



Integrated Environmental Management Information Series

Review in EIA 13



Department of
Environmental Affairs and Tourism

Other topics in the series of overview information documents on the concepts of, and approaches to, integrated environmental management are listed below. Further titles in this series are being prepared and will be made available periodically. Sequence of release and titles are subject to change.

Information Series 0:	Overview of Integrated Environmental Management
Information Series 1:	Screening
Information Series 2:	Scoping
Information Series 3:	Stakeholder Engagement
Information Series 4:	Specialist Studies
Information Series 5:	Impact Significance
Information Series 6:	Ecological Risk Assessment
Information Series 7:	Cumulative Effects Assessment
Information Series 8:	Cost Benefit Analysis
Information Series 9:	Life Cycle Assessment
Information Series 10:	Strategic Environmental Assessment
Information Series 11:	Criteria for determining Alternatives in EIA
Information Series 12:	Environmental Management Plans
Information Series 13:	Review in Environmental Impact Assessment
Information Series 14:	Environmental Auditing
Information Series 15:	Environmental Impact Reporting
Information Series 16:	Environmental Economics

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PREFACE

This document is one of a series of overview information documents on the concepts of, and approaches to, Integrated Environmental Management (IEM). IEM is a key instrument of South Africa's National Environmental Management Act (NEMA). South Africa's NEMA promotes the integrated environmental management of activities that may have a significant effect (positive and negative) on the environment. IEM provides the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. It includes the use of several environmental assessment and management tools that are appropriate for the various levels of decision-making.

The aim of this document series is to provide general information on techniques, tools and processes for environmental assessment and management. The material in this document draws upon experience and knowledge from South African

practitioners and authorities, and published literature on international best practice. This document is aimed at a broad readership, which includes government authorities (who are responsible for reviewing and commenting on environmental reports and interacting in environmental processes), environmental professionals (who undertake or are involved in environmental assessments as part of their professional practice), academics (who are interested in and active in the environmental assessment field from a research, teaching and training perspective), non-government organisations (NGOs) and interested persons. It is hoped that this document will also be of interest to practitioners, government authorities and academics from around the world.

This document has been designed for use in South Africa and it cannot reflect all the specific requirements, practice and procedures of environmental assessment in other countries.

This series of documents is not meant to encompass every possible concept, consideration, issue or process in the range of environmental assessment and management tools. Proper use of this series of documents is as a generic reference, with the understanding that it will be revised and supplemented by detailed guideline documents.

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Note

All sources used have been acknowledged by means of complete references.

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SUMMARY

Review is a mechanism employed in Environmental Impact Assessment (EIA) to judge the adequacy of the process and quality of the EIA report. The review is conducted with reference to legal conformity and good practice. Key objectives of EIA review are to:

- * assess quality of information contained in the EIA report;
- * determine how stakeholder concerns have been addressed;
- * determine if the information is adequate for decision-making; and
- * identify information gaps and deficiencies.

Review can add value to the EIA process by acting as a quality assurance instrument and ensuring credibility of the process. It can also be used to impart authority and public confidence in the EIA findings. The purpose of review is to determine whether the information is sufficient for decision-making.

The type of information needed for decision-making includes:

- * description of the project proposal and activities;
- * description of the baseline environmental conditions;
- * identification, quantification and evaluation of impacts;
- * identification and evaluation of the full range of reasonable alternatives; and
- * description of mitigation measures.

The task of review is also to judge whether information has been communicated in a comprehensible, accessible and readable report. The ultimate objective of review is to improve quality and EIA practice.

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1. INTRODUCTION

The purpose of Environmental Impact Assessment (EIA) is to provide information on the environmental consequences of given activities so as to inform decision-making. Such information must be accessible to a wide range of users including the decision-makers and stakeholders. The challenge faced by EIA practitioners is to ensure that the information that is presented is correct, that it is comprehensive and that it is comprehensible. This is a considerable challenge as a range of factors including personal opinion, inaccurate source data, scientific limitations and a host of other issues, all serve to detract from that ideal. Simply put, review is the most effective way of dealing with these factors. Review is described as the activity of assessing the adequacy and quality of environment impact reports (EIRs). The review is conducted by reference to legal conformity and good practice. Review is thus an instrument for quality control (EIA Centre, 1995). It determines whether the report meets the terms of reference, examines reasonable alternatives, provides an assessment of the effects of the activity, adequately deals with mitigation, fairly represents public concerns and provides information for decision-making (Sadler, 1996). There are various approaches, methods and criteria for EIA review. However, according to Sadler (1996), common criteria for review includes:

- * appropriateness (coverage of key issues and impacts);
- * adequacy (of impact analysis); and
- * actionability (does the report provide the basis for decision-making?).

Sadler (1996) stated that the objectives of EIA review are to determine:

- * sufficiency of information provided (e.g. complete and meets study objectives);
- * reliability of analysis (e.g. consistent with scientific knowledge and methods); and
- * relevance for decision-making (e.g. clear description of significant environmental impacts and mitigation actions).

2. PURPOSE OF THIS DOCUMENT

The purpose of this document is to describe the function of review in EIA. More specifically the document serves to address the following questions:

- * What is the role and purpose of authority, stakeholder and specialist review?
- * What are the reviewer's roles and responsibilities in the overall EIA process?
- * What is the critical information required for informed decision-making?

It is important to emphasise that this is not a guideline document, but rather describes various criteria for review in EIA. It is an introductory text that serves to provide a context for EIA review. The document is structured to describe review, why it is important to present a series of review principles and describing an approach to conducting a review.

3. WHAT IS REVIEW AND WHY IS IT IMPORTANT?

3.1 The purpose of review

Review is quite simply the practice of having independent parties assess the work that has been done in the EIA to ensure that it is accurate, comprehensive and clearly presented. At the same time review is an integral part of the EIA process and serves to provide comment on the quality of the EIA from a range of stakeholder perspectives. It is important to see review as both an inherent part of the EIA process, but also as a tool that can be used to improve the quality of an EIA and enhance its credibility.

The review of the quality of an EIA report is conducted to ensure that the report addresses issues raised during scoping and is sufficient for decision-making. A systematic, open review process assures decision-makers that the information is credible. Review also imparts public confidence in the EIA process (UNEP, 2002). The purpose of review is to assure the completeness and quality of the information presented in the EIA report. According to UNEP (2002) the key objectives of EIA review are to:

- * assess the adequacy and quality of an EIA report;
- * take account of public comment;
- * determine if the information is sufficient for a final decision to be made; and
- * identify the deficiencies in the EIA report.

