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**REVIEWING THE QUALITY OF
ENVIRONMENTAL STATEMENTS AND
ENVIRONMENTAL APPRAISALS**

by N. Lee, R. Colley, J. Bonde and J. Simpson

Occasional Paper 55

**REVIEWING THE QUALITY OF ENVIRONMENTAL STATEMENTS AND
ENVIRONMENTAL APPRAISALS**

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1. INTRODUCTION

Many countries and international organisations now use procedures for the *environmental impact assessment* (EIA or, in the United Kingdom, EA) of projects which may give rise to significant environmental impacts (Lee, 1995; Sadler, 1996). These procedures establish an EIA process of which one principal element is the requirement to prepare and publish an *environmental impact statement* (EIS or, in the United Kingdom, ES).¹ The overall performance of the EIA process depends on many factors (Lee, Walsh and Reeder, 1994) but, among these, the quality of the statements is of particular importance. Yet, as many studies have shown, the quality of EISs, particularly in the early years of their use, has often been unsatisfactory.

In 1989, Colley developed a review package for use in assessing the quality of environmental statements submitted in response to UK planning regulations which had newly mandated environmental assessments in accordance with EC Directive 85/337 (Colley, 1989; Department of Environment, 1989). This formed the basis for the ES review package first published as OP 24 in 1990 and, with minor changes, as a second edition of OP 24 in 1992 (Lee and Colley, 1990; 1992). This is the version which is re-produced in Part B of this Occasional Paper, with minor changes to take account of anticipated modifications in environmental assessment provisions which will be required by Directive 97/11/EC (CEC, 1997a; SI 1999, No. 293 [*The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999*]).

The development and method of using this ES review package is described in the first part of chapter 2. The second part summarises various findings from its application both in the United Kingdom and in a number of other countries. It also includes information relating to the use of other review packages developed by different authors for similar purposes. Collectively, the findings confirm there was a serious EIS quality problem during the early years of Directive 85/337's application which has subsequently been reduced, but not yet fully eliminated, due to a combination of improved EIA guidance and training and increased practical experience.

During the 1990s, an increasing number of countries and international organisations has also been developing procedures for the *strategic environmental assessment* (SEA or, in the United Kingdom, environmental appraisal) of policies, plans and programmes (Lee, 1995; Sadler and Verheem, 1996). Both SEA regulatory requirements and practice are much less developed than in the case of EIA for projects. Nevertheless, within the European Union, the possible regulatory form of SEA for land use plans has been indicated in the European Commission's proposal for an SEA directive concerning certain plans and programmes (CEC,

¹ EA/ES is used whenever referring specifically to the UK situation; EIA/EIS is used when describing international procedures and literature.

Introduction

1997b). Also, in the United Kingdom, Planning Policy Guidance Note 12 (PPG 12), issued by the Department of the Environment in 1992, though non-mandatory, provides strong encouragement to local planning authorities to undertake environmental appraisals of their development plans (DoE, 1992). In 1993, it also issued some guidance, mainly based on existing practice, concerning how such environmental appraisals might be undertaken (DoE, 1993). (Other related environmental appraisal guidance includes DETR, 1998a, 1998b, forthcoming.) However, recent reviews of environmental appraisal reports² which have been produced since 1993 suggest that similar quality problems exist to those encountered with the early environmental statements (Thérivel, 1998; Curran, Wood and Hilton, 1998).

During 1998, Bonde and Simpson developed a review package for assessing the quality of environmental appraisal reports for land use (development) plans (Bonde, 1998; Simpson, 1998). Their joint version of this Package is re-produced in Part C of this Occasional Paper. Its development and method of use are described in the first part of chapter 3. The findings from its application to a sample of environmental appraisals are summarised in the second part of the same chapter. These re-enforce the findings of the more general reviews mentioned above and suggest that the quality problem is at least as severe as that experienced with the first generation of UK project-level environmental statements.

However, the findings relating to the quality of environmental appraisal reports are provisional for a number of reasons. First, since the formal requirements for such reports are not yet well-defined and perceptions of best practice are still evolving, the criteria by which the quality of environmental appraisals should be evaluated are not yet finalised. Secondly, the Package has so far only been applied to a small sample of appraisal reports; greater numbers of reviews need to be completed before firm conclusions are drawn.

It is intended to address both of these limitations in on-going work, and the participation of others in these activities is encouraged. In our view, the future agenda might include the following:

- Further development and testing of the Package in relation to environmental appraisal reports for UK land use/development plans.
- Application of the Package to a greater number of environmental appraisal reports both to reach more reliable conclusions on their general quality but also to identify, more precisely, the main types and sources of poor quality within these reports. This will enable guidance, training, etc. to be better targeted to achieve the most needed improvements in assessment practice.
- Modifications to the Package to adapt its use to SEA reports for different types of policies, plans and programmes, different regulatory frameworks and different country situations.

² The terminology currently in use does not clearly distinguish between the *process* of environmental appraisal and the *report* in which the environmental appraisal findings are presented. In many cases in this paper it is clear from the context in which sense the term “environmental appraisal” is being used. Where it is not, or where it is stylistically better, the term “process” or “report” is added or substituted.

- Modifications of the Package to evaluate the quality of integrated sustainability appraisals for policies, plans and programmes as these begin to be prepared in the near future (DETR, 1999).
- Studies of the relationship between the quality of SEA reports and the overall performance of the SEA process, which will parallel similar studies of the relationship between the quality of EISs and the overall performance of the EIA process (Lee, Walsh and Reeder, 1994).

Overall, it is hoped that cost-effective, systematic reviews of the quality of EISs and SEA reports will become more widely used as a measure of quality control and that these will assist in improving the overall performance of the process of which they form part. Comments on the two review packages in this Paper, reports on the findings from their use, and suggestions for their improvement are welcomed.

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PART A

REVIEW METHODS AND FINDINGS

2. QUALITY OF ENVIRONMENTAL STATEMENTS

2.1. DEVELOPING AND USING THE ENVIRONMENTAL STATEMENT REVIEW PACKAGE

The ES review package, contained in Part B of this Paper, has been prepared primarily to assist in assessing the quality of environmental statements submitted in response to UK planning regulations which require environmental assessments to be undertaken in accordance with Directive 85/337/EEC, as amended by Directive 97/11/EC from March 1999 (DoE, 1989; SI 1999, No. 293 [*The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999*]).

It is mainly intended for use by the staff of local planning authorities and other competent authorities, developers and consultancies, statutory consultees and non-governmental organisations, and researchers involved in the environmental assessment process. With limited amendment, it is also applicable to reviewing the quality of other UK environmental statements which are prepared under different UK regulations (DoE, 1989). Additionally, as illustrated in section 2.2 below, the Package has also been adapted and applied in a number of other countries.

The Package was prepared initially taking into consideration the quality review criteria proposed at that time (notably, Ross, 1987; Elkin and Smith, 1988; Tomlinson, 1989). Subsequently, it has been revised in the light of experience but remains substantially in its original form (Lee and Colley, 1992). It is designed as a self-contained package with these components:

- advice for reviewers (i.e. necessary background information and guidance on the use of review criteria)
- a list of criteria (called Review Topics) to be used in each ES review;
- a collation sheet on which to record the findings from using the criteria.

