation process. The evaluator is required to determine whether or not specific topics are relevant to the project and guidelines are provided to support this determination. The checklist does not incorporate any scoring or weighting system, however, the evaluator is required to determine whether the impacts are positive or negative. Although not specifically designed for "comparative review", the IPA evaluation guidelines can be readily adapted for this purpose.

### **3.3 THE LEE AND COLLEY REVIEW PACKAGE**

The most widely used method of EIS quality assessment is, in all probability, that which was developed by Lee and Colley (1990). Although, originally developed to assess the quality of EISs in the UK, the methodology which the authors describe as a "Review Package", can easily be adapted for use in other countries. The Lee and Colley Review Package systematically evaluates the quality of an EIS in terms of whether the document complies with the minimum legal requirements and, additionally, whether or not it conforms to "current international conceptions of best practice in procedure and methods".

There are essentially four main aspects of the EIS which are reviewed.

These are as follows:

1. Description of the development, the local environment and the baseline conditions.
2. Identification and evaluation of key impacts.
3. Consideration given to alternatives and the mitigation of impacts.
4. Communication of results.

There is a list of categories and sub-categories under the above headings and the latter are described by Lee and Colley (1990) as "Review Areas". The quality of each sub-category is assessed and these assessments are used hierarchically to determine the overall quality of the "Review Category" and ultimately the "Review Area". The reviewer is essentially required to determine whether or not a series of "tasks" is satisfactorily accomplished. He is also required to grade the individual tasks, where appropriate. The final grades are collated and a qualitative assessment is made to determine whether the minimum legal requirements were satisfied by the EIS. Finally, an overall quality rating/qualitative conclusion is provided.

### **3.4 APPLICATION OF THE LEE AND COLLEY REVIEW PACKAGE**

Between 1988 and April 1992 "a total of 222 EISs were submitted in Ireland" (Dancey and Lee, 1993). Using an updated edition of the Lee and Colley (1990) Review Package, an analysis of a sample of these EISs was undertaken by the Environmental Research Unit (ERU) in association with the EIA Centre, University of Manchester (Dancey and Lee, 1993). The review entailed a systematic and objective evaluation of the quality of Irish EISs submitted during the period 1988 to 1992. The evaluation was undertaken on a representative sample of 40 EISs, submitted in Ireland during the stated period. Although Dancey and Lee's findings relate specifically to the selected sample of EISs, "the findings relate.... at least in broad terms, to the total population of EISs produced during the 1988 - 1992" period.

The findings of the Dancey and Lee (1993) study are consistent with the findings of similar studies undertaken in the UK. The majority of the 40 Irish EISs were determined to be of unsatisfactory quality. In fact 60% of the sampled EISs were graded as unsatisfactory while only 15% were considered "good". The remainder were equally divided between "borderline and poor" classifications. Compared with a UK assessment in which 83 EISs were reviewed (Lee and Brown, 1992), the conclusions are very similar. Of the 83 EISs which were sampled by Lee and Brown, 57% were determined to be "unsatisfactory" and 19% were considered "good".

The updated Lee and Colley Review Package (1992) was used by Byrne (1994) to assess the quality of EISs submitted in support of planning applications for pig and poultry units in Ireland. A total of 32 EISs were evaluated by Byrne, all of which were prepared prior to January 1993. Byrne concluded that not one of the 32 EISs was of an acceptable standard. A total of 28% of the EISs were determined to be "just unsatisfactory" while the remainder were determined to be either "unsatisfactory or very unsatisfactory".

The following points illustrate some of the inherent weaknesses in the EISs evaluated by Byrne:

- \* Not one of the EISs carried out any form of scoping with either Local Authorities, the general public or interest groups.
- \* Not one of the EISs presented any data on groundwater while 16 of the 32 EISs failed to mention the impacts on groundwater at all.
- \* Only 7 of the 32 EISs were determined to be reasonably unbiased. The majority appeared to be "lobbying for the development to go ahead".

O'Shea (1994) also used the Lee and Colley (1992) Review Package to study the quality of EISs which were submitted in Ireland during 1992. O'Shea's study concluded that a substantial proportion of the EISs were unsatisfactory and that weaknesses identified in earlier reviews were still evident. A total of 67% of the EISs reviewed by O'Shea were determined to be unsatisfactory and approximately half of these were rated "poor".

Boland (1994) addressed the quality of EISs in the extractive minerals industry. The Lee and Colley (1992) Review Package was "found to be too broad and elaborate for the relatively short EISs prepared for quarries and sand and gravel pits". The structure of the "assessment checklist" used by Boland was based upon the 1992 Review Package, however, a number of amendments were made in order that it would be more "subject specific". A hierarchy of areas, categories and sub-categories was used in conjunction with a scoring system which attributed points in accordance with the quality and comprehensiveness of the information provided. Boland's methodology is, thus, a form of amalgam comprising aspects of O'Sullivan's framework (1991) with the Lee and Colley Review Package (1992).

The EISs evaluated by Boland were submitted to planning authorities between 1988 and 1992. 80% of these EISs were found to be unsatisfactory and this conclusion was consistent with the Dancey and Lee (1993) findings. The results, thus, indicate that the

quality of EISs prepared for the extractive minerals industry is considerably lower than the average indicated for all industrial projects.

### **3.5 OTHER EVALUATION METHODOLOGIES**

The Institute of Environmental Assessment (IEA) was established in 1990 to improve the standards of EIA and Environmental Auditing. The Institute is a non-profit making voluntary organisation, the membership of which is open to corporate bodies in the private and public sectors. The Institute currently uses a set of "Review Criteria" to evaluate the quality of EISs. The IEA Review Criteria are based on the Lee and Colley (1990) Review Package and are, in effect, an abridged version of same. While the Institute encourages the wide distribution of their Review Criteria, the "primary intention is that they should be used by members of staff of the IEA" (pers. communication). Since 1990, IEA staff have reviewed over 200 EISs. These quality reviews have been carried out on behalf of a range of interested parties such as planning authorities, developers and pressure groups. The Review Criteria are also used by the IEA in the registration of environmental consultancies. In order to be awarded full registration of the Institute, an environmental consultancy must achieve a high quality rating for its EIS work. A consultancy's work is independently assessed by "Peer Group Evaluation", and this assessment forms a critical component of the registration procedure. Registered status is subject to periodic review and a decline in the standard of a consultancy's work will result in its removal from the IEA register. One of the core objectives of the Institute is "to promote best practice environmental methodologies through cross-sectoral working parties". In addition to incorporating legal minimum requirements in EIA, the IEA Review Criteria have regard to current best practice standards for EISs produced in the UK.

In 1994 the European Commission published a guidance document on reviewing the content of EISs. This document entitled "Environmental Impact Assessment - Review



Checklist", was prepared by Environmental Resources Management, under a research contract with the Directorate General for Environment, Nuclear Safety and Civil Protection (DG XI) of the Commission of the European Communities.

One of the principal authors of the checklist was Raymond Colley, a co-author of the original Review Package (Lee and Colley 1990). It is not surprising, therefore, that the (CEC, 1994) checklist was based on the 1990 Review Package. The purpose of the checklist is to assist reviewers in evaluating the completeness and suitability of the EIS/environmental information submitted during the EIA process. The EIS/environmental information is evaluated "from a technical and decision making viewpoint". It is claimed that the checklist will assist the reviewers in determining whether all relevant information is available to provide an adequate basis for decision-making and to provide adequate information to the public. The Review Checklist can be used both to highlight specific weaknesses and omissions in an EIS and to assign a "single overall appraisal". Provision is made to adapt the Review Checklist "to suit local circumstances or to reflect practical experience over time".

It is interesting to note that the absence of official or standardized methodologies for EIS review is a difficulty common to the majority of EIA systems throughout the world. Wood (1995: 305) states that:

"The review stage appears to be missing in the EIAs in many developing countries".

Having evaluated in some detail the more advanced EIA systems in seven jurisdictions Wood (1995: 162) concludes that very few jurisdictions "have as yet published formal criteria to assist in the review of EIA reports".

## **4. LEGAL FRAMEWORK FOR EIA**

### **4.1 LEGAL REQUIREMENTS IN EIA**

The EIA Directive and the legislation which transposes it into national law provide the legal framework for EIA in Ireland. Scannell (1995:292) reports that up to October 1994 "fourteen sets of regulations have been made to implement the Directive" and she highlights the fact that the "applicable law relating to EIA is Irish law, not the Directive". This is because a directive does not automatically become part of Irish law, "at least so far as the private sector is concerned". Generally, a domestic legislative process is necessary to make a directive's requirements binding.

This point is illuminated by McKenna & Co. (1993), who distinguish between directives which are general in nature (stating policies and objectives) and those which are more specific, i.e. those which require Member States to meet specific targets or standards.

McKenna & Co. state:

"Provided that the definitions of the requirements are sufficiently precise, the latter type of directive has direct legal effect as soon as the time has expired for the Member State to implement it. This means that individuals and companies may be able to enforce a directive against government bodies and public authorities, where such bodies have failed to enact the necessary implementing rules within the prescribed period of time. Moreover, if failure to implement a directive has caused a person damage, he may be able to sue the government to recover his loss. National law which is contrary to the rules or the declared aims of a directive may be declared null and void".

The essential difference between the public and the "private sector" to which Scannell (1995) alludes is clarified by McKenna & Co. (1993) by concluding that:

"directives do not in themselves create rights and obligations between private individuals (including companies); only national laws can do that".

There has been considerable debate on the merits and failures of EIA law in Ireland. The Department of the Environment is predominantly responsible for implementing the EIA

Directive and it has concluded that the legal provisions for EIA in Ireland are in complete compliance with the Directive (Commission of the European Communities, 1993). However, Wates' (1990) opinion is radically divergent. He concluded that the "government has adopted a minimalist approach to the implementation of EC Directive". Wates also claims that the inadequacies of the EC (EIA) Regulations, 1989, even "lay the government open to further risk of legal proceedings by the European Commission".

Meldon *et al.*, (1993) apparently concur with the overall assessment made by Wates (1990) and state that:

"...there are a number of significant weaknesses in the Irish Regulations....the Irish Regulations adopt a minimalist approach in any area where discretion may be exercised by Member States".

Article 5 (2) of the Directive stipulates the minimum information to be contained in an EIS, however, this minimum information should include a description and assessment of the "factors" referred to in Article 3. Subject to certain conditions, Article 5 (1) requires Member States to ensure that the developer supplies the additional information specified in Annex III of the Directive. These provisions have been transposed into Irish law by Article 25 and the Second Schedule of the European Communities (Environmental Impact Assessment) Regulations, 1989. Articles 3, 5 and Annex III of the EIA Directive are presented in Appendix B of this dissertation. Article 25 and the Second Schedule of the EIA Regulations are presented in Appendix C.

Many observers have difficulty with the manner in which the "minimum information requirements" have been transposed into Irish Law. Meldon *et al.* (1993) are critical of both the Directive and the "1989 EIA" Regulations.

With regard to the Directive it is claimed that:

"The ambiguity between the first and second paragraphs of Article 5 means that there is confusion about which items of information are mandatory for inclusion in an EIS, and which are at the discretion of Member States. Paragraph 1 states that Member States shall adopt the necessary measures to ensure the developer supplies the information specified in Annex III (subject to certain conditions); paragraph 2 specifies the minimum information to be provided by the developer in accordance with paragraph 1. The ensuing list is much less comprehensive than that contained in Annex III".

Meldon *et al.* (1993) in their critique of the 1989 EIA Regulations, claim that:

"The substantive content of Annex III is included in Section 3 of Article 25 of the 1989 Regulations as additional information which may be supplied at the discretion of the developer... We would argue that *all* of the specified information contained in Annex III should be mandatory where appropriate to the particular project".

These sentiments correspond closely with those of Wates (1990) who states that:

"The required content of an EIS is ...based upon a minimalist interpretation of the EC Directive and comprises two lists, one consisting of items of information which an EIA must include (apparently based on Articles 3 and 5 (2) of the Directive), the other of those which it may include (apparently based on Article 5 (1) and Annex III of the Directive). Although the optional list is not much longer or more detailed than the obligatory one, the failure to make all the items listed obligatory is almost inexplicable and would certainly seem to undermine the spirit if not the letter of the Directive".

It is the author's considered opinion that Meldon *et al.* and Wates have misinterpreted the law in this matter. However, their contentions are not uncommon. Scannell (1995: 298) states that:

"Uncertainty concerning the nature and the extent of the information to be supplied is a cause of concern for many developers and likely to generate controversy and litigation".

