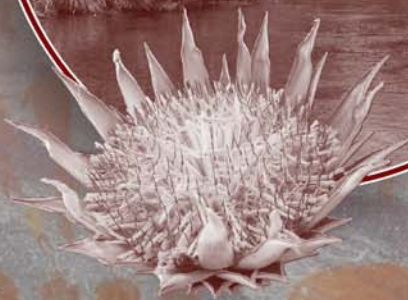
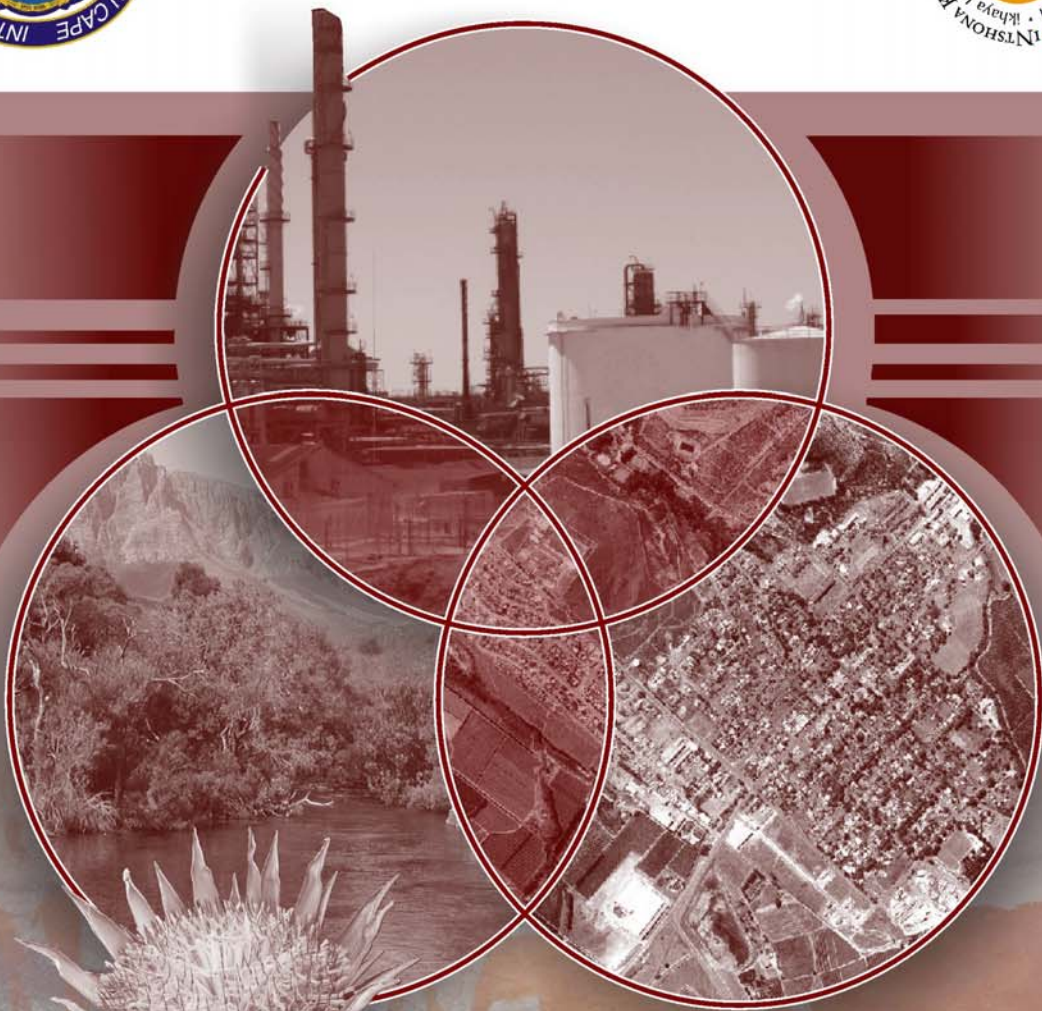


GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES



PROVINCIAL GOVERNMENT OF THE WESTERN CAPE:
DEPARTMENT OF ENVIRONMENTAL AFFAIRS
AND DEVELOPMENT PLANNING



CSIR

Edition 1
June 2005

GUIDELINE FOR INVOLVING VISUAL AND AESTHETIC SPECIALISTS IN EIA PROCESSES

Edition 1

Issued by:

Provincial Government of the Western Cape
Department of Environmental Affairs and Development Planning
Utilitas Building, 1 Dorp Street
Private Bag X9086
Cape Town 8000
South Africa

Prepared by:

Bernard Oberholzer Landscape Architect
PO Box 26643
Hout Bay, 7872, South Africa
email: bola@wol.co.za

Coordinated by:

CSIR Environmentek
P O Box 320
Stellenbosch 7599
South Africa

Contact person:

Frauke Münster
Tel: +27 21 888-2538
(fmunster@csir.co.za)

COPYRIGHT © Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning 2005. ALL RIGHTS RESERVED.

This document is copyright under the Berne Convention. Apart from the purpose of private study, research or teaching, in terms of the Copyright Act (Act No. 98 of 1978) no part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording or by any information storage and retrieval system, without permission in writing from the Department of Environmental Affairs and Development Planning. Likewise, it may not be lent, resold, hired out or otherwise disposed of by way of trade in any form of binding or cover other than that in which it is published.

This guideline should be cited as:

Oberholzer, B. 2005. *Guideline for involving visual & aesthetic specialists in EIA processes: Edition 1*. CSIR Report No ENV-S-C 2005 053 F. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

ACKNOWLEDGEMENTS

Steering committee:

Paul Hardcastle	-	DEA&DP
Ayub Mohammed	-	DEA&DP
Susie Brownlie	-	de Villiers Brownlie Associates
Keith Wiseman	-	City of Cape Town
Mike Burns	-	CSIR Environmentek
Paul Lochner	-	CSIR Environmentek
Pete Ashton	-	CSIR Environmentek

Focus group participants:

Paul Hardcastle	-	DEA&DP
Washiela Anthony	-	DEA&DP
Danie Smit	-	DEAT
Eileen Weinronk	-	City of Cape Town
Menno Klapwijk	-	Cave Klapwijk and Associates
Graham Young	-	Landscape Consultant
Bernard Oberholzer	-	Bernard Oberholzer Landscape Architect (BOLA)
Nicolas Baumann	-	Baumann & Winter Heritage Consultants
Sarah Winter	-	Baumann & Winter Heritage Consultants
Tanya de Villiers	-	Chittenden Nicks deVilliers Africa
Frauke Münster	-	CSIR Environmentek

Internal review:

Mike Burns	-	CSIR Environmentek
Eileen Weinronk	-	City of Cape Town
Paul Hardcastle	-	DEA&DP
Washiela Anthony	-	DEA&DP

Stakeholders engaged in the guideline development process:

These guidelines were developed through a consultative process and have benefited from the inputs and comments provided by a wide range of individuals and organizations actively working to improve EIA practice. Thanks are due to all who took the time to engage in the guideline development process.

In particular, thanks are due to Jan Glazewski (University of Cape Town), Keith Wiseman (City of Cape Town), Paul Britton (SANPARKS), Graham Young (University of Pretoria), Lisa Parkes (Ninham Shand) and Paul Claassen (Environomics) for providing useful information and in-depth comments.

Finalisation of report figures and formatting:

Magdel van der Merwe and Elna Logie, DTP Solutions

PREFACE

The purpose of an Environmental Impact Assessment (EIA) is to provide decision-makers (be they government authorities, the project proponent or financial institutions) with adequate and appropriate information about the potential positive and negative impacts of a proposed development and associated management actions in order to make an informed decision whether or not to approve, proceed with or finance the development.

For EIA processes to retain their role and usefulness in supporting decision-making, the involvement of specialists in EIA needs to be improved in order to:

- Add greater value to project planning and design;
- Adequately evaluate reasonable alternatives;
- Accurately predict and assess potential project benefits and negative impacts;
- Provide practical recommendations for avoiding or adequately managing negative impacts and enhancing benefits;
- Supply enough relevant information at the most appropriate stage of the EIA process to address adequately the key issues and concerns, and effectively inform decision-making in support of sustainable development.

It is important to note that not all EIA processes require specialist input; broadly speaking, specialist involvement is needed when the environment could be significantly affected by the proposed activity, where that environment is valued by or important to society, and/or where there is insufficient information to determine whether or not unavoidable impacts would be significant.

The purpose of this series of guidelines is to improve the efficiency, effectiveness and quality of specialist involvement in EIA processes. The guidelines aim to improve the capacity of roleplayers to anticipate, request, plan, review and discuss specialist involvement in EIA processes. Specifically, they aim to improve the capacity of EIA practitioners to draft appropriate terms of reference for specialist input and assist all roleplayers in evaluating whether or not specialist input to the EIA process is appropriate for the type of development and environmental context. Furthermore, they aim to ensure that specialist inputs support the development of effective, practical Environmental Management Plans where projects are authorised to proceed (refer to *Guideline for Environmental Management Plans*).

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms “specialist involvement” and “input” have been used in preference to “specialist assessment” and “studies” to indicate that the scope of specialists’ contribution (if required) depends on the nature of the project, the environmental context and the amount of available information and does not always entail detailed studies or assessment of impacts.

The guidelines draw on best practice in EIA in general, and within specialist fields of expertise in particular, to address the following issues related to the timing, scope and quality of specialist input. The terms “specialist involvement” and “input” have been used in preference to “specialist

assessment” and “studies” to indicate that the scope of specialists’ contribution depends on the nature of the project, the environmental context and the amount of available information.