It was decided that the criteria should, as far as possible, satisfy the following requirements:

- each should be well defined and unambiguous;
- each should be capable of reasonably consistent and objective application;
- each should serve a distinct purpose different from the purposes of other criteria;
- each should be considered sufficiently important to merit influencing the ultimate assessment of ES quality;
- the number of criteria should be as few as possible, consistent with covering all topics identified as essential (judged, in this instance, by reference to the requirements of the EC directive, UK planning regulations (SI 1988, No.1199,

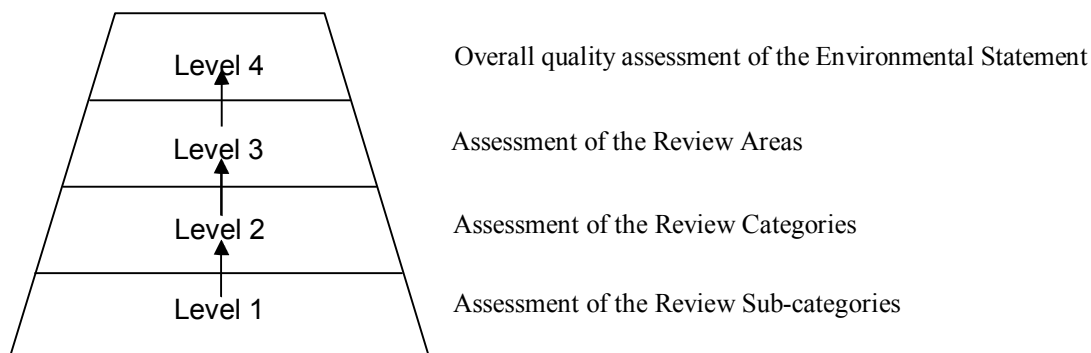
Review Methods and Findings

[*Town and Country Planning (Assessment of Environmental Effects) Regulations 1988*]) and to good internationally-recognised EIA practice (e.g. as reviewed in Lee, 1989; updated by Sadler, 1996, Canter and Sadler, 1997);

- they should be usable by reviewers who may not possess specialist environmental expertise but who are familiar with the relevant EIA regulations, have a basic, non-specialist understanding of EIA methodologies and current ideas on good practice in EIA, and have a broad knowledge of environmental concerns.

To facilitate their use, the criteria are arranged in a hierarchical (or pyramidal) structure. The reviewer commences the review at the lowest level, i.e. the base of the pyramid, which contains simple criteria relating to specific tasks and procedures. Then, drawing upon these assessments, he/she progressively moves upwards from one level to another in the pyramid applying more complex criteria to broader tasks and procedures in the process until the overall assessment of the ES has been completed (see Figure 2-1).

Figure 2-1. The assessment pyramid (environmental statements)



The assessment resulting from applying each criterion is recorded by the reviewer on the Collation Sheet using a standard list of assessment symbols as described in Table 2-1. ‘Letters’ rather than ‘numbers’ are used as symbols to discourage reviewers from crude aggregation to obtain assessments at the higher levels in the pyramid.

The Review Package has evolved through many versions, being tested at each stage of development on individual ESs, using pairs (or greater numbers) of independent reviewers. Where significant differences occurred between reviewers’ assessments, the source of the differences was investigated and, where appropriate, the Review Package was revised to correct any ambiguities, etc. in wording. The current version has been extensively tested both within and outside the EIA Centre and, particularly at the higher levels in the assessment pyramid, there has been a substantial level of agreement in the assessments made by different reviewers of the same ES. Subsequent experience in using the Review Package has supported earlier conclusions on its consistency.

Table 2-1. List of assessment symbols (environmental statements)

<u>Symbol</u>	<u>Explanation</u>
A	Relevant tasks 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 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 it is irrelevant in the context of this Statement.

In our experience, an ES of average length (say 50 pages – many will vary considerably below and above this figure) can be reviewed, using this Package, in three hours. Both the speed and quality of review increases after the first review has been completed. Each ES should be reviewed independently by two persons and any significant differences in the assessment of particular Review Topics should be systematically examined by them to see whether they can be resolved. The Collation Sheet should not only be used to record the chosen assessment symbols, but also to record, in a brief summary, the principal strengths and weaknesses of the Statement that has been assessed. This discourages ‘over-mechanical’ reviews.

The findings of a review can be used in different ways. For example, a developer, having carried out a review of his own draft ES and having identified a number of deficiencies in it, can alert those responsible for its preparation (whether ‘in-house’ or external consultants) to correct any deficiencies before the ES is finalised. Where the review has been undertaken by a statutory environmental authority or a non-governmental organisation, as part of the formal consultation process following the publication of the ES, its findings may form part of the consultee’s submission to the competent authority.

The competent authority (for example, the local planning authority, in the UK situation) may use review findings in a number of ways, such as:

- as a basis for identifying any additional information, required from the developer, which is not satisfactorily provided in the ES (if such information is not forthcoming the planning authority may refuse to grant planning permission - DOE (1989) para. 42);
- as a basis for identifying those environmental aspects described in the ES which the planning authority needs to review in greater depth (e.g. through a literature search, consultations with other authorities and organisations with environmental expertise, or hiring consultants). In such cases, the Review

Package may be used as the first stage of a two-stage Review. It should then save time, and consultation fees as well, in ‘scoping’ any follow-up work required at the second stage of the Review;

- as an aid in evaluating the likely environmental impacts of the project, prior to reaching a decision on its authorisation.

2.2 QUALITY OF ENVIRONMENTAL STATEMENTS: REVIEW FINDINGS

The Review Package has been used to evaluate the quality of a number of samples of UK environmental statements between 1988 and the mid-1990s. Lee and Brown (1992) and European Commission (1996), taken in combination, cover the whole period. Lee and Brown (1992) found that two thirds of the ESs they sampled were of unsatisfactory quality in 1988/89 (i.e. in ‘D’, ‘E’ or ‘F’ quality categories). Wood and Jones (1991) obtained very similar results, based upon a different sample of ESs. However, using a later sample of ESs completed in 1990/91, Lee and Brown (1992) found that the proportion that were unsatisfactory had fallen to around two fifths. The European Commission (1996) study, which compared the quality of samples of ESs in 1990-1 and 1994-96 in various European Union countries, recorded a further, but relatively modest, fall in the proportion of unsatisfactory quality ESs in the United Kingdom. Thus, by the mid-1990s, a significant ES quality problem seemed to have been considerably reduced but a sizeable minority of unsatisfactory ESs was still being produced.

The Review Package has also been used in a number of EIS quality studies involving other European Union countries. Lee and Dancey (1993) compared the quality of samples of EISs in Ireland and the United Kingdom between 1988 and 1992. In 1988/9 the percentage of EISs of unsatisfactory quality in Ireland was even higher than in the UK but by 1991/2 there had been a substantial improvement in both countries so that a similar percentage (around 60%) of the two samples were of satisfactory standard (‘A’, ‘B’ or ‘C’ grades) by the end of the period. The European Commission (1996) study also presented findings on EIS quality changes, between 1990-1 and 1994-96, in Belgium, Denmark, Germany, Greece, Ireland, Portugal and Spain, as well as in the United Kingdom. It found that, taking all of these countries together, the proportion of EISs sampled that were satisfactory increased from 50% to 71% over the period. Though the findings varied between countries, partly due to sample sizes, the overall trend within the EU appears to have been broadly similar to that in the United Kingdom. Where similar kinds of studies have been undertaken, using other review methodologies – for example, the European Commission checklist or the Oxford Brookes methodology – similar results have been obtained (European Commission, 1994; Glasson et al, 1996).

Outside the European Union, the Review Package has also been adapted and applied to evaluate the quality of samples of EISs, or their equivalent, in a number of developing countries and countries in transition. Studies have been reported relating to India (Rout, 1994), Malaysia (Ibrahim, 1992) and Tanzania (Mwalyosi and Hughes, 1998) as well as to Russia, Hungary and the Czech Republic. In certain cases, the samples are quite small or the studies are not yet completed and, therefore, any findings have to be interpreted with care. However, the provisional

findings reveal a number of similarities with the UK and EU situation. There are examples of both satisfactory and unsatisfactory quality EISs in most countries but a significant proportion within the chosen samples are deficient, especially those completed in the earlier years of EIA regulation.

A number of the studies mentioned above (both UK-based and elsewhere) have also analysed the more specific strengths and weaknesses of EISs at the Area, Category and Sub-category review levels. A number of common features emerge, for example:

- Quality tends to be better in Areas 1 and 4 than in Areas 2 and 3. It tends to be better than average in Area 1 (Description of the development, the local environment and base-line conditions), possibly because a number of the tasks are more descriptive and familiar to those responsible for EIS preparation. However, they tend to be less satisfactory where quantified measures, relating to wastes or base-line environmental conditions, are required. Performance also tends to be better than average in Area 4 (Communication of Results) once there is sufficient understanding of the presentational requirements for potential users, in the EIS and its non-technical summary. More subtle presentational deficiencies, relating for example to concealed bias, tend to persist.
- Quality in Area 2 (Identification and evaluation of key impacts) is often more problematic. Deficiencies are most evident in Review Categories relating to scoping, impact prediction and the determination of impact significance. These contain more challenging tasks which lie at the heart of the impact assessment process. Quality in Area 3 (Alternatives and Mitigation) is variable but frequently unsatisfactory. This is partly due to inadequate consideration of alternatives, (which is often caused by starting the EIA process too late in the project cycle). It can also result from a failure to identify, and insufficient commitment to, mitigation measures which would offset significant negative impacts.