Generic criteria listed by UNEP (2002) that can be used to conduct an EIA review include:

- * legal EIA requirements;
- * environmental standards or guidelines;
- * principles of good EIA practice; and
- * knowledge of the project and its typical impacts.

In the section that follows, two broad forms of review are described. The first of these is the review that forms an inherent part of the EIA process and that is effected by the different parties that participate in the process. The second is review that is commissioned by the EIA practitioner to enhance the quality of the EIA.

3.2 Review during different stages of the EIA process

The different 'forms' of review presented below are principally a function of the reviewing party rather than the review technique. The basic approach to good review remains the same regardless of the party conducting the review, but there are obviously different areas of emphasis depending on the party conducting the review. Before presenting these it is necessary to describe a typical EIA process and where in that process review takes place. The EIA process can be simplified and broken down into the generic component stages of: scoping, assessment, decision, implementation and stakeholder engagement (Figure 1). In essence each of these stages should be reviewed upon completion, because each is a separate building block in completing the entire process. The purpose of each stage is summarised in Table 1 together with the requirements and objectives of review at each stage.

Figure 1: Illustration of a generic EIA process and the stages where review can be applied

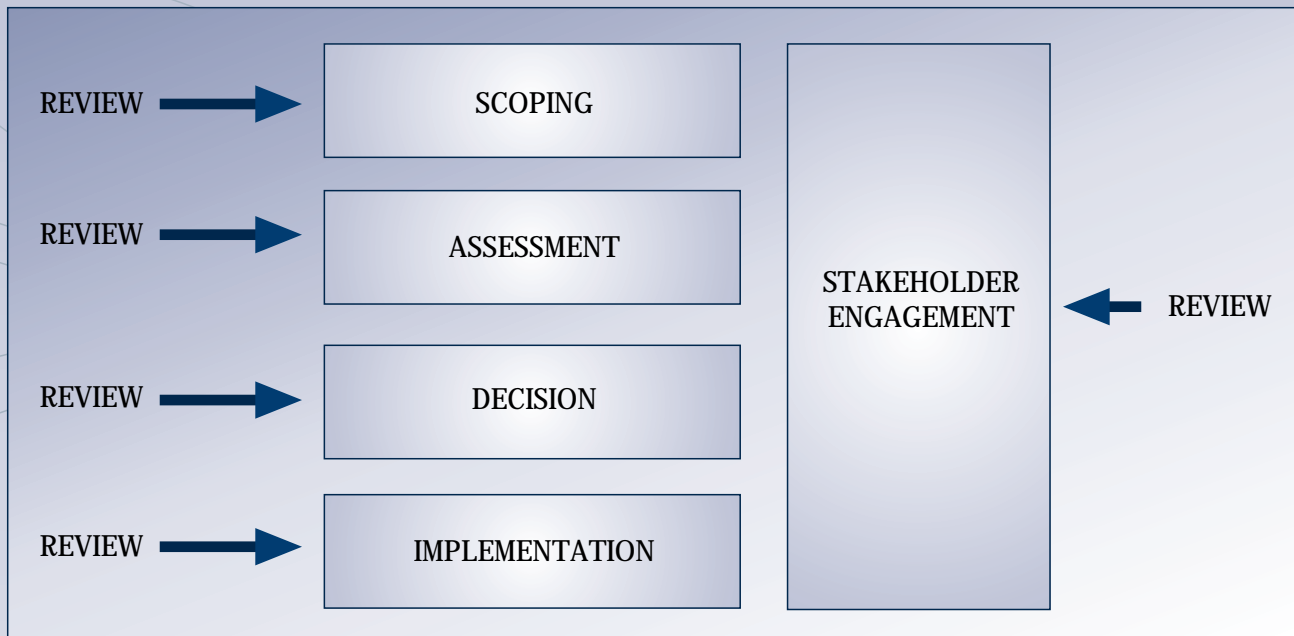


Table 1: The purpose and objectives of review at each stage of the EIA process

Stage in the EIA process	Purpose	Criteria for review
Scoping	Define the scope of the assessment	<ul style="list-style-type: none"> * Have all issues been captured? * Is there a logical differentiation between issues that are going to be assessed and those that will not? * Is there a logical linkage between the issues identified and the terms of reference for the assessment?
Assessment	Conduct the assessment as defined by scoping	<ul style="list-style-type: none"> * Have all the issues raised during scoping been addressed and is there a logical linkage between the issues and the assessment? * Is the assessment technically and scientifically valid? * Does the assessment address the terms of reference? * Is the assessment clear and easy to follow?
Decision	Project authorisation or decline	<ul style="list-style-type: none"> * Is the decision logically based on the content of the EIA? * Are there clear reasons given for the decision? * Are the conditions of the decision logical and practical?
Implementation	Implementation of the EIA recommendations and conditions of authorisation	<ul style="list-style-type: none"> * Is there proper provision for the implementation of the recommendations/conditions in the form of an environmental management plan (EMP)? * Have the recommendations/conditions been implemented?
Stakeholder engagement	Present opportunity for stakeholders to participate in the EIA process	<ul style="list-style-type: none"> * Have all stakeholders been identified? * Is there fair opportunity for participation including clear documentation and adequate opportunity for comment? * Is there a logical mechanism for including the issues raised in the assessment and proving an indication of how the issue was addressed?

3.3 Stakeholder review

Stakeholders include a broad range of individuals and communities with different interests in the EIA and its outcome. Stakeholders include the public and interested and affected parties (I&APs). The simplest form of stakeholder review is checking to ensure that issues raised have been acknowledged and addressed in the EIA. The form of review can vary from a simple statement of direct disagreement with the findings, to a structured argument that may require certain findings in the EIA to be revisited. However, the former will have little credibility since it may be judged an emotional, rather than a reasoned, response. Public input is an integral means of reinforcing objectivity and assuring the quality of information presented. Adequate opportunity needs to be provided for public review and comment (UNEP 2002).

The review, therefore, may be strongly technically focussed, or may address the robustness and fairness of the EIA process and may include cultural or value arguments that do not support the technical findings presented in the EIA. For these reasons, stakeholder review raises another essential consideration in review, and that is how to decide on the validity of review comments. Stakeholder review is an essential part of an EIA process because of the need for transparency, accountability and access to information. Stakeholder review should never be used to substitute for technical peer review because public comment does not necessarily contain the technical insight required of an appointed peer reviewer (US EPA, 2000).