	ISSUES
TIMING	<ul style="list-style-type: none"> ▪ When should specialists be involved in the EIA process; i.e. at what stage in the EIA process should specialists be involved (if at all) and what triggers the need for their input?
SCOPE	<ul style="list-style-type: none"> ▪ Which aspects must be addressed through specialist involvement; i.e. what is the purpose and scope of specialist involvement? ▪ What are appropriate approaches that specialists can employ? ▪ What qualifications, skills and experience are required?
QUALITY	<ul style="list-style-type: none"> ▪ What triggers the review of specialist studies by different roleplayers? ▪ What are the review criteria against which specialist inputs can be evaluated to ensure that they meet minimum requirements, are reasonable, objective and professionally sound?

The following guidelines form part of this first series of guidelines for involving specialists in EIA processes:

- Guideline for determining the scope of specialist involvement in EIA processes
- Guideline for the review of specialist input in EIA processes
- Guideline for involving biodiversity specialists in EIA processes
- Guideline for involving hydrogeologists in EIA processes
- Guideline for involving visual and aesthetic specialists in EIA processes
- Guideline for involving heritage specialists in EIA processes
- Guideline for involving economists in EIA processes

The *Guideline for determining the scope of specialist involvement in EIA processes* and the *Guideline for the review of specialist input in EIA processes* provide generic guidance applicable to any specialist input to the EIA process and clarify the roles and responsibilities of the different roleplayers involved in the scoping and review of specialist input. It is recommended that these two guidelines are read first to introduce the generic concepts underpinning the guidelines which are focused on specific specialist disciplines.

Who is the target audience for these guidelines?

The guidelines are directed at authorities, EIA practitioners, specialists, proponents, financial institutions and other interested and affected parties involved in EIA processes. Although the guidelines have been developed with specific reference to the Western Cape province of South Africa, their core elements are more widely applicable.

What type of environmental assessment processes and developments are these guidelines applicable to?

The guidelines have been developed to support project-level EIA processes regardless of whether they are used during the early project planning phase to inform planning and design decisions (i.e. during pre-application planning) or as part of a legally defined EIA process to obtain statutory approval for a proposed project (i.e. during screening, scoping and/or impact assessment). Where specialist input may be required the guidelines promote early, focused and appropriate involvement of specialists in EIA processes in order to encourage proactive consideration of potentially significant impacts, so that negative impacts may be avoided or

effectively managed and benefits enhanced through due consideration of alternatives and changes to the project.

The guidelines aim to be applicable to a range of types and scales of development, as well as different biophysical, social, economic and governance contexts.

What will these guidelines not do?

In order to retain their relevance in the context of changing legislation, the guidelines promote the principles of EIA best practice without being tied to specific legislated national or provincial EIA terms and requirements. They therefore do not clarify the specific administrative, procedural or reporting requirements and timeframes for applications to obtain statutory approval. They should, therefore, be read in conjunction with the applicable legislation, regulations and procedural guidelines to ensure that mandatory requirements are met.

It is widely recognized that no amount of theoretical information on how best to plan and coordinate specialist inputs, or to provide or review specialist input, can replace the value of practical experience of coordinating, being responsible for and/or reviewing specialist inputs. Only such experience can develop sound judgment on such issues as the level of detail needed or expected from specialists to inform decision-makers adequately. For this reason, the guidelines should not be viewed as prescriptive and inflexible documents. Their intention is to provide best practice guidance to improve the quality of specialist input.

Furthermore, the guidelines do not intend to create experts out of non-specialists. Although the guidelines outline broad approaches that are available to the specialist discipline (e.g. field survey, desktop review, consultation, modeling), specific methods (e.g. the type of model or sampling technique to be used) cannot be prescribed. The guidelines should therefore not be used indiscriminately without due consideration of the particular context and circumstances within which an EIA is undertaken, as this influences both the approach and the methods available and used by specialists.

How are these guidelines structured?

The specialist guidelines have been structured to make them user-friendly. They are divided into six parts, as follows:

- **Part A:** Background;
- **Part B:** Triggers and key issues potentially requiring specialist input;
- **Part C:** Planning and coordination of specialist inputs (drawing up terms of reference);
- **Part D:** Providing specialist input;
- **Part E:** Review of specialist input; and
- **Part F:** References.

Part A provides grounding in the specialist subject matter for all users. It is expected that authorities and peer reviewers will make most use of Parts B and E; EIA practitioners and project proponents Parts B, C and E; specialists Part C and D; and other stakeholders Parts B, D and E. Part F gives useful sources of information for those who wish to explore the specialist topic.

SUMMARY

This guideline document, which deals with specialist visual input into the EIA process, is organised into a sequence of interleading sections. These follow a logical order covering the following:

- the background and context for specialist visual input;
- the triggers and issues that determine the need for visual input;
- the type of skills and scope of visual inputs required in the EIA process;
- the methodology, along with information and steps required for visual input;
- finally, the review or evaluation of the visual assessment process.

Part A is concerned with defining the visual and aesthetic component of the environment, and with principles and concepts relating to the visual assessment process. The importance of the process being logical, holistic, transparent and consistent is stressed in order for the input to be useful and credible.

The legal and planning context within which visual assessments take place indicate that there are already a number of laws and bylaws that protect visual and scenic resources. These resources within the Western Cape context have importance for the economy of the region, along with the proclaimed World Heritage Sites in the Province.

The role and timing of specialist visual inputs into the EIA process are outlined, with the emphasis being on timely, and on appropriate level of input, from the early planning stage of a project, through to detailed mitigation measures and

management controls at the implementation stage.

Part B deals with typical factors that trigger the need for specialist visual input to a particular project. These factors typically relate to:

- (a) the nature of the receiving environment, in particular its visual sensitivity or protection status;
- (b) the nature of the project, in particular the scale or intensity of the project, which would result in change to the landscape or townscape.

The correlation between these two aspects are shown in a table, in order to determine the varying levels of visual impact that can be expected, i.e. from little or no impact, to very high visual impact potential.

Part C deals with the choice of an appropriate visual specialist, and the preparation of the terms of reference (TOR) for the visual input. Three types of visual assessment are put forward, each requiring different expertise, namely:

- Type A: assessments involving large areas of natural or rural landscape;
- Type B: assessments involving local areas of mainly built environment;
- Type C: assessments involving smaller scale sites with buildings, or groups of buildings.

The scope of the visual input would in summary relate to the following:

- the issues raised during the scoping process;
- the time and space boundaries, i.e. the extent or zone of visual influence;

- the types of development alternatives that are to be considered;
- the variables and scenarios that could affect the visual assessment;
- the inclusion of direct, indirect and cumulative effects.

Approaches to the visual input relate to the level of potential impact and range from minimal specialist input, to a full visual impact assessment (VIA). A list of the typical components of a visual assessment is given, and the integration with other studies forming part of the EIA process is discussed.

Part D provides guidance for specialist visual input, and on the information required by specialists. Notes on predicting potential visual impacts are given, along with suggested criteria for describing and rating visual impacts. The assessment of the overall significance of impacts, as well as thresholds of significance are discussed.

Further aspects that need to be considered by visual specialists in EIA processes include:

- affected parties who stand to benefit or lose,
- risks and uncertainties related to the project,
- assumptions that have been made, and their justification,
- levels of confidence in providing the visual input or assessment,
- management actions that can be employed to avoid or mitigate adverse effects and enhance benefits, and
- the best practicable environmental option from the perspective of the visual issues and impacts.

Finally, pointers for the effective communication of the findings are given.

Part E lists specific evaluation criteria for reviewing visual input by a specialist, where this becomes necessary. Further guidance on this is given in the document on *Guideline for the review of specialist input in EIA processes*.

CONTENTS

Acknowledgements	i
Preface	ii
Summary	v

PART A : BACKGROUND _____ 1

1. INTRODUCTION _____	1
2. PRINCIPLES AND CONCEPTS UNDERPINNING VISUAL SPECIALIST INVOLVEMENT IN EIA PROCESSES _____	2
3. CONTEXTUALISING SPECIALIST INPUT _____	4
3.1 Legal, policy and planning context for involving a visual specialist _____	5
3.2 Environmental context for specialist input _____	6
4. THE ROLE AND TIMING OF SPECIALIST INPUT WITHIN THE EIA PROCESS _____	6

PART B: TRIGGERS AND KEY ISSUES POTENTIALLY REQUIRING SPECIALIST INPUT _____ 9

5. TRIGGERS FOR SPECIALIST INPUT _____	9
6. KEY ISSUES REQUIRING SPECIALIST INPUT _____	10

PART C: PLANNING AND COORDINATION OF SPECIALIST INPUTS (DRAWING UP THE TERMS OF REFERENCE) _____ 13

7. QUALIFICATIONS, SKILLS AND EXPERIENCE REQUIRED _____	13
8. DETERMINING THE SCOPE OF SPECIALIST INPUTS _____	14
8.1 Identifying and responding to issues _____	15
8.2 Establishing appropriate time and space boundaries _____	16
8.3 Clarifying appropriate development alternatives _____	16
8.4 Establishing environmental and operating scenarios _____	17
8.5 Addressing direct, indirect and cumulative effects _____	17
8.6 Selecting the appropriate approach _____	18
8.7 Clarifying the timing, sequence and integration of specialist input _____	20
8.8 Ensuring appropriate stakeholder engagement _____	20
8.9 Clarifying confidentiality requirements _____	21