There are many practical uses for these analyses. For example, they can play an important role in EIS quality control, in strengthening EIA guidance and in developing better EIA training programmes. In these ways they can contribute to improving EIS quality and enhancing the performance of the EIA process as a whole (Lee, Walsh and Reeder, 1994).

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3. QUALITY OF ENVIRONMENTAL APPRAISALS

3.1 DEVELOPING AND USING THE ENVIRONMENTAL APPRAISAL REVIEW PACKAGE

The environmental appraisal package, contained in Part C of this Paper, has been prepared to assist in assessing the quality of environmental appraisals of UK development plans, as specified in Planning Policy Guidance Note 12 (PPG 12) issued by the Department of Environment in 1992. It is mainly intended for use by local planning authorities in county, district and unitary authorities, statutory environmental authorities and agencies, consultancies, researchers and non-governmental organisations involved in the environmental appraisal process within the development plan cycle.

Additionally, its possible use in an adapted form to review the quality of environmental appraisals within the land use planning cycle in other countries has been briefly examined in the case of Sweden (Bonde, 1998a; 1998b). The initial findings are promising but these are not examined further in this Paper. Also, the Package may be adapted for the review of environmental appraisals of other types of policies, plans and programmes. This has not yet been attempted but should be explored in separate, follow-up studies.

The development of this Package has been conditioned by previous experience in the development and use of the Review Package for project-level ESs, as described in the previous chapter. However, while it is considered that the underlying principles of EIA and SEA are the same, there are a number of important procedural and methodological differences between them which need to be reflected in this Package. Therefore, though there are a number of structural and presentational similarities between the two Packages (which should be helpful to reviewers already familiar with the ES review package), there are important differences in the substance of the individual Review Topics and in the ways in which these should be interpreted for review purposes. These are discussed further below.

The environmental appraisal package, like the ES review package, is self-contained and includes three elements:

- Advice for Reviewers (background information and guidance on the use of the review criteria);
- Review Criteria (i.e. the list of Review Topics to be used in each environmental appraisal review);
- Collation Sheet (on which to record the findings from applying the criteria).

The list of criteria has been prepared taking into consideration the provisions of PPG 12 (and the associated advice contained in *Environmental Appraisal of*

Review Methods and Findings

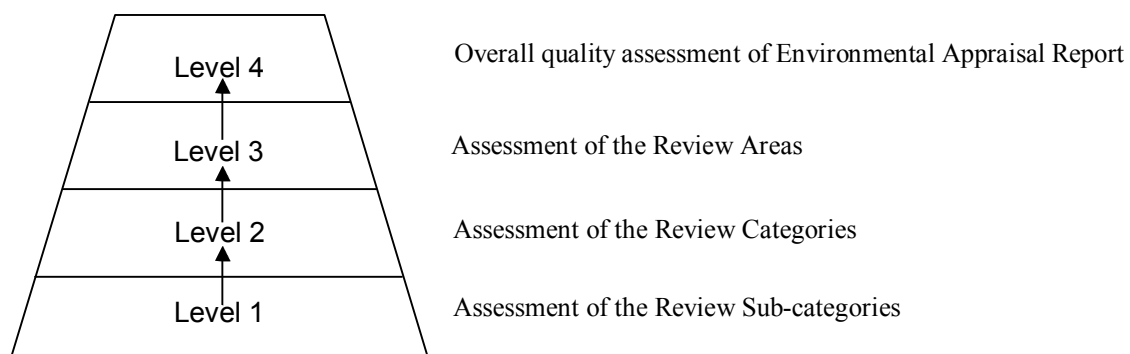
Development Plans: A Good Practice Guide (DoE, 1993)), the requirements specified in the European Commission's proposal for an SEA directive relating to land use plans and programmes (CEC, 1997) and a review of the international literature relating to good SEA practice and its underlying methodology (Bonde, 1998a, ch.2). Based on these sources, the contents of a good quality environmental appraisal report for a land use plan are taken to cover the items listed in Box 3-1 below.

The list of review criteria in the environmental appraisal package is based on the items contained in Box 3-1. Additionally, these review criteria aim, as far as possible, to satisfy the following requirements:

- each should be well defined and unambiguous;
- each should be capable of reasonably consistent and objective application;
- each should serve a distinct purpose different from the purposes of the other criteria;
- each should be considered sufficiently important to merit influencing the overall quality assessment of the environmental appraisal;
- each should be usable by reviewers who may not possess specialist environmental appraisal expertise but who are familiar with current environmental appraisal requirements in a land use planning context, and have a basic, non-specialist understanding of environmental appraisal methods and good practice.

To facilitate their use, the review criteria are arranged in the Package in a hierarchical or pyramidal structure (as in the environmental statement review package). The reviewer commences the review at the lowest level, i.e. the base of the pyramid, which contains simple criteria relating to specific tasks and procedures. Then, drawing upon these assessments, he/she progressively moves upwards from one level to another in the pyramid applying more complex criteria to broader tasks and procedures in the process until the overall assessment of the environmental appraisal has been completed (see Figure 3-1).

Figure 3-1. The assessment pyramid (environmental appraisal reports)



Box 3-1. Contents of good quality environmental appraisals for land use plans

A description of the proposed plan, including:

- the environmental and socio-economic objectives of the plan, including sustainability aims
- environmental protection policies relevant to the plan

A description of the affected environment, including:

- description and, where appropriate, quantification of environmental stock, including assets, sensitive areas and threats to the environment
- consideration of the wider area, beyond the physical boundaries of the plan area, likely to be affected by the subsequent implementation of the plan

Systematic identification of key issues (i.e. scoping), including:

- identification of cumulative impacts
- identification of alternatives to the plan's policies
- identification of environmental and sustainability criteria against which the impacts can be evaluated

Detailed description and evaluation of expected environmental impacts

with special attention to:

- cumulative effects
- indirect effects
- effects at different geographic scales (local, regional, global) and different time scales (short- and long-term)

using, for purposes of impact evaluation:

- environmental protection objectives and standards
- environmental sustainability criteria
- precautionary principle
- and assessing magnitude and significance with the level of detail and accuracy appropriate to the level of precision of the plan's policies and proposals
- and describing and justifying the selection and use of methods used in impact prediction and evaluation

Sustainability considerations, including

- evaluation of the environmental sustainability of the plan in conjunction, if applicable, with its socio-economic aspects
- proposals for sustainability criteria to be used in making decisions on the plan

Recommendations on preferred alternatives and description of monitoring and mitigation measures, including:

- consideration of alternatives to the plan's policies and objectives, including the "zero" alternative
- proposals for mitigation measures to be considered for different development alternatives, and planning restrictions
- recommendations for tiering the findings of the environmental appraisal to the next level of planning and project development
- proposed arrangements for monitoring and follow-up measures, and for the adjustment of mitigation measures on the basis of monitoring results

The findings of consultations with experts and the public relevant to the environmental appraisal

Difficulties and uncertainties

- overview of the difficulties in compiling and analysing information for the environmental appraisal and a summary of the resulting uncertainties

Non-technical summary

Source: Adapted from Bonde, 1998a (Table 2.3)

The assessment resulting from applying each criterion is recorded by the reviewer on a Collation Sheet, using a standard list of assessment symbols as described in Table 3-1. ‘Letters’ rather than ‘numbers’ are used as symbols to discourage reviewers from crude aggregation to obtain assessments at the higher levels in the pyramid. Reviewers are also recommended to summarise, in one or two paragraphs, the key strengths and weaknesses in the environmental appraisal which have determined their overall assessment.

Table 3-1. List of assessment symbols (environmental appraisal reports)

<u>Symbol</u>	<u>Explanation</u>
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 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 it is irrelevant in the context of the environmental appraisal report.