3.4 Decision-makers' review

As part of the decision-making process, it is necessary to decide whether the EIA is comprehensive, accurate and clearly presented before making a decision. There is no doubt that the authorities are able to cite many examples of where decision-making was protracted because the EIAs were neither accurate nor comprehensive. Decision-makers' review takes stock of whether specific authority requirements have been recognized and included in the assessment (for example regulations, and by-laws), whether the EIA is technically robust and whether the required process has been followed and addressed, adequately. There is a strong link between this review component and one of the more important characteristics of a good EIA, namely the provision of interpreted data for informed decision-making.

3.5 Review by other authorities

While specific authorities are designated with the task of decision-making, there is a range of other authorities who may also provide comment and input to the EIA. These would include other government departments who are affected by the decision as well as other authorities who may need to issue permits. Other authorities would typically review an EIA in much the same way as the decision-makers ensuring that relevant regulatory requirements have been recognised and addressed in the EIA.

3.6 Project Proponent review

Obviously the project proponent would need to review the

EIA. Inevitably this would focus on the accurate description of the proposed activity as well as the findings of the impact assessment. One of the key elements of a proponent's review is the assessment of the recommendations presented in the EIA to ensure that these are practicable and implementable. This does not imply that the proponents have the right of veto on recommendations they might not like, but rather to ensure that the EIA does not contain recommendations that are simply impossible to implement either on technical or financial grounds.

3.7 Financiers' review

In the case of large developments there may be financiers involved who will also want to satisfy themselves that the EIA is accurate and comprehensive. The African Development Bank, the Development Bank of Southern Africa, World Bank and the Industrial Finance Corporation (IFC) are examples of such financiers. Financiers review EIAs to ensure that they are of adequate quality, but also to ensure that they have included particular policy and procedural requirements (such as the safeguard policies of the World Bank).

3.8 Using review as a tool in the EIA process

The types of review described above are principally a function of the party conducting the review. The emphasis shifts slightly in the section that follows to presenting two EIA review forms that are quite different in their nature and purpose. These are process review in which the procedural requirements of an EIA are assessed and technical review in which the 'science' of the assessment, is reviewed.

3.9 Process review

A process review is used to assess the degree to which the process requirements of an EIA have been met. Specific items to be addressed in a process review would include:

- * degree and adequacy of stakeholder involvement;
- * opportunity to comment;
- * adequacy of scoping;
- * compliance with regulatory or other procedural requirements;
- * appointment of specialists;
- * quality control procedures (including peer review);
- * methods of conflict resolution; and
- * engagement with the authorities.

The principle of process review is to assess whether the EIA process has been fair to all involved parties. Process review is especially important in terms of regulatory compliance. An experienced EIA practitioner will be able to review a process ensuring that it meets legal and procedural requirements, as well as criteria for good practice.

Process review is probably the most underrated requirement of an EIA and the value it can add is generally not widely recognised, despite frequent criticisms that highlight poor EIA processes. The pro-active inclusion of process review where an EIA is complex and controversial, can provide the assurance to stakeholders that the process is adequate

(CSIR, 2001). An example of criteria to test the effectiveness of the EIA process is given in Box 1.

Box 1: Effectiveness criteria for review of the EIA process

- a) screening - proposal classified correctly as to level and requirement for assessment
- b) scoping - process completed and resulted in:
 - i. priority issues and relevant impacts identified
 - ii. Key actors involved
 - iii. Reasonable alternatives established
 - iv. Terms of reference/study guidelines prepared
- c) Impact analysis - process completed in scope and depth necessary
 - i. Affected environment (baseline) conditions described
 - ii. Estimation and prediction of main impact categories, including
 - indirect and cumulative effects
 - other relevant factors
- d) Mitigation - necessary measures or environmental management plan identified, including
 - i. Follow up and monitoring arrangements
 - ii. Specification of contingency plans or non-standard operating responses
- e) Significance - residual effects evaluated as to potential severity, including reference to
 - i. Their scope, duration and irreversibility
 - ii. Relative importance to dependent communities or ecological functions
 - iii. Possible compensation.

Source: Sadler (1996)

3.10 Technical review

A technical review is used to ensure that the EIA is technically sound, that it has been competently performed, properly documented, and satisfies recognised quality requirements. In other words have appropriate methods been used, is the data suitable and adequate, are the findings and conclusions adequately supported by the assessment and generally whether the assessment is based on good science. In many instances this technical review takes the form of an independent peer review of the specialist studies. Peer review is described by the US EPA (2000) as review conducted by qualified individuals (or organizations) who are independent of those who performed the work, but who are collectively equivalent in technical expertise (i.e. peers) to those who performed the original work. This type of review is a detailed assessment of the assumptions, calculations, extrapolations, alternate interpretations, methodology, acceptance criteria, and conclusions that have been used as the basis of the assessment, together with the supporting documentation (US EPA, 2000).

The requirement for independent peer review of all the specialist studies can seldom be met by a single individual, due to the diversity of scientific disciplines that are typically brought to bear in an EIA. It is thus not uncommon to have independent peer reviewers for each of a range of specialist studies within a single EIA. It is recommended that peer review within an EIA be a pro-active process, whereby the peer reviewer is involved in designing the terms of reference, the plan for undertaking the specialist study and the final product. In this manner the peer reviewer is used throughout the study to ensure that it meets good practice requirements.

3.11 Why is review important?

Review serves to ensure that the EIA is comprehensive and accurate. In addition review serves other important functions in the EIA process including:

- * identifying technical problems or unresolved issues;
- * ensuring that the EIA is cost effective by uncovering technical problems and inconsistencies at an early stage in the process;
- * enhancing the credibility of the EIA by ensuring that it is scientifically and technically sound;
- * ensuring that the EIA presents a fair opportunity for all stakeholders to raise concerns and issues and to have these addressed;
- * ensuring that the EIA provides a sound basis for decision-making; and
- * identifying additional information sources that may have been overlooked in the assessment.

Independent review does not appear to be common practice in EIA, and this is especially true of smaller EIAs where such independent review appears to be perceived as an unnecessary additional expense. The consequence of this is that even good EIAs that have not been independently reviewed are sometimes perceived to be incomplete, if not fundamentally flawed. The additional cost of independent review is a small price to pay for the potential value that it can add to the EIA. In more extreme cases a lack of review during the process can mean that at the end of the process, the EIA is found to be inadequate and requires revision, or even that the EIA is rejected in its entirety. In both instances the consequences are additional costs, time delays and perhaps more importantly an undermining of the credibility of EIA practice.

4. PRINCIPLES OF REVIEW?

The section that follows provides a series of review principles that can be used to develop a framework within which a review can be structured and completed.