PART D: PROVIDING SPECIALIST INPUT	22
9. INFORMATION REQUIRED TO PROVIDE SPECIALIST INPUT	22
9.1 Relevant project information	22
9.2 Information describing the affected environment	23
9.3 Legal, policy and planning context	24
9.4 Information generated by other specialists in the EIA process	24
10. SPECIALIST INPUT TO IMPACT ASSESSMENT AND RECOMMENDING MANAGEMENT ACTIONS	25
10.1 Predicting potential impacts	25
10.2 Interpreting impact assessment criteria	26
10.3 Establishing thresholds of significance	29
10.4 Describing the distribution of impacts – beneficiaries and losers	30
10.5 Identifying key uncertainties and risks	30
10.6 Justifying underlying assumptions	31
10.7 Defining confidence levels and constraints to input	31
10.8 Recommending management actions	31
10.9 Identifying the best practicable environmental option	32
10.10 Communicating the findings of the specialist input	32
11. SPECIALIST INPUT TO MONITORING PROGRAMMES	33
PART E: REVIEW OF THE SPECIALIST INPUT	36
12. SPECIFIC EVALUATION CRITERIA	36
PART F: REFERENCES	37

Appendices

Appendix A: Definitions and acronyms	39
Appendix B: Model Terms of Reference for specialist input.....	41

List of tables

Table 1: Categorisation of issues to be addressed by the visual assessment	11
Table 2: Categorisation of approaches used for visual assessment	19

List of boxes

Box 1: Common EIA terms and concepts	3
Box 2: Environmental context for the Western Cape	6
Box 3: Key to Categories of Development	11
Box 4: Key to Categories of Issues	12
Box 5: Qualifications and Skills for Visual Assessments	13
Box 6: Definitions and components of direct, indirect and cumulative effects	18
Box 7: Key to Approaches.....	19
Box 8: Typical Components of Visual Studies	20
Box 9: What to do in data poor circumstances	25
Box 10: Definition of a potential fatal flaw	26
Box 11: Specific criteria for visual impact assessments	27
Box 12: Criteria used for the assessment of impacts.....	28

VISUAL AND AESTHETIC SPECIALIST GUIDELINE

PART A : BACKGROUND

This part of the guideline introduces the field of visual and aesthetic assessment, gives principles and concepts underpinning specialist input on visual and aesthetic issues, impact assessment and management contextualizes specialist input and looks at the role and timing of specialist input in the EIA process.

1. INTRODUCTION

Some of the current problems associated with visual and aesthetic assessments undertaken as part of the EIA process include the following:

- The difficulty in measuring the intangible value of elements of visual and aesthetic significance for many communities.
- A wide range in the standard of visual impact assessments (VIA) that are carried out;
- A lack of understanding of the landscape processes that are responsible for the particular visual qualities or scenic resources of the area;
- A lack of clarity in the methodology and determination of impact ratings, as well as inconsistency between different assessments;
- A lack of objectivity, or conflict of interests, especially where the assessment is carried out by the same firm that is representing the proponent.
- The risk that the ratings of impacts are tempered by the fact that the proponent is paying for the VIA.
- An element of subjectivity in the visual assessment, because of the sometimes abstract or qualitative aspects of the environment, which are difficult to quantify.
- The possibility of perceived bias in the visual assessment, because of the socio-economic or cultural background of the specialist, as well as the different perceptions of the receptors or interested and affected parties (I&APs).

For these reasons, the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) embarked on the process of developing guidelines for the involvement of visual specialists in EIA processes. This visual guideline document is therefore an attempt to develop a 'best practice' approach for visual specialists, EIA practitioners and authorities involved in the EIA process.

The term '**visual and aesthetic**' is intended to cover the broad range of visual, scenic, cultural, and spiritual aspects of the landscape. However, for the purpose of brevity, the term '**visual**' is used in the text.

2. PRINCIPLES AND CONCEPTS UNDERPINNING VISUAL SPECIALIST INVOLVEMENT IN EIA PROCESSES

Visual, scenic and cultural components of the environment can be seen as a resource, much like any other resource, which has a value to individuals, to society and to the economy of the region. In addition, this resource may have a scarcity value, be easily degraded, and is usually not replaceable.

Visual and scenic resources are by their nature difficult to assess or quantify as they often have cultural or symbolic meaning. To overcome some of these difficulties the following principles should be considered when commissioning, undertaking or reviewing visual specialist input:

- Logical** - a clear and understandable method is used for the specialist input;
- Holistic** - a comprehensive range of values, considerations, and criteria are included;
- Transparent** - the criteria and ratings used in the assessment are explicit and defensible;
- Consistent** - the method used can be repeated, i.e. another person using the same method would arrive at a similar conclusion.

The following specific concepts should be considered during visual input into the EIA process:

- An awareness that 'visual' implies the full range of visual, aesthetic, cultural and spiritual aspects of the environment that contribute to the area's sense of place.
- The consideration of both the natural and the cultural landscape, and their inter-relatedness.
- The identification of all scenic resources, protected areas and sites of special interest, together with their relative importance in the region.
- An understanding of the landscape processes, including geological, vegetation and settlement patterns, which give the landscape its particular character or scenic attributes.
- The need to include both quantitative criteria, such as 'visibility', and qualitative criteria, such as aesthetic value or sense of place.
- The need to include visual input as an integral part of the project planning and design process, so that the findings and recommended mitigation measures can inform the final design, and hopefully the quality of the project.
- The need to determine the value of visual/aesthetic resources through public involvement.

The following generic principles apply to the involvement of specialists in EIA processes and underpin this series of guidelines:

- Eliminate unnecessary specialist involvement through proactive project planning and design to avoid or sufficiently reduce negative impacts that may otherwise require specialist assessment;
- Maximise use of existing relevant information prior to involving a specialist;
- Where appropriate and necessary, involve specialists early in the EIA process to increase efficiency and effectiveness of their involvement.
- Maintain continuity of specialist involvement throughout the process (specialist involvement

should add value to project planning and design);

- Support flexible, focused and appropriate involvement of specialists to provide adequate, relevant information to make informed decisions (i.e. the correct level of information should be supplied at the right time in the EIA process);
- Allow for greater involvement of specialists in the identification of key issues, over and above those identified through stakeholder engagement processes;
- Allow for efficient and effective interaction between specialists and the EIA practitioner, the project proponent, the authorities, other specialists on the EIA team and other I&APs to improve the quality of the EIA process and outcomes and ensure that findings are informed by local and indigenous knowledge and experience.

Commonly used visual assessment terms are described in Appendix A. Common EIA terms and concepts used throughout this series of guidelines are summarised in Box 1.

Box 1: Common EIA terms and concepts

The following definitions aim to clarify common EIA terms and concepts:

- ***Environmental impact assessment:*** A process that is used to identify, predict and assess the potential positive and negative impacts of a proposed project (including reasonable alternatives) on the biophysical, social and economic environment and to propose appropriate management actions and monitoring programmes. The EIA process is used to inform decision-making by the project proponent, relevant authorities and financial institutions. The process includes some or all of the following components: pre-application planning, screening, scoping, impact assessment (including the identification of management actions and monitoring requirements), integration and decision-making. Suitably qualified and experienced specialists may be required to provide input at various stages of the EIA process.
- ***Pre-application planning:*** The process of identifying and incorporating environmental opportunities and constraints into the early stages of project planning and design, prior to the submission of an application for statutory approval. This includes the identification of potential fatal flaws and negative impacts of potentially high significance, as well as the identification of alternatives and management actions that could prevent, avoid or reduce significant impacts or enhance and secure benefits. This process is sometimes referred to as “pre-application screening”, “positive planning” or “fatal flaw assessment”.
- ***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 usually administered by an environmental authority or financial institution. The outcome of the screening process is typically a Screening Report/Checklist.
- ***Scoping:*** The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision-making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.
- ***Impact assessment:*** Issues that cannot be resolved during scoping and that require further investigation are taken forward into the impact assessment. Depending on the amount of available information, specialists may be required to assess the nature, extent, duration, intensity or magnitude, probability and significance of the potential impacts; define the level of confidence in the assessment; and propose management actions and monitoring programmes. Specialist studies/reports form the basis of the integrated Environmental Impact Report which is compiled by the EIA practitioner.
- ***Trigger:*** A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that

proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement but are not discussed in this guideline.

- **Issue:** A context-specific question that asks “what will the impact of some activity/aspect of the development be on some element of the biophysical, social or economic environment?” (e.g. what is the impact of atmospheric emissions on the health of surrounding communities?).
- **Impact:** A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space (e.g. an increased risk of respiratory disease amongst people living within a 10km radius from the industry, for the duration of the life of the project, due to sulphur dioxide emissions from the industry).
- **Root cause/source of impact:** A description of the aspect of the development that will result in an impact on the biophysical, social or economic environment (e.g. atmospheric emissions from industrial stacks).
- **Risk situation:** A description of the environmental or operating circumstances that could influence the probability of a significant impact occurring.
- **Scenarios:** A description of plausible future environmental or operating conditions that could influence the nature, extent, duration, magnitude/intensity, probability and significance of the impact occurring (e.g. concentration of sulphur dioxide emissions during normal operations vs during upset conditions; dispersion of atmospheric pollutants during normal wind conditions vs during presence of an inversion layer).
- **Alternatives:** A possible course of action, in place of another, that would meet the same purpose and need but which would avoid or minimize negative impacts or enhance project benefits. These can include alternative locations/sites, routes, layouts, processes, designs, schedules and/or inputs. The “no-go” alternative constitutes the ‘without project’ option and provides a benchmark against which to evaluate changes; development should result in net benefit to society and should avoid undesirable negative impacts.
- **Best practicable environmental option:** This is the alternative/option that provides the most benefit or causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term.
- **Impact significance:** A term used to evaluate how severe an impact would be, taking into account objective or scientific data as well as human values. A specific significance rating should not be confused with the acceptability of the impact (i.e. an impact of low significance is not automatically “acceptable”).
- **Thresholds of significance:** The level or limit at which point an impact changes from low to medium significance, or medium to high significance.
- **Management actions:** Actions – including planning and design changes - that enhance benefits associated with a proposed development, or that avoid, mitigate, restore, rehabilitate or compensate for the negative impacts.
- **Monitoring programmes:** Programmes established to observe, take samples or measure specific variables in order to track changes, measure performance of compliance, and/or detect problems.
- **Review:** The process of determining whether specialist input meets minimum requirements, is reasonable, objective and professionally sound.