In carrying out reviews of environmental appraisal reports and, more particularly, in assigning assessment symbols to individual Review Topics in the Collation Sheet, it is important to consider the following:

1. What level of detail and precision is appropriate in the context of the environmental appraisal report for the type of development plan being appraised? Five different kinds of development plans are subject to environmental appraisal in the UK: structure plans, local plans, unitary development plans, minerals local plans and waste local plans. When, for example, reviewing environmental appraisals of structure plans it is necessary to take account of their more strategic nature.
2. At what stage in the development plan process is the environmental appraisal being undertaken? Four different stages can be distinguished: “first review” (consideration of key issues and options); “consultation” (consultation on draft proposals); “deposit” (plan placed on ‘deposit’) and ‘final’ (proposed modifications to the ‘deposit’ draft). Both the applicability of particular Review Topics and the level of precision and detail expected in environmental appraisals is likely to vary between different stages in the planning process.
3. Should the review be confined to the environmental appraisal report or should it also consider additional, relevant information in other related plan documentation? It seems preferable that the report of the environmental appraisal should be self-contained (either as a separate document or as a separate section within the same planning document), so that the quality review should be confined to this. However, it may be helpful as a supplementary test

to check whether the quality of the environmental appraisal improves if any other relevant information contained in related plan documentation is also taken into account.

4. Should the quality review of environmental appraisals include broader considerations relating to sustainability? Whilst broader requirements are likely to be introduced in the future, sustainability appraisals are not required at the present for development plans (DETR, 1999). Therefore it would seem appropriate to regard them as positive but optional extras for the time being. The Review Topics within the Package that refer to sustainability issues should be assessed accordingly until such time as regulations and official guidance change.

The Review Package has evolved through a number of editions (Bonde, 1998a; Simpson, 1998), following a similar development and testing methodology as previously used with the environmental statement review package. The first draft was developed by Bonde and Simpson from four main sources: the Lee-Colley Review Package for Environmental Statements (Lee and Colley, 1992), an initial set of adaptations to that package, by Simon Marsh, for use with environmental appraisals by Simon Marsh (Marsh, 1997) and reviews of relevant UK guidance and good international SEA practice as previously discussed. At each stage it has been tested on individual environmental appraisal reports, using pairs (or greater numbers) of independent reviewers. Where significant differences occurred between reviewers' assessments, the source of the differences was investigated and, where appropriate, the Review Package was revised to correct any ambiguities etc. in wording. Based upon the consistency tests of the final version of the Package included in this Paper, there is a substantial level of agreement in the assessments made by different reviewers of the same environmental appraisal, particularly at the higher levels in the assessment pyramid.

An environmental appraisal report of around 50 pages can be reviewed, using this Package, within three hours (the actual length of these reports varies between less than 10 pages to over 200 pages). The time taken will be correspondingly greater if the quality review is extended to include environmental appraisal information in other plan documentation, especially if cross-referencing between the two types of document is deficient.

Each environmental appraisal report should, preferably, be reviewed independently by two persons. Any significant differences in the assessment of individual Review Topics should be systematically examined and, where possible, resolved between them before finalising a joint Collation Sheet. This Collation Sheet should not only be used to record the agreed assessment symbols but also to present a brief (one to two paragraphs) summary of the principal strengths and weaknesses of the environmental appraisal report that has been assessed. This discourages "over-mechanical" reviews.

Environmental appraisal reviews may be used in different ways. For example, as suggested in a number of interviews with local planning authorities, an environmental appraisal checklist, based on the list of Review Topics, could be very useful to those engaged in plan preparation in identifying at the outset of the planning process, the criteria by which the quality of its environmental appraisal could eventually be reviewed (Bonde, 1998a; Simpson, 1998). The same checklist

could also be used by the planning authority in monitoring the progress of the environmental appraisal during the plan-making process. The Review Package may then be used by the local authority to review its own draft environmental appraisal reports and, if it identifies deficiencies in any of them, it can alert those responsible to correct these before the environmental appraisal report is finalised. In this sense, the combined use of an environmental appraisal checklist and Review Package could become an important internal instrument of quality control in environmental appraisal within the development plan preparation process.

Additionally, environmental appraisal reviews, using the Package, may be undertaken by statutory environmental authorities or non-governmental organisations and their findings may form part of their submission to the planning authorities during the consultation period following the publication of the environmental appraisal report. These could increase the effectiveness of consultations relating to environmental matters within the development plan process.

Similarly, the plan approval authority may use the findings of environmental appraisal reviews in a number of ways, for example: to check the adequacy of the environmental appraisal and the use made of it in development plan preparation and as an aid in evaluating the likely environmental impacts which will arise from the proposed plan's implementation, prior to reaching a decision on its approval.

Finally, environmental appraisal reviews may be used in evaluation studies, based on samples of environmental appraisal reports, of how well the arrangements for the environmental appraisal of development plans in the United Kingdom are working. These could provide systematically gathered evidence on the overall quality of environmental appraisal reports, including their more frequent and important deficiencies, and its relationship to environmental appraisal performance within the development plan process as a whole. As such it could provide valuable information to guide new initiatives to improve environmental appraisal performance in the future.

3.2 QUALITY OF ENVIRONMENTAL APPRAISAL REPORTS: PRELIMINARY FINDINGS

The existing general reviews of the practice of environmental appraisal of development plans suggest that there are a number of shortcomings relating to the content of environmental appraisal reports. Thérivel (1998, p.55), for example, concludes in regard to both environmental appraisals of development plans and environmental profiles of Structural Fund applications: "They generally do not describe the baseline environment, do not consider alternatives, do not make rigorous, quantitative predictions, and offer little in the way of clear mitigation measures." Curran, Wood and Hilton (1998, p. 426), based on a sample of fourteen county and district councils, found numerous omissions in the content of their environmental appraisal reports relating in particular to "description of the planning strategy; description of environmental objectives; discussion of realistic alternatives; description of the base-line environment; documentation of the scoping exercise; description of compatibility analysis; evidence of any

consultation undertaken; description of monitoring, enforcement and follow-up measures, and non-technical summary.”

The preliminary findings from the application of this environmental appraisal package relate to the quality of environmental appraisal reports for nine land use plans prepared by three different levels of administration (county, district and unitary authority) within North West England. Given the small size of the sample and its limited geographic coverage no claims are made that the findings are representative of the situation in the United Kingdom as a whole. However, the findings are consistent with those of the general reviews mentioned above.

Table 3-2. Quality review findings for nine environmental appraisal reports

Report No.	Overall assessment	Review area 1	Review area 2	Review area 3	Review area 4
1	F(F)	F(C)	F	F	E
2	F(E)	E(C)	E	F	E
3	F(F)	F(D)	E	F	D
4	E(D)	F(C)	E	E	D
5	F(E)	F(C)	F	F	E
6	E(E)	F(E)	E	F	D
7	D(C)	E(C)	D	E	B
8	F(E)	F(D)	F	E	D
9	E(E)	E(C)	E	F	D

Notes:

- Review Area 1: Description of the Plan, the affected environment and the baseline conditions
 Review Area 2: Identification and evaluation of key impacts
 Review Area 3: Alternatives, mitigation measures, monitoring and recommendations
 Review Area 4: Communication of results
- Symbols within brackets indicate the assessment quality, additionally taking into account information in the relevant plan and any other planning material mentioned in the environmental appraisal report.

The findings indicate that none of the nine environmental appraisal reports is considered to be of satisfactory quality (Grade C or above) when assessed as a self-contained document and only one environmental appraisal reaches this standard when information contained in the plan or other planning documentation is also taken into account. The great majority are assessed as Grade E (significant omissions or inadequacies) or Grade F (very unsatisfactory).

Serious weaknesses are identified in each of the four review areas, but these are relatively greatest in Review Areas 2 and 3. Common deficiencies in these two areas relate to impact identification and scoping, impact prediction and determination of significance and analysis of alternatives. A more comprehensive

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identification of specific deficiencies can be obtained from an analysis of the review findings at the Category and Sub-category levels within the Review Package (Bonde, 1998a; Simpson, 1998).

These findings, as emphasised previously, are preliminary. The Review Package needs to be further tested and applied to a greater number of environmental appraisal reports before firm conclusions can be drawn. Nevertheless, there are some interesting parallels between these early findings and those obtained from the quality review of the first generation of environmental statements (see chapter 2.2). In that case also, a disturbingly high percentage of statements were shown to be of unsatisfactory quality, particularly in Review Area 2 (Identification and Evaluation of Key Impacts) and Area 3 (Alternatives and Mitigation). If history is to repeat itself with improvements to environmental appraisals, the need for further systematic reviews of their quality, to be followed by appropriate corrective measures, should be quickly recognised.