4.1 Generic Review Principles

Generic review principles that can be applied in the EIA process include:

- * consistency;
- * logic;
- * sufficiency;
- * efficiency; and
- * assumptions

Consistency

Consistency and adequacy go hand in hand in EIA practice. Consistency spans a broad range of items from writing and presentation style through to the more complex challenge of ensuring that the information provided is consistent. What makes this requirement especially challenging is the requirement to integrate many sources of information into an EIA including industrial process descriptions from the proponent, information on the state of the environment, and the specialist studies. This variety of information sources increases the likelihood of presenting inconsistent information. When such inconsistencies occur they can result in the credibility of the EIA being questioned. Inconsistent information may indicate flawed reasoning in the assessment and render the findings invalid. A good reviewer will be able to distinguish between inconsistencies that are simply innocent mistakes and those that suggest a flawed assessment.

Logic

Logic refers to the way in which arguments are developed. It is also about making deductions and conclusions based on the preceding information.

Sufficiency

Sufficiency is a major problem in EIA because there is simply never enough information to address all the issues at the required level of data. In most instances making assumptions and clearly spelling out the reasoning behind those assumptions, can be used to address missing information.

Efficiency

Participants in EIA processes will no doubt recognise circumstances where EIA processes have submitted quantity as a substitute for quality. Copious information does not necessarily improve the quality of an EIA and, in many instances, can actually reduce the quality of an EIA. Efficiency is assessed by questioning the relevance of particular information to the issues that need to be addressed. One of the areas in EIA where efficiency is poor is in the use of lists (e.g. species lists). Such lists only add value when they are linked in some way to impacts and the significance of those impacts.

Assumptions

Assumptions should be identified and clearly listed. Two aspects must be addressed when considering the assumptions that have been used. The first is whether the assumptions are reasonable and valid. The second is whether the conclusions and findings take proper account of the assumptions and the degree to which these might reduce confidence in the findings. In most instances peer reviewers of the specialist studies are best placed to assess the use of assumptions. The review principles of consistency, logic and sufficiency can also be used to assess the validity and rigour of the assumptions that have been used.

Box 2 lists generic or basic principles identified by IAIA (1999) that apply to all stages of the EIA process, and that can be used for review.

Box 2: Generic best practice principles that can be used for review.

<p>Purposive - the process should inform decision making and result in appropriate levels of environmental protection and community well-being.</p> <p>Rigorous - the process should apply “best practicable” science, employing methodologies and techniques appropriate to address the problems being investigated.</p> <p>Practical - the process should result in information and outputs which assist with problem solving and are acceptable to and able to be implemented by proponents.</p> <p>Relevant - the process should provide sufficient, reliable and usable information for development planning and decision making.</p> <p>Cost-effective - the process should achieve the objectives of EIA within the limits of available information, time, resources and methodology.</p> <p>Efficient - the process should impose the minimum cost burdens in terms of time and finance on proponents and participants consistent with meeting accepted requirements and objectives of EIA.</p> <p>Focused - the process should concentrate on significant environmental effects and key issues; i.e., the matters that need to be taken into account in making decisions.</p> <p>Adaptive - the process should be adjusted to the realities, issues and circumstances of the proposals under review without compromising the integrity of the process, and be iterative, incorporating lessons learned throughout the proposal's life cycle.</p>	<p>Participative - the process should provide appropriate opportunities to inform and involve the interested and affected publics, and their inputs and concerns should be addressed explicitly in the documentation and decision making.</p> <p>Interdisciplinary - the process should ensure that the appropriate techniques and experts in the relevant biophysical and socio-economic disciplines are employed, including use of traditional knowledge as relevant.</p> <p>Credible - the process should be carried out with professionalism, rigor, fairness, objectivity, impartiality and balance, and be subject to independent checks and verification.</p> <p>Integrated - the process should address the interrelationships of social, economic and biophysical aspects.</p> <p>Transparent - the process should have clear, easily understood requirements for EIA content; ensure public access to information; identify the factors that are to be taken into account in decision making; and acknowledge limitations and difficulties.</p> <p>Systematic - the process should result in full consideration of all relevant information on the affected environment, of proposed alternatives and their impacts, and of the measures necessary to monitor and investigate residual effects.</p>
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Source: IAIA (1999)

4.2 Specific Principles for EIA Review

The following aspects are listed by UNEP (2002) for consideration in a comprehensive EIA review:

- * performance of scoping;
- * accuracy of impact prediction;
- * comparison of alternatives;
- * effectiveness of proposed mitigation measures;
- * requirements for monitoring; and
- * process and method for stakeholder engagement.

This section concentrates on three aspects of the EIA process, which is considered critical for best practice. These aspects include:

- * scientific rigour
- * accessibility of the EIA report; and
- * the stakeholder engagement process.

Scientific rigour

Scientific rigour or what Sadler (1996) describes as ‘rigorous analysis’, is difficult to assess in any general way within the EIA. As a result this level of review is typically best left to peer reviewers within the field or discipline of the specialist studies. Criteria for reviewing specialist study reports include:

- * Does the specialist report clearly address the issues and concerns that need to be considered in the assessment? Is there a logical and understandable link between these issues and the method that has been used for the assessment?
- * Is the report readable and understandable? Is the writing clear, explaining any discipline-specific or specialized terms?
- * Is the assessment placed within the context of current knowledge?
- * Is the research/assessment design solid and the method appropriate? Is there evidence to support the conclusions?
- * Does the report deliver what was required by the terms of reference? Does the report conclude with a return to the issues that need to be considered in the assessment and to how these have been considered? Is the report structured logically so that the reader can easily follow the argument?
- * Does the report use an accepted documentation style and inclusive language?
- * Are the tables, figures, illustrations, etc., appropriate and necessary to the information presented in the report?

Accessibility of the EIA report

One of the inherent challenges in EIA is to make sophisticated scientific information accessible to a broad cross section of stakeholders. Highly academic language is not suitable for EIA documents as it may present a barrier to understanding how issues have been assessed. A reviewer should consider whether the information is easy to understand and that the logic, reasoning and ultimate findings are clearly presented. If these items are not clear to the reviewer then it is most probable that they would be even less clear to the stakeholders participating in the process.

The layout and structure of the report is extremely important. A good summary can dramatically enhance the readability of a report simply by providing a quick reference framework that will allow the reader to contextualise the detail they may read in the main report. Diagrams to illustrate difficult concepts, as well as other techniques such as information boxes, can be used to explain concepts without detracting from the flow of the report. Finally, a glossary is a key item for promoting understanding and readability. A glossary should provide both the full terms for abbreviations and definitions of technical terms.

The stakeholder engagement process

Issues such as: inclusiveness, integration, continuity, transparency, accessibility of information, awareness creation and feedback are key considerations when reviewing the adequacy of stakeholder engagement processes.