3. CONTEXTUALISING SPECIALIST INPUT

This section provides a brief overview of the legal, policy and planning context for involving a visual specialist, and gives the specific Western Cape context within which that specialist would be working. Readers need to be aware that legislation, policies and plans are reviewed periodically. The guidelines therefore do not replace the need to consult the currently applicable legislation, policies and plans.

3.1 LEGAL, POLICY AND PLANNING CONTEXT FOR INVOLVING A VISUAL SPECIALIST

Current South African environmental legislation governing the EIA process, which may include consideration of visual impacts if this is identified as a key issue of concern, is the National Environmental Management Act (NEMA) (Act No. 107 of 1998) and the EIA regulations in terms of the Environment Conservation Act (Act No. 73 of 1989). The regulations governing the EIA process are currently being revised and will be replaced by regulations promulgated in terms of the NEMA.

The Protected Areas Act (NEMA) (Act 57 of 2003, Section 17) is also intended to protect natural landscapes.

The National Heritage Resources Act (Act No. 25 of 1999) and the associated provincial regulations provides legislative protection for listed or proclaimed sites, such as urban conservation areas, nature reserves and proclaimed scenic routes.

Visual pollution is controlled, to a limited extent, by the Advertising on Roads and Ribbons Act (Act No. 21 of 1940), which deals mainly with signage on public roads.

In terms of the Municipal Systems Act, (Act 32 of 2000) it is compulsory for all municipalities to go through an Integrated Development Planning process to prepare a five-year strategic development plan for the area under their control. The IDP process, specifically the spatial component (Spatial Development Framework), in the Western Cape Province is based on a bioregional planning approach to achieve continuity in the landscape and to maintain important natural areas and ecological processes. Bioregional planning, as promoted and supported by the Western Cape Department of Environmental Affairs and Development Planning, is not a planning process on its own, but an approach that supplements the statutory spatial planning process by providing a spatial and theoretical framework for the integration of social, environmental and economic criteria in local planning initiatives. Bioregional planning involves the identification of priority areas for conservation and their placement within a supportive planning framework of buffer and transition areas (i.e. creating integrated landscapes). These could include reference to visual and scenic resources and the identification of areas of special significance, together with visual guidelines for the area covered by these plans.

Visual and aesthetic resources are also protected by local authorities, such as the City of Cape Town, where policies and by-laws relating to urban edge lines, scenic drives, special areas, signage, communication masts, etc. have been formulated.

Specialists need to refer to the relevant provincial or local authority, to determine whether there are any policies, by-laws or other restrictions relating to visual impact, or the protection of scenic, rural or cultural resources.

Other decision-making authorities such as the Department of Minerals and Energy, or the local authorities, in terms of their particular legislative frameworks, may also require visual impact assessments to support informed decision-making.

3.2 ENVIRONMENTAL CONTEXT FOR SPECIALIST INPUT

Specialist input needs to take into account the specific nature of the biophysical, social and economic environment within which a project is undertaken. Box 2 provides a brief description of the environmental context for the Western Cape.

Box 2: Environmental context for the Western Cape

The Western Cape is richly endowed with scenic resources by virtue of the mountainous landscape, the coastline along two oceans, and the unique flora and fauna.

In addition to this natural heritage, there are centuries of human settlement that have created a tapestry of vineyards, orchards, wheat fields, farmsteads, tree shelterbelts and country towns.

The scenic resources of the Western Cape have enormous implications for the economy of the region mainly in the form of tourism, which provides income for the province, and creates jobs for the local population.

Table Mountain, Robben Island and designated areas within the Cape Floral Kingdom have been declared World Heritage Sites, and therefore have international status. There are a number of National Parks in the province, which have national status, along with numerous other protected areas, which have provincial or local authority status.

However, the scenic resources on which the economy of the region depends, is at great risk from rapid urban and infrastructure expansion.

There has therefore been a growing emphasis on visual and scenic assessments for most major projects in the region, in order to maintain the integrity and value of these natural and cultural landscapes as far as possible.

4. THE ROLE AND TIMING OF SPECIALIST INPUT WITHIN THE EIA PROCESS

The role and timing of specialist visual input within the broader EIA process involves a number of aspects that need to be considered, i.e.:

- Whether, when and why visual input is required – see Sections 5 and 6 and the *Guideline for determining the scope of specialist involvement in EIA processes*;
- What the scope of visual input should be- see Section 8, 10 and 11;
- What level/intensity of visual input is required – see Section 8, Table 2.

Visual assessments should not be seen as an obstacle in the approval process. Visual input, especially at the early concept stage of the project, can play an important role in helping to formulate design alternatives, as well as minimising impacts, and possibly even costs, of the project.

It is important to note that where specialist visual input is required, this can be given for various purposes and for different levels of involvement. This visual guideline document therefore aims to be applicable to a range of different types and scales of development, and for various stages of the EIA process.

Specialist involvement may take the form of any or all of the following approaches:

- Providing specialist opinion or comment;
- Baseline survey of visual / scenic resources;
- Mapping of landscape or scenic units, and viewsheds;
- Digital terrain modeling and visual simulations;
- Assessments of visual impacts and their relative significance.

Furthermore, specialist involvement may take place at any or all of the following stages of the EIA process:

- **Pre-application planning stage**, to identify scenic resources, and visually sensitive areas or receptors, which may determine site selection, and layout of the project, and to determine potential fatal flaws, significant negative impacts and possible alternatives.
- **Screening stage**, to determine if a more detailed visual assessment is required, and the appropriate level of assessment.
- **Scoping stage**, to identify key concerns or issues relating to potential visual impacts arising from the project, and to determine boundaries and parameters for visual input.
- **Impact assessment stage**, to determine the character and visual absorption capacity of the landscape, the visibility of the proposed project, the potential visual impact on visual / scenic resources, and the nature, extent, duration, magnitude, probability and significance of impacts, as well as measures to mitigate negative impacts and enhance benefits.

A specialist's role in the EIA process could be to assist with any or all of the following:

- Describing the affected environment
- Describing the legal, policy and planning context
- Identifying and responding to issues
- Identifying alternatives
- Identifying opportunities and constraints
- Developing specialist terms of reference (TOR)
- Predicting and assessing impacts
- Recommending management actions and monitoring programmes
- Undertaking an independent peer review of specialist input

Adequate time and resources should be allocated for visual input by the specialist, including time for site visits, photographic surveys, coordination with other specialists and acquiring all necessary information.

Terms of reference for specialist involvement should be appropriate to the purpose and intensity/scale of involvement and should be discussed and agreed between the EIA practitioner and the specialist (and the authority where relevant).

The *Guideline for determining the scope of specialist involvement in EIA processes* provides more detailed guidance on the role and timing of specialist input and provides a generic approach that can be used to determine the need for specialist involvement. Clarification of responsibilities amongst the different role-players, as well as prerequisites for specialists to provide effective, efficient and quality input, is included.

PART B: TRIGGERS AND KEY ISSUES POTENTIALLY REQUIRING SPECIALIST INPUT

This part of the guideline looks at the triggers and key issues potentially requiring visual specialist's input to the EIA process.

5. TRIGGERS FOR SPECIALIST INPUT

A 'trigger' means a characteristic of either the receiving environment or the proposed project which indicates that visibility and aesthetics are likely to be 'key issues' and may require the involvement of an appropriately qualified and experienced specialist. Legal requirements of existing and future legislation may also trigger the need for specialist involvement but are not discussed in this guideline.

The need for visual input is often determined by issues relating to visual impact that may be raised by local residents or organisations, by the local authority, or on the recommendation of the EIA practitioner, or the visual specialist.

The following are indicators that could suggest the need for visual input based on the nature of the receiving environment and the nature of the project.

The nature of the receiving environment:

- Areas with protection status, such as national parks or nature reserves;
- Areas with proclaimed heritage sites or scenic routes;
- Areas with intact wilderness qualities, or pristine ecosystems;
- Areas with intact or outstanding rural or townscape qualities;
- Areas with a recognized special character or sense of place;
- Areas lying outside a defined urban edge line;
- Areas with sites of cultural or religious significance;
- Areas of important tourism or recreation value;
- Areas with important vistas or scenic corridors;
- Areas with visually prominent ridgelines or skylines.

The nature of the project:

- High intensity type projects including large-scale infrastructure;
- A change in land use from the prevailing use;
- A use that is in conflict with an adopted plan or vision for the area;
- A significant change to the fabric and character of the area;
- A significant change to the townscape or streetscape;
- Possible visual intrusion in the landscape;
- Obstruction of views of others in the area.

6. KEY ISSUES REQUIRING SPECIALIST INPUT

In order to focus specialist input, key issues requiring specialist input are identified. Issues are questions or concerns related to the proposed development, such as the impact of an activity on the visual or scenic environment. Where stakeholders have no interest in or may be poorly informed about visual issues, such issues may be overlooked. The involvement of a visual specialist in the scoping phase is therefore important, especially where there are triggers indicating that visibility may be significant.

As indicated in Section 5 key issues that tend to determine the need for the involvement of a visual specialist relate to the type of environment, as well as type and scale of development.

Table 1 shows a possible range of environments, from the most visually sensitive to the least sensitive on the one axis, and a range of development types from the least intensive to the most intensive on the other axis (see Box 3).

The correlation of environment types with development types leads to varying levels of expected visual impact, on a scale from none to very high (see Box 4).