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PART B

**ENVIRONMENTAL STATEMENT REVIEW
PACKAGE**

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B.1 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:

- B.1: Advice for Reviewers (page 31);
- B.2: List of Review Topics (page 39);
- B.3: Collation Sheet (page 47).

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 (e.g. 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 85/337³. The regulations produced under the Town and Country Planning Act (TCPA) are taken as the standard UK interpretation of the Directive^{4,5}. An EA capable of producing a good

³ Reviewers in other countries should, where necessary, amend the list of Review Topics in Section B.2 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 and this is expected to continue when Directive 97/11/EC is implemented.

⁴ Directive 97/11/EC, which amends Directive 85/337/EEC, is due to be implemented in all Member States by 14 March 1999. In the case of the town and country planning system in England and Wales these will be implemented through new Town and Country Planning (Assessment of Environmental Effects Regulations) (for details of these

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;
- 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.

regulations and those for other development types see the DETR URL <http://www.planning.detr.gov.uk/eia/assess/index.htm>). The changes in regulations resulting from Directive 97/11/EC are unlikely to require any significant change to the List of Review Topics or their contents. However, the increased importance given to the consideration of alternatives and its inclusion in the “minimum information requirements” in Article 5 probably means that greater weight should be given to Review Category 3.1 in the overall review of an ES’s quality than previously. Review Sub-categories 3.1.1 and 3.1.2 should also be considered when determining whether an ES meets minimum requirements.

⁵ Town and Country Planning (Assessment of Environmental Effects) Regulations (SI 1988, No 1199), replaced by SI 1999, No 293 on implementation of Directive 97/11/EC.

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:

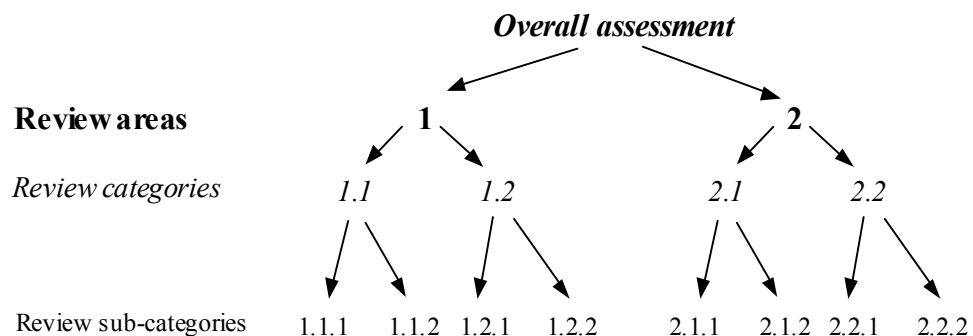
- *Review Areas*. These are the four major areas of EA activity (they are preceded by one digit in the List of Review Topics, e.g. “4. Communication of Results”).
- *Review Categories*. These are the categories of EA activity which must be undertaken within each Review Area (they are preceded by two 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 B-1.

Figure B-1. A schematic representation of the Review Topic hierarchy in Review Areas 1 and 2 (ES review package)



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 that 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.

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 information⁶.
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 review topic. It will probably be necessary to make notes. Carefully read the **List of Assessment Symbols**. (These are listed in Section B.3: **Collation Sheet** on page 47.) 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 B.3 (page 47). 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

⁶ If practicable, undertake a site visit to become more familiar with the location of the proposed development.

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 is not explicitly provided but is, nevertheless, implicit in the treatment of other topics, the reviewer may decide that it 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).

Then the two reviewers should 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 that 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.⁷

- (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.*

⁷ Directive 97/11/EC includes an additional category of information: "an outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects."

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- (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-categories⁸ (see Section B.2: 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

⁸ Sub-categories 3.1.1 and 3.1.2 should be added, when Directive 97/11/EC comes into operation.

- (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’, i.e. (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.

B.2 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.

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.

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 (e.g. 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 appraise 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 100m 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.

B.3 COLLATION SHEET

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

Symbol	Explanation
A	Relevant tasks 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 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 it is 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	.....			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 Requirements⁹

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.

⁹ Also consider 3.1.1 and 3.1.2 when Directive 97/11/EC comes into operation.

PART C

ENVIRONMENTAL APPRAISAL REVIEW PACKAGE

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C.1 ADVICE FOR REVIEWERS

This Advice for Reviewers comprises two sections:

- Section 1 is concerned with advice on how to conduct a review of an environmental appraisal report;
- Section 2 contains explanatory notes on the interpretation of individual Review Topics within the Review Package.

Both sections should be read thoroughly before attempting to conduct a review.

1. ADVICE ON HOW TO CONDUCT A REVIEW

1.1 Introduction

The purpose of this Review Package is to assist planners and other interested parties to assess the quality of environmental appraisal reports for development plans. It is mainly intended for use by local planning authorities in county, district and unitary authorities, statutory environmental authorities and agencies, plan appraisal authorities, consultancies and researchers, and other non-governmental organisations involved in the environmental appraisal process for development plans. Reviewers are not expected to possess specialist environmental appraisal expertise. However, it is assumed that they are familiar with current environmental appraisal requirements in a land use planning context, and have a basic, non-specialist understanding of environmental appraisal methods and good practice.

Development plans comprise: structure plans (prepared by county councils), local plans (prepared by district councils and national park authorities) and unitary development plans (prepared by unitary authorities). Additionally, environmental appraisals are increasingly being applied to local minerals and waste plans and regional planning guidance but these are not explicitly covered in this Package.

A development plan usually passes through the following stages and an environmental appraisal may be undertaken at any of these:

1. *First review*: consideration of key issues and options (non-statutory)
2. *Consultation*: consultation on draft proposals (statutory)
3. *Deposit*: plan placed on ‘deposit’ (statutory)
4. *Final*: proposed modifications to the deposit draft (statutory)

The type of plan and stage in the planning process have implications for the required coverage, content and level of detail of the environmental appraisal report and this needs to be taken into consideration when reviewing its quality. This is likely to be especially important when considering impact prediction, alternatives, mitigation measures, monitoring and recommendations. In general, the level of

detail and precision in the information required in most environmental appraisals for plans will be lower than in most environmental statements for projects.

Increasingly, broader considerations relating to sustainability are being included in environmental appraisals of development plans, although this is not yet a requirement according to existing regulations and official guidance (see, however, DETR 1999, concerning proposed revisions to this guidance). In view of these developments, the List of Review Topics within the Review Package contains some topics which relate to sustainability. For the time being, it is proposed that reviewers should consider any treatment of broader sustainability issues within the appraisal report as a positive but optional extra, i.e. appraisals should not, at present, be down-graded if they do not include a sustainability component.

The environmental appraisal report should, preferably, be a self-contained document (either a separate document or a section within the same planning document). The quality review should thus be confined to this material. However, it is not a requirement at present that the environmental appraisal report should be a self-contained document. Therefore, a supplementary review may be undertaken to check whether the quality assessment alters if information contained in other plan documentation is taken into account.

This Review Package is a self-contained document. However, since environmental appraisal (and strategic environmental assessment more generally) is still relatively unfamiliar, a number of additional references are provided in the text and these are listed at the end of Section C.1: Advice for Reviewers.

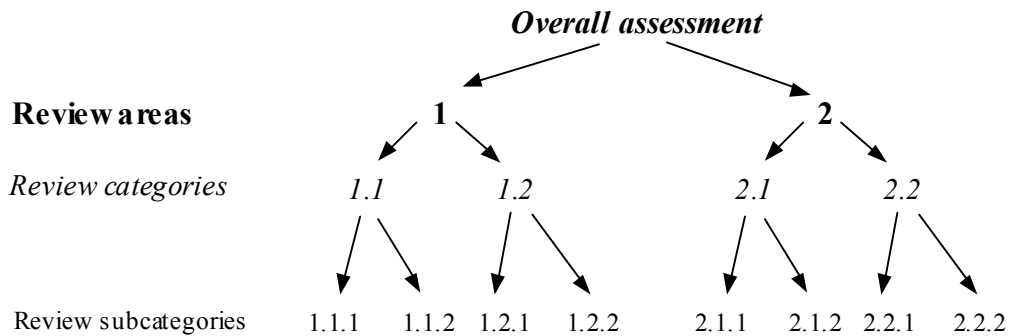
1.2. Organisation of the Review Topics

The Review Package contains a list of Review Topics which are based on UK government guidance relating to environmental appraisals (DoE 1992; DoE 1993), the proposed EU SEA Directive (CEC, 1997) and examples of good international SEA practice. They are organised in a hierarchical structure which consists of four layers (see Figure C-1).