Inclusiveness

There should be evidence that all key stakeholders have been identified and given both adequate notice of, and opportunity to participate in the EIA. There should be evidence that a broad stakeholder grouping has been targeted (race, gender, age, cultural group and demographic representation) with special attention being paid to marginalised groups.

Integration

Public concerns should not be overshadowed by technical assessments. Due consideration should be given of local and traditional knowledge, cultural beliefs and local value systems.

Continuity

The stakeholder engagement process must provide opportunity for ongoing involvement throughout the EIA process. There should be clear evidence that the opportunity for comment has been provided. These need to occur early in the process so that the issues raised have a bearing on the EIA and its outcome.

Transparency

A reviewer should be sensitive to indications of a lack of transparency. For example:

- * were there important findings in the final report that were not communicated during the stakeholder engagement process?;
- * were there obvious omissions of information?; and

- * were there direct questions raised during the scoping that has not been addressed.

Accessibility of information

Was adequate time provided to read and consider the information? Were documents readily available, and translated into local languages.

Awareness creation

Good stakeholder engagement includes mechanisms to increase awareness on how to participate and what the rights of stakeholders are.

Feedback

A reviewer should assess whether there has been adequate feedback to stakeholders. For example, were issues captured at public meetings and circulated for comment? Providing a comments report (at the end of the EIA) of how and where issues have been addressed is useful.

4.2.1 Support for decision-making

The purpose of EIA is to promote informed decision-making. This purpose should inform the criteria upon which review is conducted. It is undeniably the most difficult aspect of the review process and one that is tempting to simply leave to the authorities who must ultimately make the decision. Issues for review include:

- * the degree to which comments from the authorities have been addressed; and
- * whether or not regulatory or legal compliance issues have been included in the assessments and highlighted in the overall findings.

5. CONDUCTING A REVIEW

In this section conducting a review is described and structured to include review techniques, selecting reviewers, terms of reference for reviewers and finally what to do with review comments. A key consideration in conducting a review is ensuring that it enhances the EIA.

UNEP (2002) recommends conducting a review according to the following three steps:

- * Step 1: identify the deficiencies in the EIA report.
- * Step 2: focus on shortcomings in the report. Separate crucial deficiencies, which may directly impede decision-making from less important ones.
- * Step 3: recommend how shortcomings are to be remedied to facilitate informed decision-making.

Operating principles for EIA best practice identified by IAIA (1999) can be used to inform a review (Box 3).

Box 3: Best practice operating principles for the EIA process.

Screening - to determine whether or not a proposal should be subject to EIA and, if so, at what level of detail.

Scoping - to identify the issues and impacts that are likely to be important and to establish terms of reference for EIA.

Examination of alternatives - to establish the preferred or most environmentally sound and benign option for achieving proposal objectives.

Impact analysis - to identify and predict the likely environmental, social and other related effects of the proposal.

Mitigation and impact management - to establish the measures that are necessary to avoid, minimize or offset predicted adverse impacts and, where appropriate, to incorporate these into an environmental management plan or system.

Evaluation of significance - to determine the relative importance and acceptability of residual impacts (i.e., impacts that cannot be mitigated).

Preparation of environmental impact report - to document clearly and impartially impacts of the proposal, the proposed measures for mitigation, the significance of effects, and the concerns of the interested public and the communities affected by the proposal.

Review of the EIA Report - to determine whether the report meets its terms of reference, provides a satisfactory assessment of the proposal(s) and contains the information required for decision making.

Decision making - to approve or reject the proposal and to establish the terms and conditions for its implementation.

Follow up - to ensure that the terms and condition of approval are met; to monitor the impacts of development and the effectiveness of mitigation measures; to strengthen future EIA applications and mitigation measures; and, where required, to undertake environmental audit and process evaluation to optimize environmental management.

Source: IAIA (1999)

5.1 Review checklists

The simplest and most effective review technique is the use of a checklist, which contains pre-defined questions. Checklists are most useful for reviewing the completeness of an EIA, but are far less effective in checking the quality of information that is presented.

There are several review checklists internationally that can be adopted and adapted. An example of the review checklist used by the Southern African Institute for Environmental Assessment (SAIEA) is provided in Appendix A.

The SAIEA checklist is subdivided into the following eight sections:

- 1) Methodology utilized in compiling the EIA report
- 2) Description of the project
- 3) Assessment of alternatives to the project
- 4) Description of the environment
- 5) Description of impacts
- 6) Consideration of measures to mitigate impacts
- 7) Non-technical summary
- 8) General approach

Checklists are designed as a method for reviewing the adequacy of the EIR in terms of legal compliance and generally accepted EIA good practice. Adequacy is defined

as the completeness and suitability of the information from a content and decision-making viewpoint (European Communities, 2001). The checklist is aimed at helping reviewers decide whether information meets the objective of:

- * providing the necessary information to authorities for decision-making; and
- * communicating with stakeholders so that they can comment in an informed manner.

Box 4 contains a list of the qualities of a good EIA report.

Box 4: Main characteristics of a good environmental impact report

- * A clear structure with a logical sequence describing: existing baseline conditions, predicted impacts and mitigation measures.
- * Reads as a single document with appropriate cross-referencing.
- * Is concise, comprehensive and objective.
- * Is written in an impartial manner without bias.
- * Includes a full description of the development proposals.
- * Makes effective use of diagrams, illustrations, photographs and other graphics to support the text.
- * Uses consistent terminology with a glossary.
- * References all information sources used.
- * Has a clear explanation of complex issues.
- * Contains a good description of the methods used for the scientific studies.
- * Covers each environmental topic in a way which is proportionate to its importance.
- * Provides evidence of stakeholder engagement.
- * Includes a clear discussion of alternatives.
- * Describes mitigation and monitoring measures.
- * Contains an executive summary.

Source: European Communities (2001)

5.2 Selecting reviewers

Care should be taken when selecting an independent reviewer. The choice of reviewer plays a significant role in the credibility of the review. The first requirement for a reviewer is that the person should have a level of expertise similar to, or greater than, that of the specialist/practitioner who compiled the report and should be well versed in the requirements of EIA. Experience, competence and reputation are as important as academic qualifications.

5.3 Responding to review comments

Review is generally perceived to be the arbiter of whether an EIA (or particular findings within the EIA) is acceptable or not. The challenge for those who commission reviews is to make a judgement on the validity of the review comments. Reviews tend to provide new insight on the information that is being presented.