Crucial, yet often overlooked, considerations in the "minimum requirements" debate are the important qualifications in Article 5 of the EIA Directive. These qualifications dictate that the developer must supply the information contained in Annex III inasmuch as (i) ..."the information is relevant" and (ii) insofar as he ..."may reasonably be required to compile this information having regard *inter alia* to current knowledge and methods of assessment". Humphreys (1991) refers to these qualifications as the Directive's "criteria of relevance and reasonableness" and he remarks that "in the first instance at least"; the

supply of Annex III information is an optional matter for the developer. Humphreys then concludes that:

"This question of the content of an EIS is a fundamental one in the scheme of the Directive. That the criteria for determining such content are not reflected in Irish law may well amount to a failure to adequately transpose Article 5 of the Directive".

Scannell (1995: 288) provides an important insight into the resolution of the apparent inconsistencies between the Directive and the national legislation by stating that:

"National courts, local authorities and An Bord Pleanála are ... bound under EC law to interpret Irish law implementing a directive so as to give effect to the objectives of the directive in cases of ambiguity and where they have a discretion to do so".

Thus, the Directive provides predominant guidance in instances where ambiguity prevails.

This is a fact which is frequently disregarded by EIA commentators. Many authoritative texts on EIA fail to recognize the significance of the relevance and reasonableness criteria.

Most, additionally, fail to acknowledge that, in regard to interpretative difficulties, the Directive is supreme. Notwithstanding the guidance provided in Article 5 (1) of the

Directive, it is generally agreed that interpretative problems frequently arise. The

Commission of the European Communities (1993) acknowledges this fact and states that:

"There is a degree of confusion and uncertainty by the competent authorities, developers and the public generally as to what information must be included in an EIS. This relates mainly to difficulties of interpretation of Annex III of the Directive as adopted under the Second Schedule of the 1989 Irish Regulations".

The finer details of the inconsistencies between the Directive and the national legislation, although fundamental in nature, are mainly of theoretical interest. This is because the implementation of EIA law in Ireland enables the competent authorities to interpret and apply the "criteria of relevance and reasonableness" on a case by case basis.

The question to be asked should be: whether or not the relevant information is provided as opposed to whether all Annex III information is provided. In instances where the

information is inadequate, the competent authority should further consider whether or not it is reasonable to expect the developer to supply additional information. In considering this the competent authority can have regard to any relevant issues provided "current knowledge and methods of assessment" are given due consideration. The words "*inter alia*" in Article 5 (1) (b) of the Directive expressly allow a competent authority to consider matters other than relevance and reasonableness. The competent authority has the discretion, therefore, to attach considerable weight to issues such as the probability of impacts and the significance of any impacts which are likely to arise.

The preamble to the EIA Directive acknowledges that:

"...for projects which are subject to assessment, a certain minimal amount of information must be supplied, concerning the project and its effects".

The preamble additionally recognises that the appropriate information submitted by the developer may be:

"...supplemented by the authorities and by the people who may be concerned by the project in question"

The Directive clearly envisages a limitation to the extent of the information which is supplied by the developer. Furthermore, the contribution of information from other sources is expressly facilitated. Article 5 (3) of the Directive requires Member States to ensure that authorities with relevant information submit same to the developer.

#### **4.2 INTERPRETATION OF RELEVANCE AND REASONABLENESS**

Up until May 1994, it was mostly Planning Authorities who were required to adjudicate on the quality and completeness of EISs. Article 28(2) of the Local Government (Planning and Development) 1994 Regulations, specifically obliges the planning authorities to consider the adequacy of EISs and where they deem it necessary, they are empowered to require further information to be submitted. The legal position has been somewhat clarified by the High Court judgement of Mr. Justice Barron on the 27th of July 1989.

Barron held that: "it was solely for the Authority to determine upon the sufficiency of an Environmental Impact Study" (Scannell, 1991). This judgement was subsequently interpreted by Archer (1990) as follows:

"The planning authority has discretion as to what to require or accept and the determination as to the sufficiency of the information is solely a matter for that authority".

It has been recognised that planning authorities can be somewhat inconsistent in their application and interpretation of EIA legislation. Some commentators have been extremely sceptical of the integrity of EISs. Wates (1990), for example, states that:

"...in order to counter the inherent bias arising from the fact that the EIS is commissioned by the developer, it is necessary, not only to have, explicit standards for ensuring a high standard of EIA, but to have an effective mechanism for refining, interpreting and enforcing these standards".

Wates (1990) and others have also highlighted the potential conflicts in instances where the local authority was acting as both the Development Agency and the Planning Authority. In this regard, the establishment of the EPA has given a new impetus to the EIA process in Ireland. The EPA Act, 1992 allows the Agency to compliment and supplement certain activities which are undertaken by local authorities. One of the general functions of the Agency as provided for under Section 52 of the Act is to provide support and:

"...advisory services for the purposes of environmental protection to local authorities and other public authorities in relation to the performance of any function of those authorities".

The EPA has recognised the urgent need to regulate the EIA process. One of the Agency's directors is reported to have claimed that: "some of the EISs have not been worth the paper they were written on" (Environmental Management Ireland, 1993). The 1992 EPA Act empowered the Agency to prepare guidelines on the information to be contained in

EISs. The Act also requires that these guidelines be used in the preparation and evaluation of EISs.

In 1995 a set of Draft Guidelines on the information to be contained in EISs was published by the Agency (EPA, 1995a). The EPA's Draft Guidelines were prepared following widespread consultation and have been issued by the Agency:

"...as a draft to provide immediate practical information while allowing a period for review and further evaluation in day to day practice".

It is the Agency's intention that the Draft Guidelines will be reviewed prior to their formal adoption in 1997 under Section 72 of the EPA Act, 1992. In the meantime,

"...it is the Agency's wish that all those involved in preparing and evaluating EISs would make full use of the Draft Guidelines".

In addition to the Draft Guidelines, the EPA has published a set of Advice Notes (EPA, 1995b). The Advice Notes expand upon many of the topics covered by the Draft Guidelines and they provide additional guidance on current practice in EIA. Taken together the Draft Guidelines and the Advice Notes constitute the definitive and authoritative reference on EIA in Ireland. It is clearly acknowledged in the Draft Guidelines that every EIS is:

"...a unique result of specific site issues interacting with the effects of the proposed development".

The guidelines also recognise that for each EIS,

"the competent authority and the developer's advisors should use their judgement... to determine which likely significant effects will need to be addressed".

Thus, the EPA's guidance provides the essential framework in which the principles of "relevance and reasonableness" can be interpreted and, according to Fry (1996), they provide "...an agreed basis for determining the adequacy of an EIS".



## **5. APPLICATION OF THE LEE AND COLLEY (1992) REVIEW PACKAGE TO A SAMPLE OF 8 EISs**

### **5.1 INTRODUCTION**

On the 16th of May 1994, Integrated Pollution Control (IPC) licensing was formally introduced by the Environmental Protection Agency under the provisions of the EPA Act, 1992. The types of activity to which IPC licensing will be applied are specified in the First Schedule of the Act. There are a total of 13 categories in the First Schedule and within each category there are a number of classes of activity. Activity is defined by Section 3 of the 1992 Act as "any process, development or operation specified in the First Schedule...". The licensing system is being introduced on a phased basis and, to this end, a series of statutory instruments has specified the dates on which certain classes of activity are subject to IPC.

An EIS can form part of an IPC licence application and most new licensable activities will require an EIS to be prepared and submitted on behalf of the applicant. (The Minister for the Environment may exempt a project from EIA. However, this would only be considered "in wholly exceptional circumstances" - Department of the Environment, 1994). In the case of existing activities, the EPA may require an EIS to be submitted in support of the IPC licence application.

Between the 16th of May 1994 and the 30th of September 1995 a total of eight EISs were submitted to the EPA. Some of these EISs were transferred to the EPA under the "Transitional Arrangements" of the 1992 Act. These arrangements stipulated that any application for a licence or permit under the Air Pollution Act, 1987; the Local Government (Water Pollution) Act, 1977; the EC (Toxic and Dangerous Waste) Regulations, 1982; and the EC (Waste) Regulations 1979 - which were made to a local authority or to the Minister for the Marine and which had not been determined by the 16th of May 1994, were to be

transferred to the EPA, where the Agency was the appropriate licensing authority.

Three applications were transferred to the Agency under the Transitional Arrangements up to the 4th of July 1994 and an EIS formed part of each application. By the end of September 1995 an additional five EISs had been submitted to the Agency in support of "fresh" IPC licence applications. These eight EISs were selected as the basis for this study and the details of each are presented below:

**Table 1: IPC Licence Applications (May 1994 to September 1995) which were accompanied by an EIS**

NAME OF APPLICANT	NATURE OF ACTIVITY	LOCATION OF DEVELOPMENT
Louisiana Pacific Coillte Ireland Ltd.	Manufacture of Fibre-board.	Gorteen, Co. Kilkenny.
Lawter International B.V.	Incineration of Hazardous Waste & Manufacture of Phenolic Resins.	Grannagh, Co. Kilkenny.
John McCarthy, Chartered Accountant.	Extraction of Shale Clay & Coal and Temporary Stockpiling of Shale & Clay.	Gorteen, Co. Kilkenny.
Smithkline Beecham (Manufacturing) Ltd.	Manufacture of Pharmaceutical Products and their Intermediates and the Incineration of Hazardous Waste.	Currinbinny, Co. Cork.
Yamanouchi Ireland Co. Ltd.	Pharmaceutical Manufacturing & Incineration of Hazardous Waste.	Mulhuddart, Dublin 15.
Masonite Corporation	Manufacture of Fibre-board & Application of Surface Coatings.	Derryoughter, Co. Leitrim.
Clare Calcite Ltd.	Extraction & Processing of Minerals.	Monaoe, Co. Clare.
Dynochem Ireland Ltd.	Manufacture - by way of Chemical Reaction Processes - of Organic Chemical Products, other than those specified in Class 5.2; and the Chemical Manufacture of Glue.	Marino Point, Co. Cork.

Note: The details presented in Table 1 have been extracted from the EPA's Register of Licence Applications.

The Lee and Colley Review Package 1992 (presented in Appendix A) was used to evaluate the quality of the eight EISs which were submitted in support of the IPC licence applications referred to in Table 1. The scope of this evaluation, the methodology of this evaluation and the results of the evaluation are discussed below.

## 5.2 SCOPE OF THE EIS EVALUATIONS

The primary objective of this evaluation is to determine any noticeable trends in EIS quality since the EPA assumed its role in Environmental Impact Assessment. The population of EISs from which the Dancey and Lee (1993) sample was taken consisted of all those EISs which were listed in the ERU inventory up to April 1992. The current study focuses on a sample of eight EISs which were submitted to the EPA up to the end of September 1995. Dancey and Lee (1993) recommended that:

"...the practice of assessing the quality of a sample of the EISs which are produced each year in Ireland should continue".

Although in this study the sample size is relatively small, each EIS submitted to the Agency up to the commencement of this study (September 1995) was evaluated.

Dancey and Lee's (1993) results demonstrated "a continuous significant improvement" in EIS quality over time and they concluded that the: "time trend in EIS quality in Ireland is broadly similar to that in the United Kingdom". It would be reasonable to expect that the eight EISs which were submitted to the EPA should reflect an overall improvement in quality. Not only were these eight EISs prepared at least three years after the EISs which were sampled by Dancey and Lee, they should have been prepared in the knowledge that they "must pass the scrutiny of the EPA" (Meehan, 1994). As mentioned earlier (Section 1.3) Meehan has suggested that, "any EIS submitted as part of an IPC licence application" would be "likely to be examined more rigorously on certain aspects of pollution" than those EISs which were submitted to planning authorities alone. It would be reasonable to assume, therefore, that the expectation of a "more rigorous examination" would be reflected in the quality of those EISs which were submitted to the Agency.

This study allows comparisons to be made with the findings of the Dancey and Lee study (1993) which is regarded as the definitive review of Irish EIS quality. For this reason, the

methodology and approach adopted by Dancey and Lee were adhered to as closely as possible. The EIS evaluations in the current study are, therefore, concerned exclusively with EIS documentation. Supplementary or additional information which may have been submitted in support of the EISs were neither reviewed nor considered. The evaluations therefore, constitute a limited form of "EIS Audit". Site visits were not undertaken, although these are advocated by Lee and Colley (1992) where "practicable". Neither the competent authorities nor the project proponents were interviewed in connection with this study. The limitations outlined above are consistent with the Dancey and Lee (1993) approach.