Note: *Table 1 and the explanatory boxes should not be regarded as a comprehensive list of landscape/land use types and development categories, and do not replace the need for a comprehensive, systematic scoping process to identify the range of issues arising from a particular development.*

Table 1: Categorisation of issues to be addressed by the visual assessment

Type of environment	Type of development (see Box 3) Low to high intensity				
	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural or historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

Box 3: Key to Categories of Development

Category 1 development:

e.g. nature reserves, nature-related recreation, camping, picnicking, trails and minimal visitor facilities.

Category 2 development:

e.g. low-key recreation / resort / residential type development, small-scale agriculture / nurseries, narrow roads and small-scale infrastructure.

Category 3 development:

e.g. low density resort / residential type development, golf or polo estates, low to medium-scale infrastructure.

Category 4 development:

e.g. medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

Category 5 development:

e.g. high density township / residential development, retail and office complexes, industrial facilities, refineries, treatment plants, power stations, wind energy farms, power lines, freeways, toll roads, large-scale infrastructure generally. Large-scale development of agricultural land and commercial tree plantations. Quarrying and mining activities with related processing plants.

Explanation of terms used:

Low-key development – generally small-scale, single-storey domestic structures, usually with more than 75% of the area retained as natural (undisturbed) open space.

*Low density development*¹ - generally single or double-storey domestic structures, usually with more than 50% of the area retained as natural (undisturbed) open space.

Medium density development - generally 1 to 3-storey structures, including cluster development, usually with more than 25% of the area retained as green open space.

High density development - generally multi-storey structures, or low-rise high density residential development.

Box 4: Key to Categories of Issues

Very high visual impact expected:

Potentially significant effect on wilderness quality or scenic resources;
Fundamental change in the visual character of the area;
Establishes a major precedent for development in the area.

High visual impact expected:

Potential intrusion on protected landscapes or scenic resources;
Noticeable change in visual character of the area;
Establishes a new precedent for development in the area.

Moderate visual impact expected:

Potentially some affect on protected landscapes or scenic resources;
Some change in the visual character of the area;
Introduces new development or adds to existing development in the area.

Minimal visual impact expected:

Potentially low level of intrusion on landscapes or scenic resources;
Limited change in the visual character of the area;
Low-key development, similar in nature to existing development.

Little or no visual impact expected:

Potentially little influence on scenic resources or visual character of the area;
Generally compatible with existing development in the area;
Possible scope for enhancement of the area.

Explanation of terms used:

Fundamental change – dominates the view frame and experience of the receptor;

Noticeable change – clearly visible within the view frame and experience of the receptor;

Some change – recognisable feature within the view frame and experience of the receptor;

Limited change – not particularly noticeable within the view frame and experience of the receptor;

Generally compatible – Practically not visible, or blends in with the surroundings.

¹ The term 'density' refers to net density (i.e. the number of household units within a development parcel only), as opposed to gross density, which includes roads, public open space and other land uses within the property.

PART C: PLANNING AND COORDINATION OF SPECIALIST INPUTS (DRAWING UP THE TERMS OF REFERENCE)

This part of the guideline covers the choice of an appropriate specialist, and the negotiation process leading to sound terms of reference (TOR) for that specialist. Appendix B gives generic TOR for specialist input.

7. QUALIFICATIONS, SKILLS AND EXPERIENCE REQUIRED

The qualifications, skills and experience required to provide specialist visual input relate to the nature and extent of both the receiving environment and the proposed project. They could also relate to the various levels of assessment outlined in Box 5.

Three broad types of visual assessment studies are suggested in Box 7 in order to determine relevant qualifications and skills required. These should apply particularly where Levels 3 and 4 visual input are involved.

Box 5: Qualifications and Skills for Visual Assessments

Type A Assessments:

Visual assessments, which are relatively large in extent, and involve natural or rural landscapes.

Qualifications:

- Either landscape architecture or environmental planning.
- Preferably affiliated to the South African Council for the Landscape Architecture Profession (SACLAP).
- Alternatively, recognised expertise and experience in the field.

Skills:

- Training in the natural sciences and landscape processes, the ability to map landscape features and viewsheds, and an understanding of the implications of these for development.
- Experience in visual assessment techniques.

Type B Assessments:

Visual assessments which are more local in extent and involve the built environment.

Qualifications:

- Either landscape architecture, urban design or heritage studies.
- Preferably affiliated to SACLAP, or the Association of Heritage Assessment Practitioners (AHAP).
- Alternatively, recognised expertise and experience in the field.

Skills:

- Training in natural and urban processes, and the design of the built environment, in relation to cityscapes, townscapes and streetscapes.
- Experience in visual assessment techniques.

Type C Assessments:

Visual assessments which are more site specific and architectural in nature, involving buildings and groups of buildings. (Refer to *Guideline involving Heritage Specialists* for cultural and archaeological sites).

Qualifications:

- Either landscape architecture, urban design, architecture or heritage studies.
- Preferably affiliated to SACLAP, AHAP.
- Alternatively, recognised expertise and experience in the field.

Skills:

- Training in urban and building design, particularly in relation to historical architecture.
- Experience in visual assessment techniques.

In addition to the above, the specialist should:

- Be competent at interpreting and evaluating information and answering the "so what" and "to whom" questions, rather than simply providing descriptive information;
- Have sufficient practical experience working in the specific affected region (or similar environments), and preferably local area, to make him/her respected by peers;
- Be able to think beyond his/her immediate discipline, able to trace impact pathways and identify indirect or cumulative impacts, and think of biodiversity/human wellbeing/economic interfaces;
- Have good knowledge relating to assessment techniques and to relevant legislation, policies and guidelines; and
- Be independent i.e. the specialist should not benefit from the outcome of the project decision-making.

8. DETERMINING THE SCOPE OF SPECIALIST INPUTS

The scope of the specialist input needs to be clarified through discussion between the EIA practitioner, the specialist, the proponent and, possibly, the relevant authorities. For this it is important that the participants in this discussion have a common understanding of the commonly used (and confused) EIA terms (Section 2). Sections 8.1 – 8.9 provide a brief overview of elements that should be discussed and agreed upon at the outset of the specialist's involvement in the EIA process and in drafting TOR². Supplementary generic guidance is provided in the *Guideline for determining the scope of specialist involvement in EIA processes*.

In complex and/or controversial projects, the draft TOR for specialists should preferably be reviewed by key stakeholders before they are finalized. Alternatively, the TOR for specialists should be reviewed by an independent reviewer.

² Recommended reading: DEAT, 2002

The terms of reference should be clearly stated in writing, and agreed to by both the specialist and the EIA practitioner. The terms of reference must not be framed in order to limit an effective and true assessment.

Participants in the EIA process should have an understanding of visual assessment terminology. Common terms have therefore been defined in Appendix A.

8.1 IDENTIFYING AND RESPONDING TO ISSUES

The visual specialist could be asked *either* to identify issues, *and/or* to respond to, *and/or* to investigate issues raised through the scoping process. The Scoping Report should be consulted by the specialist in order to ensure that any visual issues raised are considered appropriately. The visual specialist should therefore determine:

- Whether the issues raised through the scoping process are valid in the context of the proposed project, and need to be addressed further. The specialist is not necessarily required to assess each issue raised during scoping; a response or a comment on why the issue is not relevant or is not assessed further may suffice in some cases. The specialist must give sound reasons to support his/her conclusions.
- Whether there is enough information to predict reliably the likely significance of key issues and associated impacts. If not, additional information should be gathered.
- Whether or not additional key issues need to be considered (i.e. issues that were not raised by stakeholders through the scoping process). The specialist must provide clear reasons for including any additional issues in the EIA process.
- Where there is sufficient reliable information, the visual specialist must determine:
 - (a) Whether or not it can be reliably concluded that impacts could be avoided either by amending the project proposal, pursuing alternatives, and/or by appropriate management actions. *In this instance the specialist should provide sound motivation and justification for his/her conclusions. There would then not be a need to assess these issues further in the impact assessment phase and the further involvement of the economic specialist/s would be unnecessary.*
 - (b) Whether or not the issue is potentially significant, and/or the issue and associated impacts cannot be avoided. *In this instance the specialist should indicate the type of visual expertise need to address the issue and help draw up sound terms of reference for specialist inputs during the impact assessment phase.*

If appointed to provide specialist input during the impact assessment phase, the specialist should respond to and/or address all those visual issues raised during scoping which were deemed to lead to potentially significant impacts, were unavoidable and/or about which there was insufficient information to reach conclusions at the scoping stage about their potential impact significance.

The specialist may be requested to evaluate the adequacy of stakeholder scoping from a visual perspective and the potential need for additional scoping of visual issues.

8.2 ESTABLISHING APPROPRIATE TIME AND SPACE BOUNDARIES

Certain landscapes may change with the season, such as in the case of deciduous vegetation, and where this has an effect on the visibility of the proposed project, it should be taken into account.

The space boundary for specialist visual input depends on the extent of the view catchment area, or what is known as the 'zone of visual influence' of the project. This will in most cases determine the boundary of the study area. Assessments of linear type projects, such as roads or powerlines, would obviously have boundaries that include the entire visual corridor.

8.3 CLARIFYING APPROPRIATE DEVELOPMENT ALTERNATIVES

Development proposals considered in the EIA process may include a range of possible alternatives in any or all of the following categories³:

- *location* and/or *routing* alternatives,
- *layout* alternatives,
- *built form* alternatives,
- *process* and/or *design* alternatives,
- *scheduling* alternatives,
- *input* alternatives, or
- “no-go” alternative

The selection of alternatives should be aimed at addressing significant issues that have been identified, and not merely provide a range of options that could have similar problems.

Prior to, or during, the scoping phase, the visual specialist should ideally be involved in assisting the project proponent and EIA practitioner identify the range of viable alternatives that should be considered by the specialist.