If a reviewer expresses a divergent opinion a useful mechanism to clarify issues is to provide an opportunity for dialogue. The discussion between the two parties should focus on the reasoning behind the findings rather than on the findings themselves. The review criteria to keep in mind include: consistency, logic, sufficiency, efficiency and assumptions

5.4 Terms of reference for reviewers

It is recommended that reviewers have a clear terms of reference indicating the scope of work, the level of detail of the review and any other expectations that must be fulfilled in conducting the review. Typical terms of reference may include (CSIR, 2001):

- * assessing the technical content and assessment method in the EIA, taking into account the budget and time allocated for the study;
- * identifying whether there are any obvious information

gaps, omissions, or inaccuracies that may need to be addressed;

- * assessing the degree to which the assessment met the original terms of reference ;
- * assessing whether the recommendations in the study are practicable and reflect the best options; and
- * stating any alternative viewpoints concerning the issues in the report, if any.

6. CONCLUSIONS

The purpose of an EIA is to present information, so that it can inform the decision-making process. In order to do so the information contained in an EIA must be adequate and clearly presented. Review should form an integral part of EIA. Quality control review serves: (i) to ensure that the procedural requirements of an EIA have been met and that the process has been fair to all participants; (ii) to assess the technical or scientific validity of the information presented; and (iii) that the impact assessment procedure used is both logical and rigorous.

Generic review principles include: consistency, logic, sufficiency, efficiency and assumptions. These generic principles can be used to test whether the information presented in an EIA is adequate, clear, logically consistent and based on reasonable assumptions. Review criteria for EIA include scientific rigour, accessibility of the report and effectiveness of stakeholder engagement processes. Finally the review should determine whether the recommendations link logically to the content of the EIA and whether the EIA supports decision-making.

7. REFERENCES

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APPENDIX A:
EXAMPLE OF A REVIEW CHECKLIST

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This review form provides a structure that helps the reviewer to assess the EIA’s various components in a scientific way. However, the reviewer must try at the same time to maintain a perspective of the “bigger picture” so that SAIEA can advise the client on whether the EIA report makes sense as a whole and if the process was conducive for planning.

This review form is divided into the following sections:

- 1. Methodology utilised in compiling the EIA report
- 2. Description of the project
- 3. Assessment of alternatives to the project
- 4. Description of the environment
- 5. Description of impacts
- 6. Consideration of measures to mitigate impacts
- 7. Non-technical summary
- 8. General approach

Review methodology:

- 1. For each question, the reviewer considers whether the information is relevant to the project. If not, the question is ignored and the reviewer proceeds to the following question.
- 2. If the information is relevant, that section of the EIA report is read to establish whether the information provided is:
 - * Complete (C) : all information required for decision-making is available. No additional information is required even though more information might exist.
 - * Acceptable (A) : the information presented is incomplete, but the omissions do not prevent the decision-making process from proceeding
 - * Inadequate (I) : the information presented contains major omissions. Additional information is necessary before the decision-making process can proceed.

Name of the project	
Country where the project is to be located	
Name of company which compiled the EIA report	
Name of reviewer	
Date of review	

Narrative report (reviewers general opinion of the EIA report):

Summary appraisal of the EIA report (completed only after the detailed review has been done)

	Judgement (C/A/I)	Comments
1. Methodology utilised in compiling the EIA report		
2. Description of the project		
3. Assessment of alternatives to the project		
4. Description of the environment		
5. Description of impacts		
6. Consideration of measures to mitigate impacts		
7. Non-technical summary		
8. General approach		

The overall report is graded as follows: (tick one box)

- Excellent: The EIA report contains everything required for decision-making on the project. There are no gaps.
- Good: The EIA report contains most of the information required as far as it is relevant in the particular circumstances of the project; any gaps are relatively minor.
- Satisfactory: The information presented is not complete; there are significant omissions but in the context of the proposed project, these are not so great as to prevent a decision being made on whether the project should be allowed to proceed.
- Inadequate: Some of the information has been provided, but there are major omissions; in the context of the proposed project these must be addressed before a decision on whether the project should be allowed to proceed can be taken.
- Poor: The information required has not been provided or is far from complete and, in the context of the proposed project, the omissions must be addressed before a decision on whether the project should be allowed to proceed can be taken.

In your opinion :

- * Did the EIA process include genuine public participation? Yes Don't know No
- * Were the consultants unduly influenced by the proponent or the Authorities? Yes Don't know No
- * Did the EIA report focus on the 5 most important issues? Yes Don't know No
- * Is the EIA report of acceptable quality? Yes Don't know No
- * Will the EIA report help to make a more informed decision about the project? Yes Don't know No

1. METHODOLOGY	Relevant? Yes/No	Judgement (C/A/I)	Comments
1.1 Does the report clearly explain the methodology used and how these helped to reach the conclusions of the study ?			
1.2 Does the report indicate what data are inadequate or absent?			
1.3 Did the EIA process include genuine stakeholder consultation ?			

	Relevant? Yes/No	Judgement (C/A/I)	Comments
1.4			If so, were the general public and/or affected communities included in the consultation?
1.5			Have the views of stakeholders been meaningfully incorporated into the findings of the EIA?
2. DESCRIPTION OF THE PROJECT			
Land requirements			
2.1			Has the land required for the project and any associated services, been described and clearly shown on a scaled map?
2.2			For a linear project, has the land corridor and need for earthworks been described and shown on a scaled map?
2.3			Has the re-instatement after use of temporary landtake been described?
Waste and emissions			
2.4			Have the types and quantities of waste generated during construction and operation been estimated?
2.5			Have the ways in which these wastes will be handled or treated prior to disposal been explained?
2.6			Has the receiving environment where such waste will be disposed, been identified and described?
Project inputs			
2.7			Are the nature and quantities of materials needed during construction and operation, clearly indicated?
2.8			Are the sites where these materials will be sourced from, identified and assessed in terms of impacts, in the EIA report?
2.9			Have the impacts of workers and visitors entering the project site during construction and operation been assessed?
2.10			Have the means of transporting materials, products, workers and visitors to and from the site during construction and operation, been explained?
3. ALTERNATIVES			
3.1			Were alternatives to the project (including the "no-project" alternative) considered in the EIA?