### **5.3 METHODOLOGY AND LIMITATIONS OF EIS EVALUATIONS**

The eight EISs were reviewed in accordance with the Lee and Colley (1992) Review Package. This Review Package was strictly adhered to and was interpreted in accordance with the 1992 "Advice for Reviewers". The only divergence from the 1992 Review Package was that the EISs were reviewed by the author alone. The 1992 Review Package recommends that:

"...each ES should initially, be separately reviewed by two different reviewers who should then endeavour to reconcile any differences when finalising their joint review".

For the purpose of this dissertation, it was not possible to use two reviewers. Although some reviewers have compared their standard of reviewing to an external authority, this was not undertaken in this instance. Dancey and Lee (1993), for example, requested the EIA Centre, University of Manchester, to review the first five of the forty EISs which they evaluated, "to ensure that the quality standards applied were compatible with those used by experienced reviewers in the UK". In addition to the limitations which are discussed above, the current review relates specifically to EISs which formed part of IPC licence applications. In most of these instances the EIS and the IPC application would be reviewed and considered simultaneously by the EPA. This is recognised by some of the

EISs which allude to the fact that a "higher level of technical elaboration" is contained in the IPC application.

#### **5.4 RESULTS OF THE EIS EVALUATIONS**

Dancey and Lee (1993) presented their overall evaluations in two different formats. The first format is based on whether the EIS was determined to be "satisfactory" (i.e. graded A, B or C) or "unsatisfactory" (i.e. graded D, E or F). The Assessment Symbols (A, B, C, D, E, F and NA) were defined by Lee and Colley (1992) and they are presented below and additionally in Appendix A of this dissertation.

**A = Generally well performed, no important tasks 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 just unsatisfactory because of omissions and/or inadequacies.**

**E = Not satisfactory, significant omissions or inadequacies.**

**F = Very unsatisfactory, important task(s) poorly done or not attempted.**

**NA = Not Applicable. The Review Topic is not applicable or irrelevant in the context of this Statement.**

The second format used by Dancey and Lee (1993) to present the evaluation results was to assign each EIS one of three ratings: "good" (i.e. A or B) "borderline" (i.e. C or D) or "poor" (i.e. E or F) . These formats while, initially appearing contradictory or confusing, are both logical and straightforward. In order to make general comparisons, the Dancey and Lee (1993) formatting methodology is adhered to.

75% (6) of the eight EISs were determined to be "satisfactory", while 25% (2) of the EISs were determined to be "unsatisfactory". 62.5% (5) of the sample were determined to be "good", 25% (2) were rated as "borderline" and 12.5% (1) was rated "poor". The results

indicate that the quality of the eight EISs is substantially higher than those in the Dancey and Lee (1993) study. Overall, the number of "satisfactory" EISs has increased from 40% to 75% and the number of EISs rated "good" has increased from 15% to 62.5%. The number of "poor" EISs has decreased from 42.5% to 12.5%.

These results are encouraging in that they show that in addition to the majority (75%) of the eight EISs being rated "satisfactory", the majority were determined to be "good". Relatively few (40%) of the Dancey and Lee (1993) EISs were determined to be "satisfactory" and even fewer (15%) were rated "good".

The quality of each EIS is based on an assessment of its quality in four separate Review Areas as shown in Table 2:

**Table 2: Details of the Lee and Colley (1992) Review Areas**

<b>REVIEW AREA</b>	<b>PARTICULARS</b>
<b>1</b>	<b>Description of the development, the local environment and the baseline conditions</b>
<b>2</b>	<b>Identification and evaluation of key impacts</b>
<b>3</b>	<b>Alternatives and mitigation of impacts</b>
<b>4</b>	<b>Communication of results</b>

An analysis of the quality of the eight EISs shows that in all of the Review Areas, 75% to 87.5% (6 - 7) of the EISs were "satisfactory" and 62.5% to 75% (5 - 6) were rated "good". These results compare favourably with the Dancey and Lee (1993) results. In Review Areas 1, 2 and 3 the majority of the Dancey and Lee EISs were determined to be "unsatisfactory" and the best performed Review Area in the Dancey and Lee study was Area 4 in which only 55% of the EISs performed satisfactorily. A comparison of the Dancey and Lee results with the results of the current study is presented graphically in Appendix D of this dissertation.

With few exceptions, any weaknesses or omissions in the eight EISs were relatively minor in nature. Only one EIS performed "unsatisfactorily" in all 4 Review Areas. This particular EIS was fundamentally flawed in that its conclusions were based upon a series of technical reports which were prepared for a similar but different proposal.

One EIS failed to include any form of "non-technical summary". Such an oversight can not easily be excused and, technically, it invalidates the entire EIS. One EIS was "borderline" for all Review Areas and the remaining 5 EISs were rated "good" in all 4 Review Areas. Of the 5 "good" EISs, any of the inherent weaknesses were of a minor nature and were related to issues such as the failure to provide adequate references or the failure to describe the methods which were used to predict impacts.

Although the results of this evaluation indicate a substantial improvement in quality, the following limitations (some of which were mentioned in Section 5.3) must be considered:

1. The sample size is relatively small although it represents all of the EISs which were submitted to the EPA up to September 1995.
2. The limited sample size precludes detailed conclusions being made in connection with EISs for certain project types. For example, two of the EISs evaluated were for mineral extraction projects; one of these was rated "poor" and the other was rated "borderline". The Dancey and Lee (1993) sample was "believed to be representative" of all the EISs which were submitted in Ireland up to April 1992. One of the Dancey and Lee (1993) conclusions was that the quality of EISs for "manufacturing projects" was considerably higher than those for "agriculture, infrastructure and extractive projects". Although this study would appear to concur with Dancey and Lee's findings, the small sample size in this instance raises particular interpretative difficulties.
3. The standard of review undertaken by the author has not been compared with that of Dancey and Lee (1993). The approach to each EIS review was based solely on the criteria laid down by Lee and Colley (1992).
4. The application of the Lee and Colley (1992) Review Package is heavily reliant upon the subjective, evaluative judgement of the reviewer. It would not be unreasonable, therefore, for two reviewers to arrive at different findings when reviewing the same EIS.

5. The eight EISs were evaluated by the author alone. All of the Dancey and Lee EISs were evaluated by at least two reviewers who reconciled their findings in instances where their assessments differed.

Notwithstanding these limitations the results demonstrate a significant improvement in quality over the Dancey and Lee (1993) sample. These results are consistent with the "time-trend" observed by Dancey and Lee (1993), i.e. a continuous significant improvement in EIS quality over time. The expectation that the EPA would review certain aspects of the EISs probably contributed in part to the observed improvement in quality. It is not possible to confirm this, however. The fact that the majority of the project proponents had, at least, some consultation with the EPA at the scoping stage of the studies strongly suggests that the Agency's involvement had some positive influence on the quality of the EISs.



## **6. DISCUSSION**

### **6.1 DIFFICULTIES WITH THE APPLICATION OF THE LEE AND COLLEY REVIEW PACKAGE**

The essence of the Lee and Colley (1992) Review Package is the determination of the extent to which an EIS complies with legal minimum requirements and the degree to which it conforms to "current international conceptions of best practice in procedure and methods". Additionally, one of the stated objectives of the review process is to determine the extent to which an EIS is in broad compliance with the "spirit of the Directive".

The demarcation between that which complies with minimum legal standards and that which, additionally, complies with the spirit of the EIA Directive is, at the very least, nebulous. Many commentators would contend that EIA legislation is exceedingly vague and that there is considerable doubt as to what actually constitutes a "minimum legal standard" for an EIS. The Review Package acknowledges this difficulty and states that:

"It is clearly an important consideration in deciding the suitability of the Statement as a planning document that these minimum data should be provided. Transposition of their exact requirements into Review Topics, however, is problematic, particularly as it could be argued that the exact nature of the information required varies from case to case".

The criterion of "current international conceptions of best practice in procedure and methods" is inherently more difficult to decipher than that of the minimum legal standard. Nonetheless, the Lee and Colley (1992) Review Package sets out to effectively "measure" the quality of EISs with the "best practice" and "legal requirements" yardsticks.

Inherent in virtually every discipline is a fundamental requirement to observe, measure and to hypothesize. However, a universal feature of scientific methodology is the intrinsic difficulty of executing the measurement. Tull and Hawkins (1987: 208) have defined measurement as:

**"The assignment of numbers to characteristics of objects, persons, states, or events, according to rules".**

Although Tull and Hawkins (1987: 208) specifically addressed the application of measurement strategies in marketing research, their observations are relevant to a wide range of disciplines. They state that:

**"The most critical aspect of measurement is the creation of the rules that specify how the numbers are to be assigned to the characteristics to be measured"**

Tull and Hawkins (1987: 208) address the limitations pertaining to the quality and the interpretation of measurement results and state that difficulties can arise in instances where:

**"...the rules that specify how to assign the numbers to the characteristics to be measured are arbitrary. Numbers are assigned on the basis of created or invented rules, not as a result of some divine revelation or undeniable natural law."**

Although the Lee and Colley Review Package does not assign numbers, it does assign "Assessment Symbols". The reviewer is, thus, required to choose an Assessment Symbol for each "Review Topic" based on the way certain "tasks" are performed throughout the EIS. The Assessment Symbols (A, B, C, D, E, F, NA) are shown on page 30 of this dissertation and are, additionally, presented in Appendix A.

Very limited guidance is provided in the Review Package with regard to the assignment of Assessment Symbols. The essence of the Review Package is therefore, poorly defined, although the following instruction is provided:

**"...a task should be assessed as having been satisfactorily handled if there is sufficient information provided in the Statement on the topic concerned to allow a decision-maker to make an informed decision without having to seek further advice. It is the appropriateness and quality, and not the volume, of information provided which is the relevant consideration. It could be justifiable to supply more limited information for small projects having few and less complex impacts than for much larger projects with multiple major impacts. Where data on a particular topic are not explicitly provided but are, nevertheless, implicit in the treatment of other topics, the reviewer may decide that they should be assessed as adequate."**

This limited guidance assists in determining whether or not a task has been "satisfactorily handled". However, within the "satisfactory spectrum", a task may be assigned any of three separate "Assessment Symbols". Thus, a satisfactorily handled task may be determined to be: generally well performed with no important tasks left incomplete; generally satisfactory and complete with only minor omissions and inadequacies; or just satisfactory despite omissions and/or inadequacies. This is because the Assessment Symbols: A, B and C all constitute differing degrees of "satisfactory".

It is the author's contention that in many instances it is exceedingly difficult to distinguish between some of the Assessment Symbols. The distinction between symbols B and C is somewhat nebulous and similarly, the symbols E and F are barely discernible. Boland (1994) apparently concurs with the author's conclusion that the Review Package incorporates an excessive number of grades. Boland states that:

"There is not a significant difference between a C grade and a D grade, as defined in the Review Package... The objective of the appraisal is to determine the strengths and weaknesses of the EIS and thus it is more practical to apply only three broad grades, eg. good, adequate or poor, to the evaluation".

Overall, it would appear that the strategy for assigning grades (Assessment Symbols) is somewhat ill-defined. There is excessive compartmentalization of the grades and, additionally, the rationale of assigning grades is not expounded upon.

The Review Package includes a list of "Review Topics" which are "arranged hierarchically in three levels". At the lowest level of the hierarchy are the "Review Sub-categories" and the quality assessments of these are used to assess the next highest level, the "Review Categories". The quality assessment of the Review Categories are in turn used to evaluate the next level, the "Review Areas". The Review Package states that:

"In assessing the higher levels reviewers are expected to use personal judgements about the relative importance of the various sub-topics and additional knowledge gained from the Statement as well as their assessments of the level immediately below".

The use of these "personal judgements" is of paramount importance and the Review Package advises that:

"...the assessment of the Category should not be derived by a simple averaging of the assessments of the component Sub-categories. Your evaluation of both the relative importance of these Sub-categories and any information in the Statement not covered by them, should also be taken into account".

There is, thus, an inherent need to apply weightings to the Sub-category levels in order to evaluate the higher Category level. O'Shea (1994) considers this facet of the Review Package in relation to the EISs which she reviewed. In addressing Category 4.1 of the Review Package, for example, O'Shea acknowledges that this Category:

"...was difficult to interpret at times because of the fact that many EISs performed well in terms of the arrangement of information (Sub-category 4.1.2), but were often unsatisfactory with regard to the introduction (Sub-category 4.1.1) and the acknowledgement of sources of data, conclusions and quality standards (Sub-category 4.1.4)".