- *Overall assessment*: the highest layer of the review hierarchy;
- *Review Areas*: the four principal tasks which must be accomplished if the overall assessment of the environmental appraisal Report is to be of satisfactory quality. These are represented by a one digit number e.g. 1.;
- *Review Categories*: the tasks which must be accomplished if the Review Areas are to be satisfactorily completed. These are represented by a two digit number e.g. 1.1.;
- *Review Sub-categories*: the tasks which must be accomplished if the Review Categories are to be satisfactorily completed. These are represented by a three digit number e.g. 1.1.1.;

N.B. The term ‘Review Topic’ can refer to any Review Area, Category or Sub-category.

Figure C-1. A schematic representation of the hierarchical structure of the Review Topics within Areas 1 and 2 (environmental appraisal review package)



1.3. Conducting a Review

Select two reviewers to assess the environmental appraisal report. In order to conduct a review, each should first independently undertake the following steps.

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 types of information required from the environmental appraisal report in order to appraise its quality.
3. Briefly read through the environmental appraisal report noting the layout and the whereabouts of essential information.
4. Re-read the first Review Category (1.1) and its component Sub-categories (1.1.1-1.1.6). Remember that the Sub-categories refer to tasks which must be undertaken in order that tasks described within the Category are performed satisfactorily.
5. Assess each of the Sub-categories (1.1.1-1.1.6), referring closely to the environmental appraisal report. Be aware that the required information may not all be located in the same place for any one Review Topic. Carefully read the **List of Assessment Symbols**. (These are contained in Section C.3: Collation Sheet on page 71.) The appropriate assessment symbol should be chosen based on the way the tasks relating to the Review Sub-category is performed in the environmental appraisal report.
6. Decide which assessment symbol is appropriate for each Sub-category and record it on the **Collation Sheet** in Section C.3 (page 71). Avoid using a split symbol (e.g.. ‘C/D’) and be prepared to make use of the full range of assessment symbols ‘A’-‘F’. Record ‘N/A’ where it is considered that the Review Topics is not applicable or irrelevant in the case of the particular environmental appraisal report under review. Note that a task should be assessed as having been satisfactorily handled (i.e. within the range ‘A’-‘C’) if there is

sufficient information of appropriate quality provided in the environmental appraisal report¹⁰ on the Review Topic concerned to enable a decision-maker to make an informed decision. It is the appropriateness and quality, and not the volume, of information provided which is the relevant consideration.

7. Use the assessments of Sub-categories 1.1.1-1.1.6, and any other information gained from the environmental appraisal report which you consider relevant, to assess Review Category 1.1. The assessment of the Review Category should not be derived by a simple averaging of the assessments of the component Sub-categories. Your evaluation of the relative importance of these Sub-categories 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 the Review Categories in the Review Area 1 have also been assessed in the same manner.
9. The evaluation of these Review Categories can now be used to assess the Review Area 1 in the same way in which they themselves were derived from the Review Sub-category assessments (see 7 above). Thus the assessment of Review Area 1 should be based on the assessments of Review Categories 1.1-1.3.
10. Assess Review Areas 2, 3 and 4 in the same manner as Review Area 1. When all the Review Areas have been assessed, the environmental appraisal report as a whole can be assigned an assessment symbol.
11. Record on the Collation Sheet whether the Report was reviewed as a self-contained document or with additional planning material. If the Report was reviewed with additional planning material then this material should be listed on the Collation Sheet.

The two reviewers should then compare their review findings as recorded on their separate Collation Sheets. Where differences in their assessments of the Review Topics occur (at Sub-Category, Category, Area and overall levels), the reviewers should jointly re-examine them with a view to reconciling their findings on a common Collation Sheet. The overall assessment should be supplemented with a brief synopsis (one or two paragraphs) of the environmental appraisal report's strengths and weaknesses, highlighting, in particular, any key deficiencies which would require correction to bring the Report up to an overall satisfactory ('C' or above) standard.

2. INTERPRETATION OF THE REVIEW TOPICS

This section contains guidance on the interpretation of the Review Topics. It follows the same ordering of Review Topics, arranged in Review Areas, as in the List of Review Topics (page 65). Terms or phrases which may require

¹⁰ For the purpose of a supplementary review, as described in 1.1 Introduction (page 53), relevant information contained in other plan documentation should also be taken into account. Where a supplementary review is being undertaken the assessment symbols should be recorded on a separate Collation Sheet to avoid confusion.

interpretation are italicised in the List of Review Topics and are briefly explained below.

REVIEW AREA 1. Description of the Plan, the Affected Environment and the Baseline Conditions

- 1.1.2. *Related land use plans* refer to neighbouring Local Authority plans which have been taken into consideration in the preparation of the plan. Local plans should also identify the relevant structure plan located at a higher level in the same plan hierarchy.
- Sectoral plans* include related waste management, minerals, transport and air quality plans.
- 1.2.** *The affected environment* refers to the geographic extent of the environment affected by the plan; this can be on a local, regional or global scale.
- 1.2.1. *The local environment* refers to the geographic area directly affected by the plan. This includes the environment as defined by the plan's boundary and the local environment in a broader sense, i.e. the environment outside the plan's boundary which is likely to be affected by the plan's activities. This may include:
- catchment areas;
 - ground water resources;
 - development activities affecting traffic on adjacent roads outside the plan area;
 - industrial developments affecting local air and water quality.
- 1.2.2. *The wider environment* encompasses activities arising from the plan affecting the broader regional and global environment. This may include:
- forestry, traffic and industrial activities affecting the regional or global climate;
 - land conversion, pollution and intensive resource management affecting regional/global ecosystems and biodiversity.
- 1.3.** *Baseline conditions* refers to the probable future state of the local environment in the absence of the implementation of the plan. The state of the environment at the present time should be analysed in order to predict the environmental conditions in the absence of the plan (i.e. the "zero-alternative") taking into consideration local, regional and national economic and social forecasts.
- 1.3.1. *Environmental stock* refers to the environmental resources which lie within the local environment affected by the plan. It includes *key assets* such as:
- national and international statutory protected landscapes;
 - ecosystems;
 - flora and fauna;

- archaeological and heritage sites; as well as
 - renewable and non-renewable resources (listed separately).
- 1.3.2. *Local environmental quality* refers to the quality of air, water and land resources within the plan's boundary. The state of any contaminated, derelict or remediated land should be included.
- Where possible, it is useful to quantify or evaluate environmental stock and its quality, using methods such as environmental accounting.
- For more information, see: CAG Consultants and Land Use Consultants (1997); Bartelmus (1997).

REVIEW AREA 2. Identification and Evaluation of Key Impacts

- 2.1. *Scoping* refers to the systematic process of identifying which policies, proposals, alternatives and impacts need to be investigated because of their potentially significant effect on the environment. At this stage, impact prediction methods, data requirements and potential consultees to be used in the environmental appraisal may also be identified.
- 2.1.1. *Systematic methodology* for scoping. A brief description of the impact identification methodology and the rationale for using it should be presented. The methodology might be based on one or more of the following:
- literature search: using existing information (relating to the plan and its environment) and analysis of similar cases;
 - expert judgement: collecting the opinions of recognised experts and holding workshops to develop alternatives and identify impacts;
 - analytical techniques: matrices and checklists (N.B. the same matrix or checklist can be updated with information on the predicted magnitude of the key impacts identified in the scoping exercise and may be used at subsequent stages of the environmental appraisal process);
 - consultative tools: consultation with interested parties and experts.
- For further information see Canter and Sadler (1997), chapter 6; Sadler and Verheem (1996); CEC (1994).
- 2.1.2. *Environmental/sustainability indicators* are formulated to help in assessing the impact of the plan on the environment. Sustainability criteria should include criteria for economic, social and environmental sustainability. At the scoping stage use of these criteria can aid impact identification.
- N.B. criteria for environmental sustainability may differ from the environmental criteria identified above.
- For further information see Bisset (1996), chapter 8; DETR (1998).