	Relevant? Yes/No	Judgement (C/A/I)	Comments
3.2			If alternatives were considered, are the reasons for selecting the proposed project adequately described?
3.3			Does the EIA assess various "within-project" alternatives (e.g. design, location)
4. DESCRIPTION OF THE ENVIRONMENT			
4.1			Have the areas expected to be significantly affected by the various aspects of the project been indicated with the aid of suitable maps?
4.2			Have the land uses on the project site(s) and in the surrounding areas been described and their use and non-use values adequately assessed?
4.3			Have the ecological components of the environment likely to be affected by the project been identified and described sufficiently for the prediction of impacts?
4.4			Have the social components (including archaeological and historical) of the environment likely to be affected by the project been identified and described sufficiently for the prediction of impacts?
4.5			Has the EIA adequately consulted the latest literature and/or unpublished reports and/or data relevant to the study?
4.6			Have local, regional and national plans and policies been reviewed in order to place the project into context?
5. DESCRIPTION OF IMPACTS			
Impact Identification			
5.1			Have direct and indirect/ secondary impacts of constructing, operating and, where relevant, after use or decommissioning of the project been clearly explained (including both positive and negative effects)?
5.2			Is the investigation of each type of impact appropriate to its importance for the decision, avoiding unnecessary information and concentrating mainly on the 5 key issues?
5.3			Are cumulative impacts considered?
5.4			Are transboundary impacts considered?
5.5			Has consideration been given to impacts which might arise from non-standard operating conditions, (i.e. equipment failure or unusual environmental conditions such as flooding), accidents and emergencies? (i.e. risk assessment)

Magnitude and significance of Impacts	Relevant? Yes/No	Judgement (C/A/I)	Comments
5.6			Has the timescale over which the effects will occur been predicted such that it is clear whether impacts are short, medium or long term, temporary or permanent, reversible or irreversible?
5.7			Does the EIA give a clear indication of which impacts may be significant and which may not?
5.8			Have the magnitude, location and duration of the impact been discussed in the context of the value, sensitivity and rarity of the resource or environment?
6. MITIGATION			
Description of mitigation measures			
6.1			Has the mitigation of negative impacts been considered and, where feasible, have specific measures been proposed to address each impact?
6.2			Is it clear to what extent the mitigation methods are likely to be effective?
6.3			Has the EIA report clearly explained what the costs of mitigation are likely to be, and compared these to the benefits (including the costs of non-mitigation)?
6.4			Have details of how the mitigation will be implemented and function over the time span for which they are necessary, been presented?
Monitoring Proposals			
6.5			Has the EIA proposed practical monitoring arrangements to check the environmental impacts resulting from the implementation of the project and their conformity with the predictions made?
6.6			Has the EIA proposed Limits of Acceptable Change that the developer can use to track impacts and trigger management intervention?
Environmental Effects of Mitigation			
6.7			Have any adverse environmental effects of mitigation measures been investigated and described?

7. NON-TECHNICAL SUMMARY	Relevant? Yes/No	Judgement (C/A/I)	Comments
7.1 Does the EIA contain a brief but concise non-technical summary that clearly explains the project and the environment, the main issues and mitigation measures to be undertaken, and any remaining or residual impacts?			
7.2 Does the summary include a brief explanation of the overall approach to the assessment?			
7.3 Does the summary provide an indication of the confidence which can be placed in the results?			
7.4 Does the summary indicate whether the project is or is not environmentally acceptable			
8. GENERAL APPROACH			
Organisation of the information			
8.1 Is the information logically arranged in sections?			
8.2 Is the location of the information identified in an index or table of contents?			
8.3 When information from external sources has been introduced, has a full reference to the source been included?			
Presentation of the information			
8.4 Has information and analysis been offered to support all conclusions drawn?			
8.5 Has information and analysis been presented so as to be comprehensible to the non-specialist, using maps, tables and graphical material as appropriate?			
8.6 Has superfluous information (i. e. information not needed for the decision) been avoided?			
8.7 Have prominence and emphasis been given to severe adverse impacts, to substantial environmental benefits, and to controversial issues?			
8.8 Is the information objective?			

8. GLOSSARY

Definitions

Affected environment

Those parts of the socio-economic and biophysical environment impacted on by the development.

Affected public

Groups, organizations, and/or individuals who believe that an action might affect them.

Alternative proposal

A possible course of action, in place of another, that would meet the same purpose and need. Alternative proposals can refer to any of the following but are not necessarily limited thereto:

- * alternative sites for development
- * alternative projects for a particular site
- * alternative site layouts
- * alternative designs
- * alternative processes
- * alternative materials

In IEM the so-called “no-go” alternative also requires investigation.

Authorities

The national, provincial or local authorities, which have a decision-making role or interest in the proposal or activity. The term includes the lead authority as well as other authorities.

Baseline

Conditions that currently exist. Also called “existing conditions.”

Baseline information

Information derived from data which:

- * Records the existing elements and trends in the environment; and
- * Records the characteristics of a given project proposal

Decision-maker

The person(s) entrusted with the responsibility for allocating resources or granting approval to a proposal.

Decision-making

The sequence of steps, actions or procedures that result in decisions, at any stage of a proposal.

Environment

The surroundings within which humans exist and that are made up of -

- i. the land, water and atmosphere of the earth;
- ii. micro-organisms, plant and animal life;
- iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
- iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being. This includes the economic, cultural, historical, and political circumstances, conditions and objects that affect the existence and development of an individual, organism or group.

Environmental Assessment (EA)

The generic term for all forms of environmental assessment for projects, plans, programmes or policies. This includes methods/tools such as EIA, strategic environmental assessment, sustainability assessment and risk assessment.

Environmental consultant

Individuals or firms who act in an independent and unbiased manner to provide information for decision-making.

Environmental Impact Assessment (EIA)

A public process, which is used to identify, predict and assess the potential environmental impacts of a proposed project on the environment. The EIA is used to inform decision-making.

Fatal flaw

Any problem, issue or conflict (real or perceived) that could result in proposals being rejected or stopped.

Impact

The positive or negative effects on human well-being and/or on the environment.

Integrated Environmental Management (IEM)

A philosophy which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development and decision-making process. The IEM philosophy (and principles) is interpreted as applying to the planning, assessment, implementation and management of any proposal (project, plan, programme or policy) or activity - at the local, national and international level - that has a potentially significant effect on the environment. Implementation of this philosophy relies on the selection and application of appropriate tools to a particular proposal or activity. These may include environmental assessment tools (such as Strategic Environmental Assessment and Risk Assessment); environmental management tools (such as monitoring, auditing and reporting) and decision-making tools (such as multi-criteria decision-support systems or advisory councils).

Interested and affected parties (I&APs)

Individuals, communities or groups, other than the proponent or the authorities, whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. These may include local communities, investors, business associations, trade unions, customers, consumers and environmental interest groups. The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Lead authority

The environmental authority at the national, provincial or local level entrusted in terms of legislation, with the responsibility for granting approval to a proposal or allocating resources and for directing or coordinating the assessment of a proposal that affects a number of authorities.