The approach adopted by O'Shea was:

"...to rate Category 4.1 as satisfactory if the arrangement of information was good ('A' or 'B') and the acknowledgement of data sources at least borderline ('C' or 'D'). An EIS that was 'poor' ('E' or 'F') in respect of Sub-category 4.1.4 would be considered unsatisfactory at the level of Category 4.1".

Although this is an entirely rational approach and it is clearly explained, many reviewers might differ in their interpretation of the pertinent issues. It would not be unreasonable for a reviewer to decide that well-known documents or sources, for example, do not necessarily have to be given a full reference. It is obviously preferable that adequate references be provided in an EIS. However, the consideration should be whether or not the absence of a full reference precludes a decision-maker from making "an informed decision without having to seek further advice". This simple example illustrates one of the major problems with the Review Package. The assignment of Assessment Symbols is overly dependant upon the judgement of the reviewer and the framework in which these judgements are made are reliant upon arbitrary weighting systems. The Review Package fails to provide adequate guidance or insight to enable these judgements to be made with any degree of consistency.

In EIA, there have been many techniques developed to facilitate the comparison and evaluation of impacts. One such technique is the application of "scaling-weighting checklists" which attempt to assign weights to certain parameters in accordance with their relative importance. A combination of these weights and a series of "scaling functions" allows an index to be calculated which is used to evaluate alternative options. Bisset, (1990) addresses the use of such tools and he remarks that:

"It is argued that the subjectivity involved in these computations is "lost" within a dubious objectivity. Even if not "lost" it is further contended that the subjective views incorporated within these methods are representative of a very restricted population, namely, selected decision-makers and/or experts".

The practice of assigning weights in order to evaluate impacts is unequivocally distinct and somewhat remote from the use of weighting systems in reviewing EIS quality. Nonetheless, there are many similarities and the inherent weaknesses of weighting systems arise in both applications. The derivation of the weights and the need to quantify or attach values to what Bisset calls "the unquantifiable", are recurring difficulties. Notwithstanding these difficulties, it is essential that such weighting systems be used by the EIS reviewer. An important consideration here, is the fact that the "restricted population" which makes most use of the Review Package generally comprises students, academics and consultants. Their weighting systems are likely to differ substantially from those of the restricted population of "decision-makers" to which Bisset alludes. The weighting systems of individuals are always likely to deviate to some extent. However, in the absence of clear and specific guidance, the likelihood of such deviation increases. An inherent fault of the Review Package is, thus, the failure to provide adequate guidance to reconcile those "Categories" which are comprised of disparate component "Sub-categories". O'Shea (1994), concludes that there is a need for supplementary guidelines in order to:

"...avoid misinterpretations of criteria for information to be provided. These should include some general notes on application of relative weightings to obtain overall category ratings".

It is important to recognise that the outcome of an EIS evaluation is largely dependent upon the subjective judgement of the reviewer. Tull and Hawkins (1987:221) remark that:

"A measurement is a number designed to reflect some characteristic of an individual, object, or event. As such it is a specific observation or picture of this characteristic. Thus, we must keep in mind that a measurement is *not* the characteristic of interest but only an observation of it".

It is recognised that in every evaluation a certain degree of measurement error is inevitable.

A measurement system which is heavily reliant upon evaluative judgement is inherently predisposed to systematic and variable error. Nonetheless, this type of measurement system is common to a wide range of disciplines. For example, in the field of risk analysis and assessment, Wharton, (1992) draws upon concepts pertaining to the domain of cognitive psychology. Wharton states that:

"It has been recognised that decision making is a complex cognitive task, frequently situation dependant, in which human beings perform in a manner determined by their limited memory, retention and information processing capabilities".

Wharton acknowledges the importance of evaluative judgement and states that:

"In the case of an individual the evaluation will depend on his own value system whilst if a group decision is required then political considerations will have a bearing".

In the field of EIA "subjective and judgemental" contributions are unavoidable. However, the literature alludes to these contributions, primarily in the consideration of impact evaluation. Erickson (1994:66) states that:

"...impacts are merely "consequences" of proposed actions. These consequences are in and of themselves neither adverse nor beneficial, neither significant nor insignificant. Human judgement about these consequences, not the consequences themselves, determine their value".

It is generally recognised that the evaluation of EISs is a complex task which can be subject to bias. Wood (1995:162) states that:

"One of the most difficult areas in the review of EIA reports, as in the preparation of EIA reports, is ensuring objectivity since the organisation charged with responsibility for formal review (if any) may have a vested interest in the decision about the proposal".

One of the ways in which an individual's judgement may be appraised is by determining the degree to which the judgement is informed. A well informed and considered judgement is, thus, inherently more valuable than a cursory one. The Review Package in considering the expertise needed for a review states that:

"This review process is intended primarily to be applied by planners and other interested parties who:

- \* are familiar with the requirements of the regulations relating to environmental assessment;
- \* have at least a basic, non-specialist knowledge and understanding of impact assessment methodologies and current ideas on best practice in EA".

Based upon the author's practical experience of EIA, which has been developed over a number of years' involvement in the preparation and management of EISs, it is contended that in order to effectively review an EIS, the reviewer must have substantial experience of EIA procedures. Some practical knowledge of the industry or activity to which an EIS pertains will additionally ensure that the reviewer's judgements are well informed. Erickson (1994:65) addresses the importance of scoping in EIA and the contributions of the personnel who conduct the scoping process. He states that:

"Academic disciplinary knowledge is important in the assessment process, but human experience is not confined by the compartmentalizations of knowledge that we call disciplines. Therefore, academic disciplinary understandings of environmental phenomena must be balanced with experiential understanding".

The Lee and Colley (1992) Review Package advocates that the reviewer should undertake a site visit to become more familiar with the location of the proposed development. It is recognised, however, that this is not always practicable and most reviews would be undertaken in the absence of such a site visit. The author considers that the failure to undertake a site visit seriously diminishes the reviewer's ability to make well informed judgements. Erickson (1994:65) reinforces this by stating that:

"For the purpose of identifying possible impacts, as well as for the purpose of evaluating the significance of impacts, local experience - experience not sanctioned by academic credentials - can play a critical role, particularly in the assessment of direct and indirect impacts ...".

Although the reviewer is not required to "refute the findings presented in an ES or to supplant them with conclusions" of his own, he is specifically required to "be alert to areas of weakness, omission or even concealment in the Statement" (Lee and Colley, 1992).

The single biggest difficulty with the Review Package is that in the absence of substantial EIA experience or experiential understanding of the project type, and without the benefit of local expertise, the value of the review is, at the very least, questionable. An EIS which "scores" very highly in a review may be fundamentally flawed by its failure to address a crucial issue. Such issues can, in certain cases, be identified only by the interaction of a number of factors and players. Erickson's (1994:68) comments on the significance of impacts are particularly pertinent. He states that the:

"...case-by-case approach - an approach that heavily depends on site-specific information and context - gives good assurance that judgements of significance will be relevant to the real rather than an abstract environment".

Any review which is undertaken without the benefit of site-specific information must therefore, be regarded as somewhat suspect.

## **6.2 ADVANTAGES OF THE EUROPEAN COMMISSION REVIEW METHODOLOGY**

Reference was made (in Section 3.5) to the fact that the European Commission published a guidance document in 1994 which incorporated a "Review Checklist" for the evaluation of EISs. Some of the weaknesses of the 1992 Review Package have been remedied by the European Commission (1994) Review Checklist. The "Review Checklist" is inherently more simple to use and it is more focused on the realities of EIS review in the context of the authorization/EIA process. The Review Checklist includes a series of "Review Questions" and its overall approach is very similar to the 1992 Review Package. However, there are a number of refinements. These include, an initial determination of whether the



Review Question is relevant to the type of development proposed. Where the Review Question is determined to be relevant, the reviewer examines the information and assesses it to be; "complete", "acceptable" or "inadequate". Guidance on the factors to be considered in making these assessments is presented in a clear and unambiguous format.

An interesting feature of the Review Checklist is that where a Review Question is assessed as "acceptable" or "inadequate", the reviewer is required to make note of what information is missing and "where appropriate and feasible" to recommend a means of obtaining this information. The Review Checklist, thus, provides a framework in which "real life" EIS evaluations are made and it assists in identifying and remedying any weaknesses. As such, the Review Checklist should prove to be a very useful tool to the decision-maker and, used in conjunction with other appropriate tools, can only benefit the EIA process.

The Review Checklist offers substantial advantages in that it appears to be "tailor-made" for the decision-maker. The primary concern of the Review Checklist is with the statutory assessment of EISs within the narrow confines of the EIA system, as opposed to the evaluation of EISs solely for research and monitoring. Provision has been made, however, for it to be used in the latter type of monitoring scenario. Furthermore, the Review Checklist can, readily, be integrated into the decision-making process as well as being used for monitoring and research. There is, thus, the potential for competent authorities to use the Review Checklist in the performance of their statutory duties pertaining to the evaluation of EISs. The Review Checklist will never provide all of the "answers" to all of the "questions" which arise in EIA. However, it does provide an excellent framework within which the pertinent questions can be addressed. Although the Review Checklist incorporates some of the inherent weaknesses of the Review Package, one of the major advantages of the Review Checklist over the 1992 Review Package is its potential to be

used more extensively by decision-makers. This potential may go a long way to address the ever widening gulf that apparently exists between the purist's concept of quality and the EIA practitioner's concept of quality. A full and proper reconciliation, however, will always remain unattainable.

### **6.3 REFORM OF THE LEGAL FRAMEWORK**

Pollution controls in Ireland were, until recently, based upon an approach which considered discharges to water, air and land separately and independently of each other. This gave rise to the "single media authorizations" under air, water and waste legislation and in many instances multiple licences and permits were necessary for a single industrial plant. However, the introduction of Integrated Pollution Control (IPC) licensing has now resulted in a co-ordinated and integrated approach to the regulation of certain scheduled activities. This offers enormous benefits to both the developer and to the regulatory agency, although the very integration of the single media authorizations has resulted in a fragmentation of the EIA system. This is because activities which are subject to IPC licensing and EIA are evaluated by planning authorities (and by An Bord Pleanála in cases of appeal) "only insofar as" they "do not relate to the risk of environmental pollution" (Article 6 of the European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1994). One of the obvious effects of this is that an EIS which is submitted in support of an activity subject to IPC licensing, must be evaluated by two distinct competent authorities. The planning authority will consider the EIS insofar as it relates to certain planning and development issues and the EPA will undertake an independent evaluation of the "environmental pollution" aspects of the EIS. Not only has the EIA system been fragmented, the nature of the fragmentation is not always clear. This is because the demarcation between issues such as "planning and development control" and "environmental pollution" is somewhat indistinct. Although formal and *ad hoc* arrangements allow for the interaction of the independent competent authorities, it is

important to recognise that a planning application and an IPC licence application need not be processed simultaneously. Thus, there could conceivably be a considerable time lapse between the formal evaluation of an EIS in terms of the planning and development issues and the evaluation of the environmental pollution issues. The public's role in EIA has been fundamentally frustrated by this fragmentation. The general public (or any third party), is effectively precluded from making inclusive submissions regarding the contents of an EIS, in instances where an activity is subject to IPC. The fragmented EIA system now requires the general public to direct its "planning and development observations" to the planning authority and its "environmental pollution observations" to the EPA.

Environmental pollution is defined in the EPA Act, 1992 and it encompasses issues which pertain to water, air, waste and noise pollution. The planning and development issues encompass matters such as proper planning and development of the area; the preservation of amenities and the general provisions of the Development Plan. These latter issues are frequently prejudiced by "environmental pollution" and in practice the underlying principles may be indistinguishable.

The EPA Act, 1992 has a number of further implications for the EIA process. The establishment of the EPA and the introduction of IPC licensing has resulted in the emergence of an additional competent authority. As discussed above, the EPA is now one of the competent EIA authorities for projects which are subject to IPC licensing. However, the role of the Agency extends far beyond this. The Agency is empowered to provide:

"...support and advisory services for the purposes of environmental protection to local authorities and other public authorities in relation to the performance of any function of those authorities".

The Agency has a general supervisory duty and it is empowered to offer guidance, support and where necessary, to issue "directions". Section 72 of the 1992 Act, however, deals

specifically with EIA. Under this Section, "Guidelines" (EPA, 1995a) and "Advice Notes" (EPA, 1995b) were published by the Agency and "regard shall be had" to this guidance in the preparation and review of EISs. These provisions should help to ensure that some degree of consistency is achieved in the standard of the EISs which are accepted by competent authorities in Ireland.