2.2.1. *Cumulative impacts* are the combined effect of impacts predicted to arise from activities resulting from the proposed plan; these may be additive and synergistic in character. Cumulative impacts may be local, regional or global in scale e.g. acid rain and global warming.

For further information see EIA Centre (1997); Sadler (1996); Sadar et al (1995); Pritchard (1993).

2.3.1. *Prediction of impact magnitude* establishes a basis on which to assess the likely significance of impacts. In cross-sectoral plans, the prediction of impact magnitude is particularly pertinent for policies containing provisions on the nature, location and operating conditions of projects, e.g. housing developments, transportation, waste management, landscape management, water management.

Impact prediction may be in the form of a quantitative measure or a qualitative description. Magnitude should be assessed as the expected change to baseline conditions (see 1.3.1). The prediction of impact magnitude will often be less detailed and precise if the environmental appraisal report relates to a structure plan than a local plan. Both are likely to be less detailed and precise than in project-level environmental statements.

For more information, see: Canter (1996); Canter and Sadler (1997); CEC (1994); VROM (1984).

2.3.2. *Assessment of impact significance* refers to the significant direct and indirect effects of implementing the plan or programme on human beings, fauna, flora, soil, water, air, climate, landscape, material assets and the cultural heritage which should be assessed. The magnitude of impacts is one factor in determining significance. Other factors include:

- the nature, duration and accumulation of the impacts;
- the proximity of especially sensitive and protected locations and species;
- comparison with statutory standards, for example air and water quality and other planning standards in the area;
- social values and the opinions of interested parties and experts;
- the projected baseline conditions; and
- the *precautionary principle*, i.e. 'where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation' (Rio Declaration 1992, in Hughes, 1996, p. 20).

The important requirement is to establish clear criteria for the conversion of measures, quantitative or qualitative, of impact *magnitude* into measures of impact *importance*. The types of factors to be considered in the determination of impact importance are as listed. The criteria used should be indicated in the Report as well as a brief description of how they have been used.

For further information see Sadler (1996); Sadler and Verheem (1996); Canter (1996); Haug *et al* (1994); Thérivel (1996).

24. *Appraising the sustainability of the plan.* There is no current requirement, either in government guidance or the draft EU SEA Directive, for an environmental appraisal report to include sustainability considerations (however, see DETR, 1999). Therefore an environmental appraisal report which does not include sustainability considerations should not be penalised for this. Instead the entire Review Category may be given the symbol N/A i.e. not applicable. However if an environmental appraisal report does attempt to include sustainability considerations then it should be assessed accordingly, as detailed in the questions of the review Sub-categories.

REVIEW AREA 3. Alternatives, Mitigation, Monitoring and Recommendations

- 3.1. *Alternatives.* At early stages in the plan-making process alternatives may be considered to the main policies and proposals of the plan. The environmental appraisal report should include an assessment of the nature and significance of the predicted impacts of the main policies, proposals and alternatives proposed. Discussions of alternatives should include the “zero-alternative”, i.e. the do-nothing scenario. Recommendations, with a supporting justification of which policies to adopt, based on this assessment, should then be presented in the environmental appraisal report. The elaboration of alternatives should be in sufficient detail to evaluate and compare their potential environmental impacts.

When a plan reaches the later stages of the planning process it may be reasonable to assume that the preferred policies and proposals have already been selected from the alternatives considered. If so, the environmental appraisal report should summarise the nature and impacts of the alternatives which have previously been considered and evaluated and the trade-offs involved in making a choice between them.

For further information, see: Sadler and Verheem (1996).

- 3.2. *Mitigation measures.* At early stages in the plan making process it is unlikely that detailed mitigation measures will be identified and presented in the environmental appraisal report as the choice between alternative policies and proposals may still be under review. However, by the later stages of the plan making process these are likely to have been chosen. Therefore, the environmental appraisal report should contain proposals to mitigate the potentially significant impacts arising from the preferred policies and proposals. The nature and detail of these mitigation measures may vary according to the type of plan to which they relate.

The types of mitigation measures proposed may involve:

- proposing additional new policies;
- modifying existing policies;

- setting conditions for environmental appraisal and/or individual projects EAs at later stages of the planning process;
- setting planning conditions for future new developments, such as creating green spaces in new housing developments;
- making provisions for monitoring plan implementation (see 3.3).

3.3. *Monitoring and review.* At early stages in the plan making process it is unlikely that detailed monitoring and review measures are included in the environmental appraisal report as alternative policies and proposals may still be under consideration. However, by the later stages of the plan making process these are likely to have been chosen. Therefore, the environmental appraisal report should contain proposals to monitor the impacts arising from these policies and proposals. Provisions should also be made for reviewing the plan and its environmental impacts on a regular basis. The contents and level of detail in the monitoring arrangements, some of which will need to be arranged in co-operation with the environmental authorities, will vary according to the type of plan and area to which they relate

REVIEW AREA 4. Communication of Results

4.3. *Uncertainties* and limitations in information are unavoidable in environmental assessment studies, especially in strategic-level studies at early stages in the planning process. First, it is important that the environmental appraisal report acknowledges the nature and extent of the uncertainties and data limitations, especially where this is material to the overall appraisal and acceptance of the plan. Secondly, the environmental appraisal report should indicate any measures taken to reduce uncertainties and other limitations in information (for example, by gathering more data, holding more consultations, undertaking further analyses), to demonstrate the possible implications of these uncertainties (for example, by use of scenario analyses) and or to reduce future unforeseen consequences (for example, through proposals for mitigation measures, monitoring plan implementation, periodic plan review and revision).

For further information, see Arts (1998), Voogd (1997); Sadler and Verheem (1996); Commission of the European Union (1994); VROM (1985); VROM (1984).

4.6.2 The *Review Topics* covered in the non-technical summary should (dependent on the stage in the planning proposal at which the environmental appraisal was conducted) include a brief summary of the content of the plan and the alternatives to it which were considered; the assessment methodology which was used and the principal findings on impact significance; the consultations undertaken in carrying out the appraisal and their principal findings; and the recommendations made concerning mitigation measures, monitoring and follow-up.

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C.2 LIST OF REVIEW TOPICS

1. **DESCRIPTION OF THE PLAN, THE AFFECTED ENVIRONMENT AND THE BASELINE CONDITIONS.**

1.1. **DESCRIPTION OF THE PLAN. The purpose of the plan, its place in the planning hierarchy and its main objectives and proposals should be summarised.**

- 1.1.1. Is the type, purpose and lifetime of the plan, its stage in the plan preparation process and any future stages clearly explained?
- 1.1.2. Are *related land use and sectoral plans* identified?
- 1.1.3. Are the plan's main socio-economic, environmental and/or sustainability objectives clearly stated?
- 1.1.4. Are the plan's main policies and proposals, together with their aims, described?
- 1.1.5. Is the location and extent of the main areas allocated in the plan for different types of development indicated?
- 1.1.6. Are international or national environmental protection objectives (including objectives established in related plans) considered?

1.2. **THE AFFECTED ENVIRONMENT. The extent of the environment potentially affected by the plan should be defined.**

- 1.2.1. Is the *local environment* likely to be affected by the plan identified and described (by narrative description and/or by a map), including areas extending beyond the plan area, such as catchment areas?
- 1.2.2. Are components of the *wider environment* likely to be affected by the plan identified?

1.3. **BASELINE CONDITIONS. A description of the affected environment as it is currently, and as it could be expected to develop if the plan were not to be adopted, should be presented.**

- 1.3.1. Is the local *environmental stock* described? Particular reference should be given to:
 - *key assets*
 - renewable and non-renewable resources

1.3.2. Is the local *environmental quality* described? Existing environmental problems and pressures on the environment should be described, including:

- estimates of waste production
- pollution levels
- other development pressures on the environment.

1.3.3. Are the *baseline conditions* described?

2. IDENTIFICATION AND EVALUATION OF KEY IMPACTS

2.1. SCOPING OF THE ENVIRONMENTAL APPRAISAL. Policies and impacts should be scoped in a systematic and explicit manner to ensure that all relevant issues are covered.