Mitigate

The implementation of practical measures to reduce adverse impacts.

Non-governmental organizations (NGOs)

Voluntary environmental, social, labour or community organisations, charities or pressure groups.

Proponent

Any individual, government department, authority, industry or association proposing an activity (e.g. project, programme or policy).

Proposal

The development of a project, plan, programme or policy. Proposals can refer to new initiatives or extensions and revisions to existing ones.

Public

Ordinary citizens who have diverse cultural, educational, political and socio-economic characteristics. The public is not a homogeneous and unified group of people with a set of agreed common interests and aims. There is no single public. There are a number of publics, some of whom may emerge at any time during the process depending on their particular concerns and the issues involved.

Role-players

The stakeholders who play a role in the environmental decision-making process. This role is determined by the level of engagement and the objectives set at the outset of the process.

Scoping

The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an environmental assessment. The main purpose of scoping is to focus the environmental assessment on a manageable number of important questions. Scoping should also ensure that only significant issues and reasonable alternatives are examined.

Screening

A decision-making process to determine whether or not a development proposal requires environmental assessment, and if so, what level of assessment is appropriate. Screening is initiated during the early stages of the development of a proposal.

Significant/significance

Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is an anthropocentric concept, which makes use of value judgements and science-based criteria (i.e. biophysical, social and economic). Such judgement reflects the political reality of impact assessment in which significance is translated into public acceptability of impacts.

Stakeholders

A sub-group of the public whose interests may be positively or negatively affected by a proposal or activity and/or who are concerned with a proposal or activity and its consequences. The term therefore includes the proponent, authorities (both the lead authority and other authorities) and all interested and affected parties (I&APs). The principle that environmental consultants and stakeholder engagement practitioners should be independent and unbiased excludes these groups from being considered stakeholders.

Stakeholder engagement

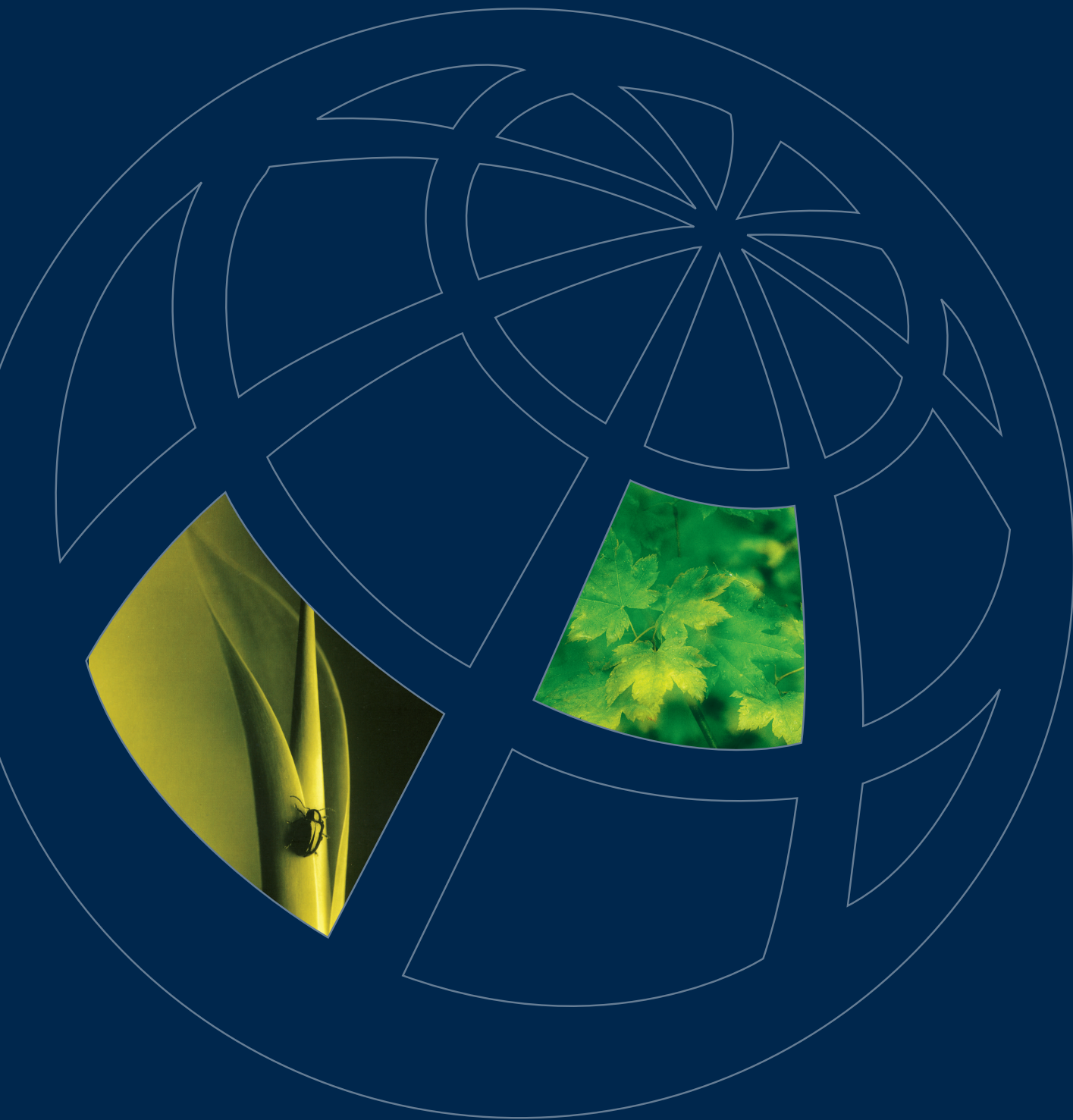
The process of engagement between stakeholders (the proponent, authorities and I&APs) during the planning, assessment, implementation and/or management of proposals or activities. The level of stakeholder engagement varies depending on the nature of the proposal or activity as well as the level of commitment by stakeholders to the process. Stakeholder engagement can therefore be described by a spectrum or continuum of increasing levels of engagement in the decision-making process. The term is considered to be more appropriate than the term "public participation".

Stakeholder engagement practitioner

Individuals or firms whose role it is to act as independent, objective facilitators, mediators, conciliators or arbitrators in the stakeholder engagement process. The principle of independence and objectivity excludes stakeholder engagement practitioners from being considered stakeholders.

ABBREVIATIONS

CBO	Community-based Organization
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMS	Environmental Management Systems
I&AP	Interested and Affected Party
IEM	Integrated Environmental Management
NGO	Non-governmental Organization
SEA	Strategic Environmental Assessment



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