Sub-section 4 of Section 72 makes further provision for the EPA to regulate the EIA process. "At such time as may be prescribed" a copy of all specified EISs must be sent to the EPA by "the person or body on whose behalf the EIS is prepared". The Agency having considered such an EIS is empowered to make "submissions or observations as it considers appropriate" to the competent authority concerned. The competent authority in turn will be required "to have regard to such submissions or observations". The 1992 Act has, thus, prepared the groundwork for the EPA to assume a much more active role in EIA. This would bring EIA practice, in Ireland, into line with the more advanced EIA systems of the world. In the USA, for example, the Environmental Protection Agency reviews each EIS and subsequently publishes its opinions on the adequacy of the EIS and the environmental impact of the proposed development. Although there are no such publication requirements in the 1992 EPA Act, the Agency is required to send a copy of its submission or observation to "the person or body by whom the environmental impact statement was sent". The comprehensive provisions of Section 72, if adopted in full, will help to ensure that the EISs submitted in Ireland are of a consistently high standard. The EPA's submissions and observations will presumably be used in determining what, if any, additional information is required to be submitted by the project proponent.

The EIS is widely recognised as one of the most critical components of EIA. Wood and Jones (1991) state that:

**"Only if the treatment of environmental impacts is comprehensive, objective and accurate (i.e., only if ESs are adequate) will the aim of EA - the making of informed decisions about applications for potentially environmentally significant development - be fully achieved".**

However, it should be recognised that the EIS by no means constitutes the full picture.

An accurate and comprehensive EIS is but one of the elements of good EIA. Frost (1994)

states that:

**"... the quality of the EIS should not be taken as a proxy for the quality of the EIA outcome".**

This is an important consideration and perhaps reinforces the view that an inordinate degree of attention should not be given to EISs to the detriment of the other essential components of good EIA. Regardless of the refinements and advancements which are realized, the EIA "chain" will always include certain weak links. However, it is important that we do not lose sight of the core objective of EIA: "the improvement of decision-making". Erickson (1994: 63) states that:

**"...environmental impact assessment is increasingly becoming a basic tool for decision making throughout the world. As should any tool, environmental impact assessment should be evaluated by the results actually achieved by its use".**

In essence, therefore, the consideration of quality in EIA should not be confined to EIS documentation alone. Rather, quality considerations should pervade each and every aspect of the EIA process.

## **7. CONCLUSIONS AND RECOMMENDATIONS**

### **7.1 CONCLUSIONS**

An evaluation of eight EISs, submitted in support of IPC licence applications, confirmed that 75% (6) were of a "satisfactory" quality, while 25% (2) of the EISs were determined to be "unsatisfactory". 62.5% (5) of the sample were determined to be "good", 25% (2) were rated as "borderline" and only 1 (12.5%) was rated "poor".

These results indicate that the quality of the eight EISs is substantially higher than those in the Dancey and Lee (1993) study. Overall, the number of "satisfactory" EISs has increased from 40% to 75% and the number of EISs rated "good" has increased from 15% to 62.5%. The number of "poor" EISs has decreased from 42.5% to 12.5%.

These results are encouraging in that they show that the majority (75%) of the eight EISs were rated "satisfactory", and additionally, the majority were determined to be "good". Relatively few (40%) of the Dancey and Lee (1993) EISs were determined to be "satisfactory" and even fewer (15%) were rated "good". Although there are some obvious restrictions pertaining to the interpretation of these results, it can be safely concluded that they positively demonstrate an improvement in overall quality.

The Lee and Colley (1992) Review Package has, apparently, received widespread endorsement and has formed the basis of the majority of EIS reviews undertaken in Ireland and the United Kingdom. Throughout the literature there appears to be a wholesale acceptance of the methodology and most EIS reviewers apply it with unquestioning diligence. The Review Package undoubtedly provides a useful framework within which the quality of an EIS can be addressed. However, it does have certain limitations. There appears to be little recognition of these limitations either in the Review Package itself or

within much of the literature pertaining to its application. Although the indiscriminate use of any methodology is fraught with difficulties, even the most defective methodology may have useful applications, where the intrinsic limitations are recognised. It is imperative, however, that the recognition of limitations extends to those defects which may arise in each particular application.

The basic tenet of the Review Package is that an EIS can be evaluated in the absence of a detailed knowledge of the proposed site and without due consideration of any factors which exist beyond the EIS documentation. Thus, the EIS is considered in an isolated and abstract manner, far removed from the realities of EIA practice.

The EIS is but a single component of the EIA process and practical considerations dictate that it is unlikely to be comprehensive, definitive or exhaustive in every detail. The precise content of a "satisfactory" EIS may be accurately determined, only by considering the site-specific issues in conjunction with the nature and scale of the proposal. There is unfortunately no simple formula or "repeat prescription" which can be used to determine the "optimum" content for every EIS.

The application of the Lee and Colley (1992) Review Package is heavily dependent upon the judgemental evaluation and reasoning skills of the reviewer. The reviewer's evaluation will, of necessity, be subjective. However, it is the author's considered opinion that the Review Package fails to elucidate the *modus operandi* of the grading system and, additionally, it promotes the use of an excessive number of grades (Assessment Symbols).

It is widely acknowledged that the evaluation of EISs is by no means a simple or straightforward task. One of the inherent difficulties is due to the fact that site-specific conditions and the nature and scale of the proposed development dictate the range and

level of scrutiny required. The legal framework for EIA in Ireland leaves a lot of room for interpretation and the interpretation that "counts" is that of the competent authority. The courts have given official recognition to the fact that it is solely for the competent authority to determine the sufficiency of an EIS. To a large extent any determination other than a competent authority's carries substantially less weight and in a strictly legal context may be regarded as irrelevant.

Problems with interpretation will inevitably arise when one considers that there are 88 separate planning authorities in Ireland. Within their functional areas, each of the planning authorities assumes the role of competent authority for developments which are subject to planning approval and EIA. In the case of projects which are not subject to planning controls and development which is proposed on behalf of local or state authorities, a number of authorization procedures have resulted in the designation of additional competent authorities. The Minister for the Environment, for example, assumes the role of the competent authority in cases which relate to certain infrastructural developments eg. waste disposal sites. Similarly the Minister for the Marine, the Minister for Finance and the Minister for Transport Energy and Communications all assume the role of competent (EIA) authority in relation to certain proposals within their jurisdiction. Each of these independent competent authorities is required to consider the adequacy of the EISs which are submitted in support of certain applications for authorization. In the performance of these statutory duties, they act authoritatively insofar as the determination of sufficiency is concerned. Consequently, there is substantial scope for widespread inconsistency by virtue of there being so many different EIA "authorities". Many commentators (eg. Nicholson 1993, Coles and Tarling, 1993) have recognized that one of the principle factors in determining the quality of EISs is the standard of the EISs which are "accepted" by competent authorities. As long as competent authorities continue to accept poor quality EISs, many project proponents and their consultants will continue to have little regard for



quality considerations.

## **7.2 RECOMMENDATIONS**

It is imperative that official recognition be given to the significance of the principles of "relevance and reasonableness" as set out in Article 5 of the EIA Directive (85/337/EEC). The interpretation and application of EIA law should, where appropriate, expressly incorporate these principles. The EPA's (1995a and 1995b) Guidelines and Advice Notes can now be regarded as the authoritative work on EIA in Ireland and they have effectively embodied these principles. However, there is a fundamental need for the widespread promotion and adoption of the Agency's literature. A series of seminars and training programmes should be devised for the full range of EIA protagonists including: consultants, developers, competent authorities, non-governmental organizations and the general public. This type of promotional and educational activity would be best coordinated by the EPA although collaboration with academic and professional interests would be advantageous. A periodic review of EIA guidance should be undertaken and, where necessary, the literature should be updated.

The EPA's (1995a and 1995b) Guidelines and Advice Notes should be used as the basis for developing a comprehensive checklist. By identifying and extrapolating the critical elements of these publications, an "EPA Checklist" would provide concise and authoritative guidance in the preparation and review of EISs. The educational and promotional activity referred to above might be used as a medium through which the crucial issues could be identified. Problem areas in EIA practice will warrant most attention and the interaction of interested parties would assist the EPA in presenting the checklist in the most user-friendly format. The "EPA Checklist" in its entirety (or at least its important elements) should be incorporated into certain application forms which are completed by proponents when applying for project authorization. The applicant might be

asked, for example, "Does the EIS include a non-technical summary?" The checklist would, thus, assist the proponent and the competent authority in identifying obvious deficiencies.

The policy of EIS review should be promoted and in addition to being used for long-term monitoring purposes, it should be incorporated into the day to day practice of EIA. The precise format of the review methodology should be determined by the EPA in consultation with all interested parties. In any case, however, it would be likely to include a substantial element of the "EPA Checklist" referred to above. The positive aspects of the Lee and Colley (1992) Review Package and the European Commission (1994) Review Checklist should be incorporated into an "EPA Review Package". The importance of local knowledge and site-specific information should also be prioritised.

The Agency's role in developing the "EPA Review Package" should be extended in line with the provisions of Section 72 of the EPA Act, 1992. These provisions allow the Agency to assume a pivotal role by making observations and comments in connection with all EISs. Thus, in addition to fulfilling the role of competent authority for activities which are subject to IPC licensing, the Agency would be legally empowered to review and pass judgement on EISs which are submitted to other competent authorities. The methodology and criteria of EIS review should, in the first instance, be determined by the EPA and by an evolutionary process of dissemination and consultation, a national standard would ensue.

The practice of reviewing and monitoring EISs can be promoted and facilitated by some very simple measures such as the dissemination of certain EIS documentation on computer disc. It is recognised that there will always be a need for "hard copy" versions of EISs, however, this measure would make EISs accessible to a wider audience without the necessity of time-consuming and expensive photocopying. Although difficulties will arise

regarding the incompatibility of certain word processing programmes and the inclusion of graphic and cartographic material, any practical difficulties could be surmounted. The dissemination of EIS text alone in such a format would facilitate the rapid review of EISs by the use of word processing features which enable a specific word or phrase to be located throughout the entire text. For example, if a non-technical summary cannot be located within the EIS, the term "non-technical summary" can be very easily searched to determine whether or not it has been mentioned anywhere in the EIS. Another simple measure which might be adopted to monitor EIS quality would be to establish a procedure whereby competent authorities would make periodic returns to the EPA in connection with EIA practice. A competent authority might, for example, provide details of the number and types of EISs received over a specified period and particulars of the number of EISs which required the submission of additional information. Planning authorities currently make returns in connection with the planning applications which they receive and these include limited details on the number of EISs received.

Finally, it is essential that quality considerations pervade the entirety of EIA. In order to achieve this, EIA practice and procedures including: screening, scoping, report preparation and review, should be subject to periodic evaluation and, where necessary, improvement measures should be developed. In the event that the necessary improvement measures cannot be accommodated within the existing legal framework, the legislation for EIA should be reformed.

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- European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1994 - S.I. No. 84 of 1994.
- European Communities (Toxic and Dangerous Waste) Regulations, 1982 - S.I. No.33 of 1982.
- European Communities (Waste) Regulations, 1979 - S.I. No. 390 of 1979.
- Local Government (Planning and Development) Regulations, 1994 - S.I. No. 86 of 1994.

# **Appendix A**

## **Environmental Statement Review Package**

**Source: Lee, N and R. Colley (1992) *Reviewing the Quality of Environmental Statements*. Occasional Paper 24 (Second Edition), Department of Planning and Landscape, University of Manchester.**



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# I. ADVICE FOR REVIEWERS

## 1. INTRODUCTION

### 1.1 The review package

This document comprises a complete package for the review of environmental statements and consists of:

- I: Advice for Reviewers
- II: List of Review Topics
- III: Review Summary

It has been used successfully to locate strengths and weaknesses in a wide spectrum of environmental statements (ESs) produced in the wake of UK implementation of the EC Directive on environmental assessment. Although the review procedure may initially appear complex, the underlying structure is simple and easy to learn. With a little practice reviewers should be able to review ESs quickly, accurately and reproducibly. With small scale amendments it may be adapted for use in other countries.

In certain cases (eg where projects are technically complex and controversial) the Package may be used with the assistance of consultants or, (during the first stage of a two-stage review) prior to using consultants for more specialised, in-depth review work.