Principles that influence the range of alternatives within a receiving environment include the following:

- the need to maintain the overall integrity (or intactness) of the particular landscape or townscape;
- the need to preserve the special character or 'sense of place' of a particular area;
- the need to minimise visual intrusion or obstruction of views within a particular area;
- the need to recognise the regional or local idiom, including building styles and materials, particularly where these form a strong or coherent theme.

³ Recommended reading: DEAT, 2004a

8.4 ESTABLISHING ENVIRONMENTAL AND OPERATING SCENARIOS

Scenarios are plausible future environmental or project operating conditions that could influence the outcomes of the impact prediction and assessment. Informed decision-making needs to be based on a consideration of possible impacts under a range of scenarios, including the worst-case scenario.

The definition of possible environmental and operating scenarios that could influence the nature, extent, duration, intensity, probability and significance of impacts needs to be guided by the visual specialist and facilitated by the EIA practitioner using information from the proponent.

There are a number of factors or variables that could result in different scenarios for the visual impact of a project. Scenarios, where predictable, should be identified as part of the impact assessment. Typical factors include the following:

- Expansion of the project owing to unexpected demand;
- Changes in technology or operating processes over time;
- Changes in the type of materials or finishes used on structures, for economic or other reasons;
- Removal of screening vegetation, including plantations and alien vegetation;
- Changes in the landscape and surrounding uses over time.

8.5 ADDRESSING DIRECT, INDIRECT AND CUMULATIVE EFFECTS

The specialist must consider potentially significant direct, indirect and cumulative impacts of a proposed activity (see Box 6)⁴. This requires the following:

- Conceptualisation of possible cause-effect pathways resulting from the proposed development;
- An understanding of current and future plans, projects and activities in the same area;
- An awareness of other threats or trends that could affect the “sense of place” and the landscape of the area in which the development is proposed;
- An understanding of the likely resilience and status of affected landscapes and visual resources;
- An understanding of broader strategic goals or targets for the area that would be affected by the proposed project.

The level of detail to which these should be considered will be influenced by the nature of the proposed project and issues raised through the scoping process. Where potentially significant cumulative effects are likely and cannot be addressed in the EIA, the specialist should alert the EIA practitioner and decision-maker/s to these effects and make explicit recommendations as to

⁴ Recommended reading: DEAT, 2004b

ways of addressing them (e.g. through a strategic environmental assessment or systems-based approach).

Box 6: Definitions and components of direct, indirect and cumulative effects

Direct (or primary) effects occur at the same time and in the same space as the activity. For example, the loss of views through construction of buildings.

Indirect (or secondary) effects occur later in time, or at a different place, from the causal activity. For example, the construction of power lines leading to a subsequent drop in property values in the surrounding area.

Cumulative effects can be:

- **Additive:** the simple sum of all the effects, (eg sprawl effect of houses along a scenic route);
- **Synergistic:** effects interact to produce a total effect greater than the sum of individual effects, (eg incremental urban development eventually results in total loss of rural or wilderness character of an area);
- **Time crowding:** frequent, repetitive impacts on a visual resource at the same time (eg constant movement of heavy vehicles through an area).
- **Space crowding:** high spatial density of impacts on a rural environment (eg rapid informal settlement).
- **Neutralizing:** where effects may counteract each other to reduce the overall effect (eg provision of new structures, accompanied by removal of redundant structures).

Source: Adapted from Cooper, 2004.

8.6 SELECTING THE APPROPRIATE APPROACH

From Table 1 it can be seen that visual assessments become more critical where wilderness or protected landscapes are involved, as well as when high density urban development or large-scale infrastructure are being considered.

Approaches and methods for specialist visual input would relate to the issues raised during the scoping process, and the different types of landscape or townscape contexts. Table 2 indicates the 'level' of visual assessment required, together with the recommended approach given in Box 7.

Note: *Table 2 and the explanatory box provide a summary of approaches commonly used to address different issues and contexts. This should not be regarded as a comprehensive summary, and does not replace the need for a discussion between the EIA project manager, the visual specialist, the proponent and the authorities to determine the best approach for the specific circumstances.*

Table 2: Categorisation of approaches used for visual assessment

Approach	Type of issue (see Box 4)				
	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	Very high visual impact expected
Level of visual input recommended	Level 1 visual input	Level 2 visual input	Level 3 visual assessment	Level 4 visual assessment	

Box 7: Key to Approaches**Level 1 input:**

Identification of issues, and site visit;
Brief comment on visual influence of the project and an indication of the expected impacts / benefits.

Level 2 input:

Identification of issues raised in scoping phase, and site visit;
Description of the receiving environment and the proposed project;
Establishment of view catchment area and receptors;
Brief indication of potential visual impacts, and possible mitigation measures.

Level 3 assessment:

Identification of issues raised in scoping phase, and site visit;
Description of the receiving environment and the proposed project;
Establishment of view catchment area, view corridors, viewpoints and receptors;
Indication of potential visual impacts using established criteria;
Inclusion of potential lighting impacts at night;
Description of alternatives, mitigation measures and monitoring programmes.
Review by independent, experienced visual specialist (if required).

Level 4 assessment:

As per Level 3 assessment, plus complete 3D modeling and simulations, with and without mitigation.
Review by independent, experienced visual specialist (if required).

Quantitative aspects of visual inputs often make use of landscape resource classification methods. These may include combinations of landforms (geomorphology), vegetation cover and land use mapping. The basic components comprising an accepted methodology for visual studies are given in Box 8.

It is common for these studies to make use of computer-based techniques and digital cameras for greater accuracy and ease of mapping and constructing realistic visual simulations. GIS and CAD software are often used to create digital terrain models (DTM), which are in turn used to determine view catchments and view shadows. The actual approach used would depend on the level of visual input required in the EIA process, as put forward in Box 7.

Box 8: Typical Components of Visual Studies

- Identification of issues and values relating to visual, aesthetic and scenic resources through involvement of I&APs and the public.
- Identification of landscape types, landscape character and sense of place, generally based on geology, landforms, vegetation cover and land use patterns;
- Identification of viewsheds, view catchment area and the zone of visual influence, generally based on topography;
- Identification of important view points and view corridors within the affected environment, including sensitive receptors;
- Indication of distance radii from the proposed project to the various view points and receptors;
- Determination of the visual absorption capacity (VAC) of the landscape, usually based on topography, vegetation cover or urban fabric in the area;
- Determination of the relative visibility, or visual intrusion, of the proposed project.
- Determination of the relative compatibility or conflict of the project with the surroundings;
- A comparison of the existing situation with the probable effect of the proposed project, through visual simulation, generally using photo-montages.

8.7 CLARIFYING THE TIMING, SEQUENCE AND INTEGRATION OF SPECIALIST INPUT

Effective interaction with other specialists should be facilitated by the EIA practitioner to ensure that an integrated approach is adopted, where the various components of the environment are seen as a whole.

Factors that determine or influence the timing of the specialist visual assessment in relation to the other specialist assessments may include the following:

- the need for adequate information on the receiving environment, such as geology, types of vegetation cover, and features of cultural or historical importance;
- the need for adequate information on the proposed project and related processes or activities, such as sources of dust or other emission plumes.

See Section 9.4 for a more detailed list of information required from other specialists.

8.8 ENSURING APPROPRIATE STAKEHOLDER ENGAGEMENT

The potential for specialists to engage with stakeholders needs to be discussed and agreed upon. This includes the types of stakeholders that should typically be consulted, and for what purpose.

However, any consultation with stakeholders must be done in line with the overall stakeholder engagement process, ideally working through the EIA practitioner or stakeholder engagement practitioner.

8.9 CLARIFYING CONFIDENTIALITY REQUIREMENTS

In developing TORs, aspects of confidentiality need to be discussed and agreed upon. These may relate to how commercially confidential information is treated and communicated, as well as information about sensitive resources.

PART D: PROVIDING SPECIALIST INPUT

This part of the guideline provides guidance for providing specialist input, as well as identifying the information required by specialists.

9. INFORMATION REQUIRED TO PROVIDE SPECIALIST INPUT

9.1 RELEVANT PROJECT INFORMATION

The following information about the proposed project is generally required for specialist visual input into the EIA process:

Essential information:

- The precise location and elevation of the project, and the boundaries of the project site, or the proposed route in the case of roads, pipelines, powerlines, etc.;
- The siting and orientation of the structures within the project site;
- The footprint, massing and height of the various structures;
- Elevations of the structures, including finishes and colours;
- Length, area and finishes of access roads to the site, internal roads and parking areas;
- Type and height of area lighting, including flood-lighting;
- Type and height of all outdoor signage, including illuminated signage, associated with the project;
- Type and height of all ancillary structures, such as masts, antennas, security fencing, gatehouses, substations, electrical kiosks, reservoirs, overhead power-lines and other cables (both on and off the site);
- Cut and fill slopes and other major earthworks or excavations associated with the project;
- Traffic within the site, or to and from the site, which may constitute a visual impact;
- Construction phase facilities, such as construction camps, labourers' housing, haul roads, material storage, stockpiles, batch mixing areas, etc. where applicable;
- Nature and extent of future expansion of the project, if applicable;
- Alternative scenarios, layouts or designs for the project that have been proposed.

Other useful information:

- CAD and 3D digital information of the project;
- Coordinates of the various structures for visual simulation purposes.

9.2 INFORMATION DESCRIBING THE AFFECTED ENVIRONMENT

The involvement of specialists should be based on the need to supply information relevant to the assessment of impacts associated with the development proposal. Gaps in scientific information for geographical areas/ ecosystems or habitats, especially where the information is not readily linked to development impacts, or where impacts can be avoided/mitigated without specialist input, should not be used to motivate for specialist involvement.