2.1.1. Are potentially significant policies, proposals and their impacts, including those of alternatives, identified using a *systematic methodology*?

2.1.2. Are *environmental/sustainability indicators* established and justified to assist in impact identification?

2.1.3. Are potentially significant impacts on the following environmental receptors, and interactions between them, identified?

- human beings;
- flora and fauna;
- soil;
- water;
- air;
- climate;
- landscape;
- material assets;
- cultural heritage.

2.1.4. Are alternatives for achieving the plan's objectives or policies identified and is the reason for selecting these for further study given?

2.2. DESCRIBING KEY IMPACTS. The likely impacts of the plan's policies and proposals, and those of its alternatives, should be described as precisely as possible, taking into consideration the type of plan and the stage in its preparation.

2.2.1. Is a description of the key impacts of the plan's policies and proposals and its alternatives, as identified at the scoping stage, given? A description should be given of any:

- direct and indirect;
- *cumulative*;
- permanent and temporary;
- positive, negative or uncertain;
- short and long-term (quantified, where possible);

impacts of the plan's policies and proposals on the local and wider environment.

2.2.2. Are the types of future changes to environmental media and receptors (as identified in 1.2) described?

2.3. ASSESSMENT OF IMPACTS. The expected significance of the projected impacts of the plan's policies and proposals, and its alternatives, should be assessed; based where appropriate on their quantification. The rationale, assumptions and value judgements used in prediction and assessing significance should be described.

2.3.1. Is *impact magnitude* predicted, either in quantitative or qualitative terms?

2.3.2. Is *impact significance* assessed, taking into consideration where relevant:

- impact magnitude;
- impact locations;
- impact duration;
- opinions of affected parties/experts;
- environmental/sustainability criteria;
- the *precautionary principle*;
- international and national environmental protection objectives?

2.3.3. Is the methodology used to predict impact magnitude and significance described and justified? Any value judgements used should be explicitly stated.

2.4. APPRAISING THE SUSTAINABILITY OF THE PLAN. The Report should review how sustainability considerations were taken into account in the plan.

2.4.1. Does the Report assess the sustainability of the plan in the local and wider context?

2.4.2. Does the Report establish and justify specific criteria for evaluating the sustainability of the plan?

2.4.3. Does the Report assess the compliance of the plan to national or Local Authority sustainability strategies, e.g. Local Agenda 21?

3. ALTERNATIVES, MITIGATION MEASURES, MONITORING AND RECOMMENDATIONS

3.1. ALTERNATIVES. Alternatives to the plan's policies, proposals and objectives should be considered. These should be outlined and the environmental implications of each presented and the reasons for their rejection briefly discussed.

3.1.1. Are alternatives, considered at previous and present stages of the plan making process, described and evaluated and the reasons for any final choices given? Reasons for not adopting alternatives should also be given. Alternatives may relate to:

- objectives;
- policies and proposals;
- location strategies and land use types.

3.1.2. Is the significance of the predicted environmental impacts used in justifying the choices between alternatives?

3.2. MITIGATION MEASURES. Significant adverse impacts likely to result from the implementation of the plan should be considered for mitigation.

3.2.1. Are mitigating measures proposed to prevent, reduce or offset the significant adverse impacts of implementing the plan's policies and proposals on the environment?

3.2.2. Is the anticipated effectiveness of the proposed mitigation measures indicated?

3.2.3. Is the commitment to, and responsibilities for, mitigation measures stated?

3.3. MONITORING AND REVIEW. Effective arrangements should be made for monitoring and reviewing the plan's implementation.

3.3.1. Are monitoring arrangements proposed to check the environmental impacts resulting from the implementation of the plan, and their conformity with the predictions within the Report?

3.3.2. Are there provisions to review the plan on a regular basis to ensure that any unexpected environmental impacts are identified and taken into account in plan revisions?

3.3.3. Is the commitment to, and responsibilities for, monitoring and review stated?

3.4. RECOMMENDATIONS. Based on the results of the environmental appraisal, the Report should present recommendations for consideration in subsequent decision-making relating to the plan and its implementation.

- 3.4.1. Does the Report contain recommendations concerning the contents of the plan, e.g. amending and introducing new policies or proposals and/or on the final selection of alternatives?
- 3.4.2. Are recommendations made for the further investigation of activities arising from the plan within the project-level environmental assessment process?

4. COMMUNICATION OF RESULTS

4.1. LAYOUT. The layout of the Report should enable the reader to find and assimilate data easily and quickly. External data sources should be acknowledged.

- 4.1.1. Is information logically arranged in sections or chapters? The structure of the appraisal should be indicated in a table of contents and summarised in its introduction.
- 4.1.2. Are the predicted environmental impacts referenced to the policies giving rise to them?
- 4.1.3. Do chapters and other sections of the Report, unless very short, contain summaries outlining their main findings and conclusions?
- 4.1.4. Where data or material from external sources are introduced, is the original source acknowledged at that point in the text ? Such data and material should be adequately referenced.

4.2. PRESENTATION. Care should be taken in the presentation of information to make sure that it is accessible to the non-specialist. The Report should ideally be a self-contained document.

- 4.2.1. Is information presented so as to be comprehensible to the non-specialist? Tables, graphs, sketch maps and other devices should be used as appropriate.
- 4.2.2. Is obscure language avoided? Acronyms and initials should be defined.
- 4.2.3. To what extent is the Report presented as a self-contained document? If and where cross-reference is necessary to other planning documentation, the source of the reference should be clearly indicated.
- 4.2.4. If important data and material are located in appendices, are they also summarised, presented and discussed in the main body of the text?

4.3. UNCERTAINTIES. Uncertainties and other limitations in information and assessment methods should be acknowledged. The reasons for these and how they have been handled within the environmental appraisal should be explained.

4.3.1. Are uncertainties and other limitations regarding information, data and methodologies acknowledged?

4.3.2. Does the Report explain and justify how these uncertainties and limitations have been handled within the environmental appraisal?

4.4 EMPHASIS. Information should be presented without bias and receive the emphasis appropriate to its importance in the context of the Report.

4.4.1. Are both significant adverse and beneficial environmental impacts given their due emphasis? The significance of adverse impacts should not be disguised by empty or imprecise phrases.

4.4.2. Is the information in the Report presented without bias? The Report should not lobby for a particular point of view toward the plan and its likely environmental consequences.

4.5 CONSULTATION. It should be evident how interested parties have been consulted during the environmental appraisal and their opinions have been taken into consideration in the Report.

4.5.1. Is information presented in the Report on any consultation exercises undertaken, during the environmental appraisal, with the environmental authorities, NGOs, the general public and other interested parties in the development plan process?

4.5.2. Are the opinions they expressed summarised and taken into account in the Report?

4.6 NON-TECHNICAL SUMMARY. There should be a clearly written non-technical summary of the main findings of the environmental appraisal and how they were reached in the Report.

4.6.1. Is there a non-technical summary of the environmental appraisal Report? This should include a brief description of the plan, its main objectives and alternatives considered.

4.6.2. Does the summary cover all major *Review Topics* and issues in the Report and its principal findings and recommendations?

C.3 COLLATION SHEET

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 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 it is irrelevant in the context of this environmental appraisal report.

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	.....			4.1.3	.....
1.1.4	.....	2.1.4	.....			4.1.4	.....
1.1.5	.....					
1.1.6	.....					
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	.....
				3.2.3	.....	4.2.3	.....
						4.2.4	.....
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	.....	3.3.3	.....	
		2.4	.....	3.4	.....	4.4	.....
		2.4.1	.....	3.4.1	.....	4.4.1	.....
		2.4.2	.....	3.4.2	.....	4.4.2	.....
		2.4.3	.....			
						4.5	.....
						4.5.1	.....
						4.5.2	.....
						4.6	.....
						4.6.1	.....
						4.6.2	.....

Environmental Appraisal Review Package

Overall Quality

Assign an assessment symbol (A, B, C, D, E or F) to the environmental appraisal report as a whole and summarise, in one or two paragraphs, its main strengths and weaknesses indicating any key deficiencies which would need correction to bring it up to a satisfactory ('C' or above) standard.

This Report was reviewed (delete as appropriate):

- as a self-contained document;
- with additional planning material.

What, if any, additional planning material was used in assessing the quality of the Report?