### 1.2 Purpose of the review

This review is performed using a set of hierarchically arranged Review Topics with a view to assessing the quality of environmental statements submitted in anticipation of, or in response to, UK regulations mandating environmental assessment (EA) in accordance with EC Directive 85/337<sup>1</sup>. The regulations produced under the Town and Country Planning Act (TCPA) are taken as the standard UK interpretation of the Directive<sup>2</sup>. An EA capable of producing a good quality ES is, in this context, one which conforms to the TCPA Regulations (hereafter called 'the Regulations') in scope whilst conforming to current, international conceptions of best practice in procedure and methods.

An ES will usually contain a large amount of information about the form and consequences of a development. It is the purpose of this review to:

- provide the reviewers with a framework within which to interpret this information;

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<sup>1</sup> Reviewers in other countries should, where necessary, amend the list of Review Topics in Section II to take account of any differences from the EIA regulations in their country. Note that DOE regulations are, in any case, closely modelled on the provisions of EC Directive 85/337.

<sup>2</sup> Town and Country Planning (Assessment of Environmental Effects) Regulations (SI No 1199).

- enable reviewers to assess the quality and completeness of the information relatively quickly;
- enable reviewers to make an overall judgement of the acceptability of the ES as a planning document.

### 1.3 Information and expertise needed for review

This review process is intended primarily to be applied by planners and other interested parties who:

- are familiar with the requirements of the regulations relating to environmental assessment;
- have at least a basic, non-specialist knowledge and understanding of impact assessment methodologies and current ideas on best practice in EA.

### 1.4 Strategy of the review

It is not intended that reviewers should attempt to refute the findings presented in an ES or to supplant them with conclusions of their own. Reviewers should, rather, be alert to areas of weakness, omission or even concealment in the Statement. These may most often occur when certain tasks are omitted; unsuitable or *ad hoc* methods are used; biased or inaccurate supporting data are introduced, often without references; or the rationale or justification for conclusions is not given. The Review Topics are intended to direct the Reviewers' attention to these areas. In this way sources of **potential** error are located which can be the subject of further, if necessary specialist, investigation.

### 1.5 Organisation of review topics

A **List of Review Topics** is included as part of this Review Package. It contains Review Topics arranged hierarchically in three levels. These are:

- **Review Areas.** These are the four major areas of EA activity (they are preceded by one digit in the List of Review Topics, e.g. "4. Communication of Results").
- **Review Categories.** These are the categories of EA activity which must be undertaken within each Review Area (they are preceded by two digits in the List of Review Topics, e.g. "4.2 Presentation").
- **Review Sub-categories.** These comprise the detailed Review Sub-categories within each Review Category. (They are preceded by three digits in the List of Review Topics, e.g. "4.2.1 Information should be ....").

These form a hierarchy (or pyramidal structure) whereby reviewers:

- assess the quality of each Review Sub-category within a particular category;

- use these assessments **and** any other impressions gained from the Statement, which they feel are relevant, to assess the Review Category;
- use the results to assess the Review Areas and to summarise the quality of the Statement in a brief synopsis of its main strengths and weaknesses.

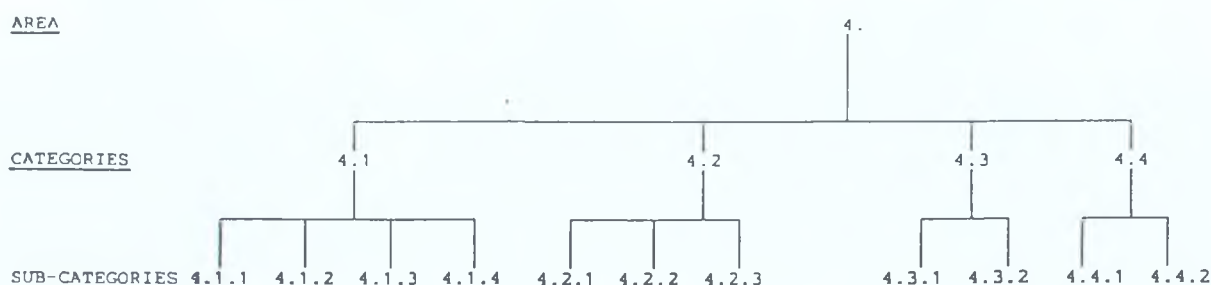
A schematic diagram of this hierarchy is presented in Figure 2.

At the lowest level of the hierarchy are the Review Sub-categories, represented by three digits. The quality assessments of these are used to assess the next highest level, the Review Categories, represented by two digits. Review Category assessments are then used to evaluate the next higher level, the Review Areas, represented here by one digit. In assessing the higher levels, reviewers are expected to use personal judgements about the relative importance of the various sub-topics and additional knowledge gained from the Statement as well as their assessments of the level immediately below.

The Review Topics are, so far as is possible, arranged so as to reflect the order in which the tasks should be performed. This is important because many of the later tasks require information which will only be available if earlier tasks have been adequately performed. Comprehensive treatment of mitigation measures, for example, will only be possible if all significant impacts have been correctly identified. Reviewers should be alert to these interactions and should take them into account in their assessments.

It should be noted that, in order to promote objectivity in ES reviewing, it is recommended that each ES should initially be separately reviewed by two different reviewers who should then endeavour to reconcile any differences when finalising their joint review.

Figure 2: A schematic representation of the Review Topic hierarchy in Review Area 4



## 2. REVIEW PROCEDURE

### 2.1 Conducting a review

Select two reviewers for the ES review. In order to conduct a review, each should first independently undertake the following steps sequentially.

1. Read all of the **Advice for Reviewers** carefully.
2. Read through the **List of Review Topics** (Areas, Categories, Sub-categories) and familiarise yourself with them and the data required.
3. Read the Statement quite quickly noting the layout and the whereabouts of essential information<sup>3</sup>.
4. Read the first Review Category (1.1) and its component Sub-categories (1.1.1-1.1.5). Remember that the Sub-categories refer to actions which must be undertaken in order that tasks described by the Category are performed fully and well. Interpret them in this context.
5. Assess each of the Sub-categories (1.1.1-1.1.5) referring closely to the Statement. Be aware that the required information will not all be located in the same place for any one topic. It will probably be necessary to make notes. Carefully read the list of assessment symbols. (These are listed in Section III: Review Summary). The appropriate assessment symbol is to be chosen based on the way the tasks relating to the Sub-category are performed throughout the Statement. Before deciding on the symbol it may be helpful to refer once more to the wording of the Review Sub-Category and to recall the strategy of review explained above.
6. Decide which assessment symbol is appropriate for each Sub-category and record it on the **Collation Sheet** provided in Section III. Note that a task should be assessed as having been satisfactorily handled if there is sufficient information provided in the Statement on the topic concerned to allow a decision-maker to make an informed decision without having to seek further advice. It is the *appropriateness* and *quality*, and not the *volume*, of information provided which is the relevant consideration. It could be justifiable to supply more limited information for small projects having few and less complex impacts than for much larger projects with multiple major impacts. Where data on a particular topic are not explicitly provided but are,

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<sup>3</sup> If practicable, undertake a site visit to become more familiar with the location of the proposed development.

nevertheless, implicit in the treatment of other topics, the reviewer may decide that they should be assessed as adequate. Such instances should be recorded in the synopsis (see below).

7. Use the assessments of Sub-categories 1.1.1-1.1.5, and any other information gained from the Statement which you considered relevant, to assess the Review Category 1.1. Note that the assessment of the Category should not be derived by a simple averaging of the assessments of the component Sub-categories. Your evaluation of both the relative importance of these sub-categories and any information in the Statement not covered by them, should also be taken into account.
8. Proceed to the next Review Category (1.2) and evaluate it in the same way as Review Category 1.1. Continue until all categories in the Review Area have also been assessed in the same manner.
9. Your evaluations of the Review Categories can now be used to assess the Review Area in the same way in which they themselves were derived from the Review Sub-category assessments (see 7 above). Thus, for example, the assessment of Review Area 1 is to be based upon the assessments of Categories 1.1-1.5.
10. When all Review Areas have been assessed the Statement as a whole can be assigned an assessment symbol. This overall judgement should, however, be supplemented with a brief synopsis of the Statement's strengths and weaknesses and a consideration of whether, for example, it meets minimum requirements (see below).
11. Then the two reviewers should meet to compare their review findings as recorded on their Collation Sheets. Where differences in their assessments occur (at Sub-category, Category, etc levels), reviewers should jointly re-examine them with a view to reconciling their findings on a common Collation Sheet.

## **2.2 Deciding on compliance with the Regulations**

The minimum information which an ES should contain, in any particular case, is specified in the EC Directive. This 'specified information' is interpreted in the Regulations, Schedule 3(2)(a-e). These are reproduced in full below.

- (a) *A description of the development proposed, comprising information about the site and the design and size or scale of the development.*
- (b) *The data necessary to identify and assess the main effects which that development is likely to have on the environment.*

(c) *A description of the likely significant effects, direct and indirect, on the environment of the development, explained by reference to its possible impact on:*

*human beings  
flora  
fauna  
soil  
water  
air  
climate  
the landscape  
the inter-action between any of the foregoing  
material assets  
the cultural heritage*

(d) *Where significant adverse effects are identified with respect to any of the foregoing, a description of the measures envisaged in order to avoid, reduce or remedy those effects.*

(e) *A summary in non-technical language of the information specified above.*

It is clearly an important consideration in deciding the suitability of the Statement as a planning document that these minimum data should be provided. Transposition of their exact requirements into Review Topics, however, is problematic, particularly as it could be argued that the exact nature of the information required varies from case to case. In this context paragraph (b) is particularly difficult to interpret.

However, it has been assumed that in the large majority of cases "the data necessary to identify and assess" impacts in paragraph (b) above -in addition to that required by other paragraphs - will be:

- size and design features of the development;
- quantity of raw materials needed, a description of the production processes and the transportation arrangements for materials and products;
- the numbers of workers and/or visitors expected;
- the quantities of wastes expected to be produced;
- a description of the environment;
- a description of the data used to predict impact magnitude.
- other data needed to identify and assess impacts.

The Regulations' minimum requirements would then broadly correspond to the following Review Sub-categories (see Section II: List of Review Topics):

- (a) 1.1.2, 1.2.1
- (b) 1.1.4, 1.1.5, 1.2.1, 1.2.2, 1.2.4, 1.3.2, 1.4.1,  
1.4.2, 1.5.1, 1.5.3, 2.4.1
- (c) 2.1.1, 2.1.2, 2.5.1, 2.5.2

- (d) 3.2.1, 3.3.1
- (e) 4.4.1, 4.4.2

If it is agreed by the two reviewers that all of these Sub-categories are assessed, at least 'Satisfactory', ie (A, B or C) or 'Not applicable' (NA), the Statement in question is likely to comply with the minimum requirements. However, reviewers should exercise judgement and check, for themselves, the content of the particular Statement being reviewed against the actual Regulations to verify this.

An ES may normally be expected to contain information additional to this specified minimum. The standard of an ES anticipated by the EC Directive is specified in Article 5(i) and Annex III of that document and the additional information mentioned there. This is paraphrased in the Regulations Schedule 3(3). The Regulations advise that this additional information may also be included 'by way of explanation or amplification' so that the Statement contains environmental information which planning authorities consider ...

"sufficient for the proper consideration of the application".

The Statement would then be in broad compliance with the spirit of the Directive. The estimation of the extent to which this has been achieved is one of the principal objects of this review process, and should therefore coincide with the final judgement of the review. Thus, broad compliance is taken to mean that the Statement has met the minimum requirements of the Regulations as interpreted above and furthermore that each Review Area has been assessed as, at least, "satisfactory", i.e. A, B or C in each Review Area.

### **2.3 Outcome of a review**

Having assessed the Review Areas, assigned an assessment symbol to the Statement as a whole, and checked compliance with relevant Regulations, it remains to summarise the joint judgement of ES quality in one or two paragraphs. This summary should list the main strengths and weaknesses of the Statement, especially those omissions which should be rectified before impacts can be satisfactorily assessed or evaluated. It should also record whether the Statement complies with minimum requirements and whether it complies more broadly with both the Regulations and the EC Directive as defined above.



## II. LIST OF REVIEW TOPICS

This is a list of hierarchically arranged topics for reviewing the quality of environmental statements submitted in response to UK regulations implementing EC Directive 85/337.

There are four areas for review.

- (1) Description of the development, the local environment and the baseline conditions.
- (2) Identification and evaluation of key impacts.
- (3) Alternatives and mitigation of impacts.
- (4) Communication of results.