The following information describing the current state of the affected environment, as well as trends in the area, are required for visual input into the EIA process:

Essential information:

- Contextual map indicating the location of the site and the nature of the surroundings (1:50 000 survey maps are usually suitable).
- Geological information, including formations, rock outcrops, etc. that give the area its particular character. (Geological survey maps of various scales are useful).
- Landform information, including ridgelines, spurs, plateaux, convex slopes, valleys, coastal plains and terraces etc. that determine the inherent visibility of the landscape, as well as the potential for silhouette effects. (Usually interpreted from topographical survey maps, orthophotos, or more detailed surveys if available).
- Topographic information, including contours, elevation, slope gradients etc. that indicate exposed positions in the landscape. (Usually derived from topographical surveys or orthophotos).
- Vegetation information, including the density, type and height of the vegetation etc. that determines cover and openness in the landscape, as well as visual screening effects. (Usually derived from aerial photographs and orthophotos, if up to date, and from field reconnaissance).
- Land use information, including landscape and settlement patterns, etc. that determine the building fabric, density and visual townscape character. (Aerial photographs, orthophotos and cadastral maps are useful).
- Information about receptors / viewers in the area. These may be local residents or visitors to the area, and would include people in buildings, in motor vehicles, or on foot. (Usually determined from the scoping study, EIA practitioner or stakeholders, and from field reconnaissance).

Other useful information:

- Historical maps and old aerial photographs help to give an indication of changes in the landscape, or trends in the area over time.
- Topographical and cadastral information in digital format is useful for creating a digital terrain model (DTM) and visual simulations, using GIS or CAD software.

General Description:

A holistic description of the affected environment is required, meaning that all aspects of the natural, cultural, historical, sacred and scenic landscape need to be included. Both tangible and intangible components of the environment should be included.

An indication should be given of the particular character, uniqueness, intactness, rarity, and vulnerability of the area. The overall context and representivity of the area within the region should also be discussed.

Certain landscapes may change with the season, such as in the case of deciduous vegetation, and where this has an effect on the visibility of the proposed project, it should be taken into account.

9.3 LEGAL, POLICY AND PLANNING CONTEXT

The following information of a legal, policy or planning nature is needed to measure and predict visual impacts resulting from the project:

Essential information:

- Policies or plans that provide a vision of the desired future state for the area within which the development is proposed in order to evaluate whether or not the proposed development contributes to, or conflicts with the achievement of this vision.
- The Provincial Spatial Development Framework (PSDF), local Integrated Development Plans (IDP) and Spatial Development Frameworks (SDF) and zoning schemes of provincial or local authorities, which give an indication of planning policy for the area, and whether the proposed project will be compatible with these policies.
- Legislation and by-laws governing visual impacts.
- Other aspects, such as major roads, national parks, biosphere reserves, nature reserves, scenic routes and cultural heritage sites, which may exist or be planned for the area.
- Title deed restrictions relating to the property of the proposed project, if applicable.

9.4 INFORMATION GENERATED BY OTHER SPECIALISTS IN THE EIA PROCESS

Information typically required from other specialists, before the visual assessment can be completed, is included below. Where inadequate information is available, this should be indicated (see Box 9).

- A description of the vegetation cover, and the possibility of vegetation cover being removed through alien vegetation clearing or fire (from the biodiversity or vegetation specialist);
- The nature and location of any cultural heritage sites, and areas of special or historical interest (from the heritage specialist);
- The identification and extent of any sources of dust and emission plumes that may be visible in the surrounding area (from the atmospheric specialist);
- The identification of receptors / viewers who will be affected by the project, and their perception / sensitivity to visual impacts (from the social specialist).

The visual assessment may in turn have implications for other specialist studies, such as the effect of loss of scenic resources on tourism and property values (for the economic specialist). Liaison, and possibly even workshops, with the various specialists is therefore required.

Box 9: What to do in data poor circumstances

- Indicate where information gaps occur, together with the bearing this may have on the accuracy of the visual input.
- Indicate the associated risks in terms of visual impacts resulting from inadequate information on the project.
- Indicate any uncertainties in the rating of visual impacts, resulting from unknowns.

10. SPECIALIST INPUT TO IMPACT ASSESSMENT AND RECOMMENDING MANAGEMENT ACTIONS

A visual specialist could provide input at different stages of the EIA process (Section 4). This input could be relatively minor, in the form of a brief professional opinion, or a detailed visual assessment with an associated written report, depending on the nature of the proposed project and the sensitivity and complexity of the receiving environment. In most instances, regardless of the final product and its level of detail, the conceptual thinking followed by any specialist should be similar.

As a general guide the specialist should:

- Consider the **full project cycle**;
- Answer the “**so what**” and “**to whom**” questions of probable impacts, i.e. what are the likely consequences of impacts, how severe would they be, and who would be affected by these impacts;
- Predict, assess and evaluate potentially significant **direct, indirect and cumulative impacts**, both with and without management actions. The evaluation of significance should be linked to **thresholds of significance**;
- Assess and evaluate impacts for the **different alternatives** and for **different environmental and operating scenarios**, where appropriate;
- Consider not only impacts on the **affected site**, but also impacts **beyond the site boundaries**;
- Assess and evaluate any **opportunities and constraints** posed by the receiving environment/operating context on the proposed development.

10.1 PREDICTING POTENTIAL IMPACTS

Possible impacts should be identified and assessed for the different alternatives, as well as for the range of risk situations and scenarios (including the worst case scenario), both with and without management actions (e.g. mitigation, enhancement).

Where visual simulations are used these should enable 'before' and 'after' comparisons to be made, as well as comparison of alternatives, taking into account mitigation measures.

It is in the nature of visual and scenic resources to include abstract qualities and connotations. It is necessary therefore to include both quantitative criteria (such as viewing distances), and qualitative criteria (such as sense of place), in visual assessments. An implication of this is that the impact ratings cannot simply be added together. Instead the assessment relies on the evaluation of a wide range of considerations, both objective and subjective, including the context of the proposed project within the surrounding area.

Where specialists are involved in the pre-application planning or screening stage, it may be appropriate in certain cases to identify 'fatal flaws'. Criteria that determine whether or not a visual impact constitutes a potential fatal flaw are included in Box 10.

Box 10: Definition of a potential fatal flaw

A potential fatal flaw is defined as an impact that could have a "no-go" implication for the project. A "no-go" situation could arise if the proposed project were to lead to:

1. Non-compliance with Acts, Ordinances, By-laws and adopted policies relating to visual pollution, scenic routes, special areas or proclaimed heritage sites.
2. Non-compliance with conditions of existing Records of Decision.
3. Impacts that may be evaluated to be of *high significance* and that are considered by the majority of stakeholders and decision-makers to be unacceptable.

10.2 INTERPRETING IMPACT ASSESSMENT CRITERIA

To aid decision-making, the assessment and reporting of possible impacts requires consistency in the interpretation of impact assessment criteria. A number of criteria that relate specifically to visual impact assessments are given in Box 11 (Refer to definitions in Appendix A). The proposed project should be assessed against these criteria before attempting the summary criteria (Box 12).

The determination of impact significance needs to consider the predicted impact of the proposed development in light of the vision for the area, rather than in terms of the impact on the current baseline conditions. For example, if a housing development is proposed in a greenfields site which planning processes have earmarked for residential development, the visual impact is of lower significance than if the area falls within an area located along a scenic route.

Box 11: Specific criteria for visual impact assessments

Visibility of the project – the geographic area from which the project will be visible, or view catchment area. (The actual zone of visual influence of the project may be smaller because of screening by existing trees and buildings). This also relates to the number of receptors affected.

- *High visibility* – visible from a large area (e.g. several square kilometres).
- *Moderate visibility* – visible from an intermediate area (e.g. several hectares).
- *Low visibility* – visible from a small area around the project site.

Visual exposure – based on distance from the project to selected viewpoints. Exposure or visual impact tends to diminish exponentially with distance.

- *High exposure* – dominant or clearly noticeable;
- *Moderate exposure* – recognisable to the viewer;
- *Low exposure* – not particularly noticeable to the viewer;

Visual sensitivity of the area – the inherent visibility of the landscape, usually determined by a combination of topography, landform, vegetation cover and settlement pattern. This translates into visual sensitivity.

- *High visual sensitivity* – highly visible and potentially sensitive areas in the landscape.
- *Moderate visual sensitivity* – moderately visible areas in the landscape.
- *Low visual sensitivity* – minimally visible areas in the landscape.

Visual sensitivity of Receptors – The level of visual impact considered acceptable is dependent on the type of receptors.

- *High sensitivity* – e.g. residential areas, nature reserves and scenic routes or trails;
- *Moderate sensitivity* – e.g. sporting or recreational areas, or places of work;
- *Low sensitivity* – e.g. industrial, mining or degraded areas.

Visual absorption capacity (VAC) - the potential of the landscape to conceal the proposed project, i.e.

- *High VAC* – e.g. effective screening by topography and vegetation;
- *Moderate VAC* - e.g. partial screening by topography and vegetation;
- *Low VAC* - e.g. little screening by topography or vegetation.

Visual intrusion – the level of compatibility or congruence of the project with the particular qualities of the area, or its 'sense of place'. This is related to the idea of context and maintaining the integrity of the landscape or townscape.

- *High visual intrusion* – results in a noticeable change or is discordant with the surroundings;
- *Moderate visual intrusion* – partially fits into the surroundings, but clearly noticeable;
- *Low visual intrusion* – minimal change or blends in well with the surroundings.

Note 1: *These, as well as any additional criteria, may need to be customised for different project assessments.*

Note 2: *Numerical weighting of these criteria should be avoided because of their qualitative nature.*

Note 3: *Various components of the project, such as the structures, lighting or powerlines, may have to be rated separately, as one component may have fewer visual impacts than another. This could have implications when formulating alternatives and mitigations.*

Various criteria are defined in the current EIA Regulations, such as 'nature', 'extent', 'duration'. The interpretation of these criteria for visual assessments is given in Box 12.