In each of these areas there are several categories of activity which must be completed if the area is to be dealt with in a satisfactory manner. Similarly, each category contains several sub-categories. Below is a list of these topics arranged in a hierarchy. Review Areas are designated by a single digit, e.g. 1.; within these are Review Categories, designated by two digits, e.g. 1.1; and within each Review Category are Review Sub-categories, designated by three digits, e.g. 1.1.1.

### 1. DESCRIPTION OF THE DEVELOPMENT, THE LOCAL ENVIRONMENT AND THE BASELINE CONDITIONS

**1.1 Description of the development:** The purpose(s) of the development should be described as should the physical characteristics, scale and design. Quantities of materials needed during construction and operation should be included and, where appropriate, a description of the production processes.

- 1.1.1 The purpose(s) and objectives of the development should be explained.
- 1.1.2 The design and size of the development should be described. Diagrams, plans or maps will usually be necessary for this purpose.
- 1.1.3 There should be some indication of the physical presence and appearance of the completed development within the receiving environment.
- 1.1.4\* Where appropriate, the nature of the production processes intended to be employed in the completed development should be described and the expected rate of production.
- 1.1.5\* The nature and quantities of raw materials needed during both the construction and operational phases should be described.

\* Combined as 1.1.4 in the version used in this study

**1.2 Site description: The on site land requirements of the developments should be described and the duration of each land use.**

- 1.2.1 The land area taken up by the development site should be defined and its location clearly shown on a map.
- 1.2.2 The uses to which this land will be put should be described and the different land use areas demarcated.
- 1.2.3 The estimated duration of the construction phase, operational phase and, where appropriate, decommissioning phase should be given.
- 1.2.4 The numbers of workers and/or visitors entering the development site during both construction and operation should be estimated. Their access to the site and likely means of transport should be given.
- 1.2.5\*\* The means of transporting raw materials and products to and from the site and the approximate quantities involved, should be described.  
\*\* Not included in the version used in this study

**1.3 Wastes: The types and quantities of wastes which might be produced should be estimated, and the proposed disposal routes to the environment described.**

[NB: Wastes include all residual process materials, effluents and emissions. Waste energy, waste heat, noise etc, should also be considered.]

- 1.3.1 The types and quantities of waste matter, energy and other residual materials, and the rate at which these will be produced, should be estimated.
- 1.3.2 The ways in which it is proposed to handle and/or treat these wastes and residuals should be indicated, together with the routes by which they will eventually be disposed of to the environment.
- 1.3.3 The methods by which the quantities of residuals and wastes were obtained should be indicated. If there is uncertainty this should be acknowledged and ranges of confidence limits given where possible.

**1.4 Environment description: The area and location of the environment likely to be affected by the development proposals should be described.**

- 1.4.1 The environment expected to be affected by the development should be indicated with the aid of a suitable map of the area.

1.4.2 The affected environment should be defined broadly enough to include any potentially significant effects occurring away from the immediate construction site. These may be caused by, for example, the dispersion of pollutants, infrastructural requirements of the project, traffic, etc.

**1.5 Baseline conditions: A description of the affected environment as it is currently, and as it could be expected to develop if the project were not to proceed, should be presented.**

1.5.1 The important components of the affected environments should be identified and described. The methods and investigations undertaken for this purpose should be disclosed and should be appropriate to the size and complexity of the assessment task. Uncertainty should be indicated.

1.5.2 Existing data sources should have been searched and, where relevant, utilised. These should include local authority records and studies carried out by, or on behalf of, conservation agencies and/or special interest groups.

1.5.3 Local land use plans and policies should be consulted and other data collected as necessary to assist in the determination of the "baseline" conditions, i.e. the probable future state of the environment, in the absence of the project, taking into account natural fluctuations and human activities (often called the "do-nothing" scenario).

## **2. IDENTIFICATION AND EVALUATION OF KEY IMPACTS**

**2.1 Definition of impacts: Potential impacts of the development on the environment should be investigated and described. Impacts should be broadly defined to cover all potential effects on the environment and should be determined as the predicted deviation from the baseline state.**

2.1.1 A description should be given of the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project.

2.1.2 The above types of effect should be investigated and described with particular regard to identifying effects on or affecting; human beings, flora and fauna, soil, water, air, climate, landscape, material assets, cultural heritage (including architectural and archaeological heritage) and the interactions between these.

2.1.3 Consideration should not be limited to events which will occur under design operating conditions. Where appropriate, impacts which might

arise from non-standard operating conditions, due to accidents, should also be described.

- 2.1.4 The impacts should be determined as the deviation from baseline conditions, i.e. the difference between the conditions which would obtain if the development were not to proceed and those predicted to prevail as a consequence of it.

## **2.2 Identification of impacts: Methods should be used which are capable of identifying all significant impacts.**

- 2.2.1 Impacts should be identified using a systematic methodology such as project specific checklists, matrices, panels of experts, consultations, etc. Supplementary methods (eg cause-effect or network analyses) may be needed to identify secondary impacts.
- 2.2.2 A brief description of the impact identification methods should be given as should the rationale for using them.

## **2.3 Scoping: Not all impacts should be studied in equal depth. Key impacts should be identified, taking into account the views of interested parties, and the main investigation centred on these.**

- 2.3.1 There should be a genuine attempt to contact the general public and special interest groups - clubs, societies, etc. - to apprise them of the project and its implications.
- 2.3.2 Arrangements should be made to collect the opinions and concerns of relevant public agencies, special interest groups, and the general public. Public meetings, seminars, discussions groups, etc. may be arranged to facilitate this.
- 2.3.3 Key impacts should be identified and selected for more intense investigation. Impact areas not selected for thorough study should nevertheless be identified and the reasons they require less detailed investigation should be given.

## **2.4 Prediction of impact magnitude: The likely impacts of the development on the environment should be described in exact terms wherever possible.**

- 2.4.1 The data used to estimate the magnitude of the main impacts should be sufficient for the task and should be clearly described or their sources be clearly identified. Any gaps in the required data should be indicated and the means used to deal with them in the assessment should be explained.
- 2.4.2 The methods used to predict impact magnitude should be described and be appropriate to the size and importance of the projected impact

2.4.3 Where possible, predictions of impacts should be expressed in measurable quantities with ranges and/or confidence limits as appropriate. Qualitative descriptions, where these are used, should be as fully defined as possible (e.g. 'insignificant means not perceptible from more than 100 m distance').

**2.5 Assessment of impact significance: The expected significance that the projected impacts will have for society should be estimated. The sources of quality standards, together with the rationale, assumptions and value judgements used in assessing significance, should be fully described.**

2.5.1 The significance to the affected community and to society in general should be described and clearly distinguished from impact magnitude. Where mitigating measures are proposed, the significance of any impact remaining after mitigation, should also be described.

2.5.2 The significance of an impact should be assessed, taking into account appropriate national and international quality standards where available. Account should also be taken of the magnitude, location and duration of the impact in conjunction with national and local societal values.

2.5.3 The choice of standards, assumptions and value systems used to assess significance should be justified and any contrary opinions should be summarised.

### **3. ALTERNATIVES AND MITIGATION**

**3.1 Alternatives: Feasible alternatives to the proposed project should have been considered. These should be outlined in the Statement, the environmental implications of each presented, and the reasons for their rejection briefly discussed, particularly where the preferred project is likely to have significant, adverse environmental impacts.**

3.1.1 Alternative sites should have been considered where these are practicable and available to the developer. The main environmental advantages and disadvantages of these should be discussed and the reasons for the final choice given.

3.1.2 Where available, alternative processes, designs and operating conditions should have been considered at an early stage of project planning and the environmental implications of these investigated and reported where the proposed project is likely to have significantly adverse environmental impacts.

3.1.3 If unexpectedly severe adverse impacts are identified during the course of the investigation, which are difficult to mitigate, alternatives rejected in the earlier planning phases should be re-appraised.

**3.2 Scope and effectiveness of mitigation measures: All significant adverse impacts should be considered for mitigation. Evidence should be presented to show that proposed mitigation measures will be effective when implemented.**

3.2.1 The mitigation of all significant adverse impacts should be considered and, where practicable, specific mitigation measures should be put forward. Any residual or unmitigated impacts should be indicated and justification offered as to why these impacts should not be mitigated.

3.2.2 Mitigation methods considered should include modification of the project, compensation and the provision of alternative facilities as well as pollution control.

3.2.3 It should be clear to what extent the mitigation methods will be effective when implemented. Where the effectiveness is uncertain or depends on assumptions about operating procedures, climatic conditions, etc., data should be introduced to justify the acceptance of these assumptions.

**3.3 Commitment to mitigation: Developers should be committed to, and capable of, carrying out the mitigation measures and should present plans of how they propose to do so.**

3.3.1 There should be a clear record of the commitment of the developer to the mitigation measures presented in the Statement. Details of how the mitigation measures will be implemented and function over the time span for which they are necessary should also be given.

3.3.2 Monitoring arrangements should be proposed to check the environmental impacts resulting from the implementation of the project and their conformity with the predictions within the Statement. Provision should be made to adjust mitigating measures where unexpected adverse impacts occur. The scale of these monitoring arrangements should correspond to the likely scale and significance of deviations from expected impacts.

#### **4. COMMUNICATION OF RESULTS**

**4.1 Layout: The layout of the Statement should enable the reader to find and assimilate data easily and quickly. External data sources should be acknowledged.**

- 4.1.1 There should be an introduction briefly describing the project, the aims of the environmental assessment and how those aims are to be achieved.
- 4.1.2 Information should be logically arranged in sections or chapters and the whereabouts of important data should be signalled in a table of contents or index.
- 4.1.3 Unless the chapters themselves are very short, there should be chapter summaries outlining the main findings of each phase of the investigation.
- 4.1.4 When data, conclusions or quality standards from external sources are introduced, the original source should be acknowledged at that point in the text. A full reference should also be included either with the acknowledgement, at the bottom of the page, or in a list of references.

**4.2 Presentation: Care should be taken in the presentation of information to make sure that it is accessible to the non-specialist.**

- 4.2.1 Information should be presented so as to be comprehensible to the non-specialist. Tables, graphs and other devices should be used as appropriate. Unnecessarily technical or obscure language should be avoided.
- 4.2.2 Technical terms, acronyms and initials should be defined, either when first introduced into the text or in a glossary. Important data should be presented and discussed in the main text.
- 4.2.3 The Statement should be presented as an integrated whole. Summaries of data presented in separately bound appendices should be introduced in the main body of the text.

**4.3 Emphasis: Information should be presented without bias and receive the emphasis appropriate to its importance in the context of the ES.**

- 4.3.1 Prominence and emphasis should be given to potentially severe adverse impacts as well as to potentially substantial favourable environmental impacts. The Statement should avoid according space disproportionately to impacts which have been well investigated or are beneficial.
- 4.3.2 The Statement should be unbiased; it should not lobby for any particular point of view. Adverse impacts should not be disguised by euphemisms or platitudes.

**4.4 Non-technical summary: There should be a clearly written non-technical summary of the main findings of the study and how they were reached.**

4.4.1 There should be a non-technical summary of the main findings and conclusions of the study. Technical terms, lists of data and detailed explanations of scientific reasoning should be avoided.

4.4.2 The summary should cover all main issues discussed in the Statement and contain at least a brief description of the project and the environment, an account of the main mitigation measures to be undertaken by the developer, and a description of any significant residual impacts. A brief explanation of the methods by which these data were obtained, and an indication of the confidence which can be placed in them, should also be included.



1. **ASSESSMENT SYMBOLS:** Use the following symbols when completing the Collation Sheet below.

Symbol	Explanation
A	Generally well performed, no important tasks 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 just unsatisfactory because of omissions and/or inadequacies.
E	Not satisfactory, significant omissions or inadequacies.
F	Very unsatisfactory, important task(s) poorly done or not attempted.
NA	Not applicable. The Review Topic is not applicable or irrelevant in the context of this Statement.

2. **COLLATION SHEET**

				Overall Assessment .....
1 .....	2 .....	3 .....	4 .....	
1.1 .....	2.1 .....	3.1 .....	4.1 .....	
1.1.1 .....	2.1.1 .....	3.1.1 .....	4.1.1 .....	
1.1.2 .....	2.1.2 .....	3.1.2 .....	4.1.2 .....	
1.1.3 .....	2.1.3 .....	3.1.3 .....	4.1.3 .....	
1.1.4 .....	2.1.4 .....	3.1.4.....	4.1.4 .....	
1.1.5 .....				
1.2 .....	2.2 .....	3.2 .....	4.2 .....	
1.2.1 .....	2.2.1 .....	3.2.1 .....	4.2.1 .....	
1.2.2 .....	2.2.2 .....	3.2.2 .....	4.2.2 .....	
1.2.3 .....		3.2.3 .....	4.2.3 .....	
1.2.4 .....				
1.2.5 .....				
1.3 .....	2.3 .....	3.3 .....	4.3 .....	
1.3.1 .....	2.3.1 .....	3.3.1 .....	4.3.1 .....	
1.3.2 .....	2.3.2 .....	3.3.2 .....	4.3.2 .....	
1.3.3 .....	2.3.3 .....			
1.4 .....	2.4 .....		4.4 .....	
1.4.1 .....	2.4.1 .....		4.4.1 .....	
1.4.2 .....	2.4.2 .....		4.4.2 .....	
	2.4.3 .....			
1.5 .....	2.5 .....			
1.5.1 .....	2.5.1 .....			
1.5.2 .....	2.5.2 .....			
1.5.3 .....	2.5.3 .....			

## Minimum Requirements

Were minimum requirements met, taking into account whether or not the following Review Sub-categories were all performed satisfactorily, i.e. assessed A, B, or C?

- (a) 1.1.2, 1.2.1
- (b) 1.1.4, 1.1.5, 1.2.1, 1.2.2, 1.2.4, 1.3.2, 1.4.1,  
1.4.2, 1.5.1, 1.5.3, 2.4.1
- (c) 2.1.1, 2.1.2, 2.5.1, 2.5.2
- (d) 3.2.1, 3.3.1
- (e) 4.4.1, 4.4.2

YES

NO

## Broad Compliance

Were minimum requirements met, and Review Areas 1, 2, 3 and 4 all performed satisfactorily, i.e. assessed A, B or C?

YES

NO

## Overall Quality

Assign an assessment symbol (A, B, C, D, E or F) to the Statement as a whole and summarise, in one or two paragraphs, the key factors which have determined your overall assessment.

## **Appendix B**

**Article 3, Article 5 and Annex III of the**

**EUROPEAN COMMUNITIES COUNCIL DIRECTIVE OF 27 JUNE 1985  
ON THE ASSESSMENT OF THE EFFECTS OF CERTAIN PUBLIC AND  
PRIVATE PROJECTS ON THE ENVIRONMENT (85/337/EEC)**

### **ARTICLE 3 OF THE EIA DIRECTIVE (85/337/EEC)**

The environmental impact assessment will identify, describe and assess in an appropriate manner, in the light of each individual case and in accordance with the Articles 4 to 11, the direct and indirect effects of a project on the following factors:

- human being, fauna and flora,
- soil, water, air, climate and the landscape,
- the inter-action between the factors mentioned in the first and second indents,
- material assets and the cultural heritage.

### **ARTICLE 5 OF THE EIA DIRECTIVE (85/337/EEC)**

1. In the case of projects which, pursuant to Article 4, must be subjected to an environmental impact assessment in accordance with Articles 5 to 10, Member States shall adopt the necessary measures to ensure that the developer supplies in an appropriate form the information specified in Annex III inasmuch as:

- (a) the Member States consider that the information is relevant to a given stage of the consent procedure and to the specific characteristics of a particular project or type of project and of the environmental features likely to be affected;
- (b) the Member States consider that a developer may reasonably be required to compile this information having regard *inter alia* to current knowledge and methods of assessment.

2. The information to be provided by the developer in accordance with paragraph 1 shall include at least:

- a description of the project comprising information on the site, design and size of the project,
- a description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects,
- the data required to identify and assess the main effects which the project is likely to have on the environment,
- a non-technical summary of the information mentioned in indents 1 to 3.

3. Where they consider it necessary, Member States shall ensure that any authorities with relevant information in their possession make this information available to the developer.

**ANNEX III TO THE EIA DIRECTIVE (85/337/EEC)**

**INFORMATION REFERRED TO IN ARTICLE 5 (1)**

1. **Description of the project, including in particular:**
  - a description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases,
  - a description of the main characteristics of the production processes, for instance, nature and quantity of the materials used,
  - an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.
2. **Where appropriate, an outline of the main alternatives studied by the developer and an indication of the main reasons for his choice, taking into account the environmental effects.**
3. **a description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the inter-relationship between the above factors.**
4. **a description <sup>(1)</sup> of the likely significant effects of the proposed project on the environment resulting from:**
  - the existence of the project,
  - the use of natural resources,
  - the emission of pollutants, the creation of nuisances and the elimination of waste;

**and the description by the developer of the forecasting methods used to assess the effects on the environment.**
5. **A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.**
6. **A non-technical summary of the information provided under the above headings.**
7. **An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the developer in compiling the required information.**

<sup>(1)</sup> *This description should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project.*

# **Appendix C**

**Article 25 and the Second Schedule of the**

**EUROPEAN COMMUNITIES (ENVIRONMENTAL IMPACT ASSESSMENT)**

**REGULATIONS, 1989 - S.I. NO. 349 OF 1989**

**ARTICLE 25**

**EUROPEAN COMMUNITIES (ENVIRONMENTAL IMPACT ASSESSMENT)  
REGULATIONS, 1989 - S.I. NO. 349 OF 1989**

**SPECIFIED INFORMATION TO BE CONTAINED IN AN ENVIRONMENTAL IMPACT STATEMENT**

25. An environmental impact statement for the purposes of these Regulations or of any enactment as amended or adapted by these Regulations shall contain the information specified in paragraph 2 of the Second Schedule and may also contain the information specified in paragraph 3 of that Schedule.

**SECOND SCHEDULE**

**EUROPEAN COMMUNITIES (ENVIRONMENTAL IMPACT ASSESSMENT)  
REGULATIONS, 1989 - S.I. NO. 349 OF 1989**

**INFORMATION TO BE CONTAINED IN AN ENVIRONMENTAL IMPACT STATEMENT**

1. An environmental impact statement shall contain the information specified in paragraph 2 (referred to in this Schedule as "the specified information").
2. The specified information is -
  - (a) a description of the development proposed, comprising information about the site and the design and size or scale of the development;
  - (b) the data necessary to identify and assess the main effects which that development is likely to have on the environment;
  - (c) a description of the likely significant effects, direct and indirect, on the environment of the development, explained by reference to its possible impact on -
    - human beings;
    - flora;
    - fauna;
    - soil;
    - water;
    - air;
    - climate;
    - the landscape;
    - the inter-action between any of the foregoing;
    - material assets;
    - the cultural heritage;
  - (d) where significant adverse effects are identified with respect to any of the foregoing, a description of the measures envisaged in order to avoid, reduce or remedy those effects; and
  - (e) a summary in non-technical language of the information specified above.

3. An environmental impact statement may include, by way of explanation or amplification of any specified information, further information on any of the following matters -

- (a) the physical characteristics of the proposed development, and the land-use requirements during the construction and operational phases;
- (b) the main characteristics of the production processes proposed, including the nature and quantity of the material to be used;
- (c) the estimated type and quantity of expected residues and emissions (including pollutants of surface water and groundwater, air, soil and substrata, noise, vibration, light, heat and radiation) resulting from the proposed development when in operation;
- (d) (in outline) the main alternatives (if any) studied by the applicant, appellant or authority and an indication of the main reasons for choosing the development proposed, taking into account the environmental effects;
- (e) the likely significant direct and indirect effects on the environment of the development proposed which may result from -
  - (i) the use of natural resources;
  - (ii) the emission of pollutants, the creation of nuisances, and the elimination of waste;
- (f) the forecasting methods used to assess any effects on the environment about which information is given under subparagraph (e); and
- (g) any difficulties, such as technical deficiencies or lack of knowledge, encountered in compiling any specified information.

In paragraph (e), "effects" includes secondary, cumulative, short, medium and long term, permanent, temporary, positive and negative effects.

4. Where further information is included in an environmental impact statement pursuant to paragraph 3, a non-technical summary of the information shall also be provided.



## Appendix D

**Figure 1: Overall quality of 40 EISs evaluated by Dancey and Lee (1993) compared with the sample of eight EISs evaluated by the author.**

**Figure 2: Comparison of the "Review Areas" of EISs evaluated by Dancey and Lee (1993) with the "Review Areas" of the EISs evaluated by the author.**

FIGURE 1: Overall quality of 40 EISs evaluated by Dancey & Lee (1993) compared with the sample of eight EISs evaluated by the Author.

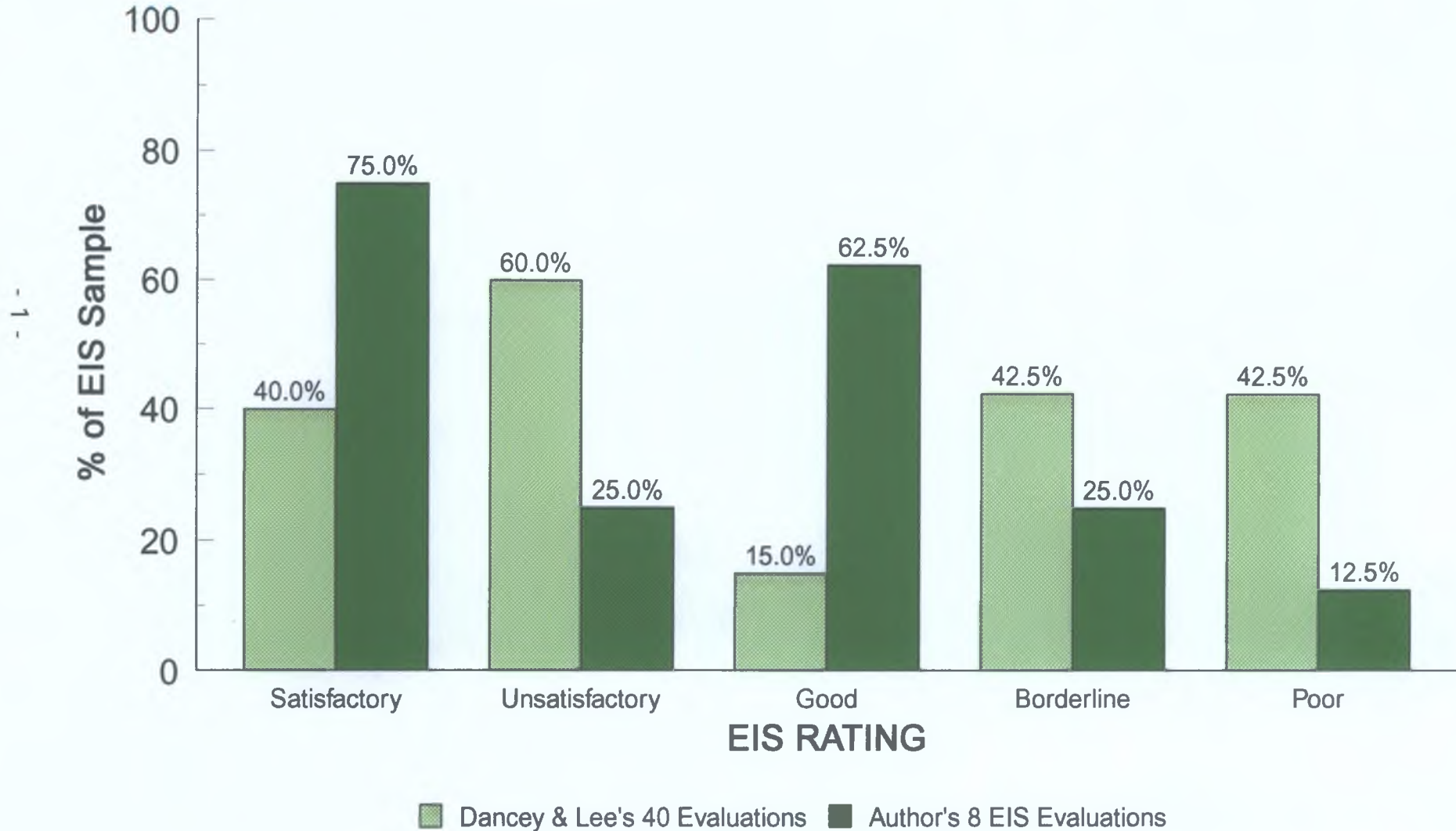


FIGURE 2: Comparison of the "Review Areas" of EISs evaluated by Dancey & Lee (1993) with the "Review Areas" of the EISs evaluated by the Author.