Box 12: Criteria used for the assessment of impacts

The assessment of impacts is based on a synthesis of the following assessment criteria:

Nature of the impact - an appraisal of the visual effect the activity would have on the receiving environment. This description should include visual and scenic resources that are affected, and the manner in which they are affected, (both positive and negative effects).

Extent – the spatial or geographic area of influence of the visual impact, i.e.:

- *site-related*: extending only as far as the activity;
- *local*: limited to the immediate surroundings;
- *regional*: affecting a larger metropolitan or regional area;
- *national*: affecting large parts of the country;
- *international*: affecting areas across international boundaries.

Duration - the predicted life-span of the visual impact:

- *short term*, (e.g. duration of the construction phase);
- *medium term*, (e.g. duration for screening vegetation to mature);
- *long term*, (e.g. lifespan of the project);
- *permanent*, where time will not mitigate the visual impact.

Intensity – the magnitude of the impact on views, scenic or cultural resources.

- *low*, where visual and scenic resources are not affected;
- *medium*, where visual and scenic resources are affected to a limited extent;
- *high*, where scenic and cultural resources are significantly affected.

Probability – the degree of possibility of the visual impact occurring:

- *improbable*, where the possibility of the impact occurring is very low;
- *probable*, where there is a distinct possibility that the impact will occur;
- *highly probable*, where it is most likely that the impact will occur; or
- *definite*, where the impact will occur regardless of any prevention measures.

Significance – The significance of impacts can be determined through a synthesis of the aspects produced in terms of their nature, duration, intensity, extent and probability, and be described as:

- *low*, where it will not have an influence on the decision;
- *medium*, where it should have an influence on the decision unless it is mitigated; or
- *high*, where it would influence the decision regardless of any possible mitigation.

Note: These significance ratings may have limited usefulness unless they are described in terms of the broader context. The criteria given in Box 11 could assist in this regard.

Source: Adapted from the criteria provided by Department of Environmental Affairs and Tourism, 1998

10.3 ESTABLISHING THRESHOLDS OF SIGNIFICANCE

Thresholds of significance define the level or limit at which point an impact changes from low to medium significance, or medium to high significance. These thresholds are often determined by current societal values which define what would be acceptable or unacceptable to society and may be expressed in the form of legislated standards, guidelines or objectives.

Problems relating to thresholds:

- Unlike water quality or air quality, thresholds for visual or scenic quality cannot be easily quantified, as they tend to be abstract, and often relate to cultural values or perceptions.
- A second difficulty is that natural, rural and urban landscapes are constantly changing, and the assessment will therefore need to consider this in determining the significance of impacts.
- A third difficulty may be the divergence of opinion on what constitutes 'acceptable' change, by the individual, the community or society in general.

Some factors influencing significance ratings:

The visual specialist will need to take into account and communicate principles of long term sustainable development, and not only the existing status of the area, when making an assessment. (Scenic resources are generally non-renewable and once destroyed or degraded, are lost to society).

International conventions and protocols, such as those for World Heritage Sites, or the RAMSAR convention on wetlands, will need to be taken into account when considering significance.

Wilderness type landscapes, pristine areas, and environments of high scenic value have national importance, tend to be the most sensitive to even small changes, and would therefore have higher significance ratings.

Areas that lie outside a defined 'urban edge' line for a particular municipality, may be more sensitive to development, or to changes to the natural or rural landscape.

Where regions or communities are dependent on visual, scenic or heritage resources for tourism or recreation, this will add to the significance rating of a visual impact.

Poorer or less educated communities may tend to support development initially, irrespective of visual impacts. However, as they progress economically, visual issues will become more important, and the VIA may need to accommodate this.

The visual assessment should recognise that some change to the landscape over time is inevitable with the expansion of urban areas and introduction of new technologies, such as communication masts. This will have a bearing on significance ratings, particularly in identified growth areas.

It should also be recognized that in some cases the project is intended to be highly visible, and may be seen as a landmark or other positive feature in the landscape or townscape, possibly adding to the sense of place. This may imply a reduced significance in terms of visual impact, or even a benefit.

10.4 DESCRIBING THE DISTRIBUTION OF IMPACTS – BENEFICIARIES AND LOSERS

Visual specialists should identify the possible distribution of impacts, i.e. beneficiaries and losers, resulting from the proposed development, in particular vulnerable or risk-prone systems or communities.

Beneficiaries may include the following:

- Residents or users of a project, such as a resort in a scenic area;
- Individuals or communities who will benefit from infrastructure development, such as powerlines or communication masts provided for an area;
- Poor or unemployed individuals who will benefit from economic type development and related job opportunities.

Losers may include the following:

- National parks, nature reserves and other protected or pristine areas that rely on a wilderness experience for their visitors;
- Individuals and organisations who depend on scenic and recreation resources for their livelihood;
- Property owners who may rely on uninterrupted views and absence of visual intrusions.

10.5 IDENTIFYING KEY UNCERTAINTIES AND RISKS

Visual specialists should take into account key uncertainties and risks in the impact assessment process, which may influence the accuracy of, and confidence in, the visual impact assessment process. These may include the following:

- inadequate information on the form and aesthetics of the proposed project, making it difficult to depict the proposal in visual montages and to predict visual impacts;
- exclusion of related facilities, such as roads and powerlines, from the visual assessment;
- lack of information on future expansion of the project, or a change in activities related to the site.
- unpredictability of cumulative impacts resulting from the proposed project, which may, for example, act as a catalyst for other development in the area;
- uncertainty regarding future planning or development for the general area.

10.6 JUSTIFYING UNDERLYING ASSUMPTIONS

Where assumptions have been made during the visual input, or visual assessment, these should be clearly stated. The reason or justification for the assumption should also be given.

Any assumptions that are made should be confirmed with the EIA practitioner and proponent, before completing the visual input or assessment.

Assumptions typically have to be made where information is inadequate, or is not known, and may relate to the following:

- the final design and finishes of the proposed project;
- the final footprint and future expansion of the project;
- the commissioning of separate visual assessments for related structures or activities that do not form part of the TOR.

10.7 DEFINING CONFIDENCE LEVELS AND CONSTRAINTS TO INPUT

The confidence of the visual specialist, relating to the identification and significance rating of potential impacts and benefits, should be clearly stated. The level of confidence should be indicated on a scale from high to low, together with reasons for the rating. (See also Para.10.5 and 10.6 above).

10.8 RECOMMENDING MANAGEMENT ACTIONS

The visual assessment should provide recommendations to mitigate or enhance impacts/benefits so that these can inform the design of the project, including the siting and scale of structures and roads, the choice of materials and colours, and measures for screening where necessary. Management actions should be seen as an integral and necessary part of the planning and design phase of the project, rather than as *ad hoc* measures applied at the end.

Appropriate types of management actions for different types of developments in different contexts are outlined below, including those for 'worst case' scenarios.

The project proponent should include a comment to the decision-makers on their ability to implement the management actions recommended by the visual specialist.

Avoidance

Consideration should be given to avoiding potential visual impacts altogether. This may be achieved by re-examining the need for the proposed project, relocating the project, or re-designing the project. These would obviously have to be considered feasible by the proponent.

Mitigation

Measures to mitigate or reduce the effect of negative visual impacts should be considered. These may include adjustments to the siting and design of the project, the careful selection of finishes and colours, the use of earthworks (such as berms) and planting to provide visual

screening, as well as dust control where required. Penalties for non-compliance should be considered.

Those mitigations, which are mandatory or essential to the project, should be indicated, along with those that are optional.

Compensation and offsets

Where avoidance or mitigation cannot achieve the desired effect, various forms of compensation could be considered. These may include land swaps, appropriation or financial compensation.

Rehabilitation and restoration

Both on-site and off-site landscape rehabilitation of areas affected by the project should be considered as part of the visual impact management. This may include re-instating landforms and natural vegetation, provision of landscaped open space, or other agreed upon facilities.

Enhancement

Where the proposed project is located in run-down areas, or degraded landscapes, the improvement of these areas could form part of the visual management actions for the project.

10.9 IDENTIFYING THE BEST PRACTICABLE ENVIRONMENTAL OPTION

Factors that need to be considered by the visual specialist in selecting the Best Practicable Environmental Option (BPEO) from a range of agreed alternatives include the following:

- Long term protection of important scenic resources and heritage sites;
- Minimisation of visual intrusion in scenic areas;
- Retention of wilderness or special areas intact as far as possible;
- Responsiveness to the area's uniqueness, or sense of place.

Each specialist assessment will identify the BPEO from a range of given options, or even add to the set of options. It is the responsibility of the EIA practitioner to evaluate the BPEO recommendations within the various specialist assessments and provide an overall recommendation for the BPEO, which takes into account the outcomes of the various specialist assessments. In the event that there have been differences in opinion between specialist assessments regarding the BPEO, the Environmental Impact Report should highlight these reasons and explain why these have arisen (e.g. the pursuance of different management or environmental objectives).

10.10 COMMUNICATING THE FINDINGS OF THE SPECIALIST INPUT

Specialist assessment reports should be concise and, as far as possible, avoid the use of technical terminology. Where this is unavoidable, brief explanations should be provided in order to ensure that the reader is able to understand the approach to, and findings of, the specialist assessment.

In order to answer the “so what” question, specialist assessments provided during the impact assessment stage of the EIA process must include the following:

- Summary impact assessment table using the defined impact assessment and significance rating criteria;
- Clear indication of whether impacts are irreversible or result in an irreplaceable loss to the environment and/or society.
- A statement as to whether or not the proposed project would comply or be consistent with international conventions, treaties or protocols and with national, provincial and local legislation, policies and plans as applicable;
- The need, where relevant, for higher order assessment to address potentially significant cumulative effects, or issues which fall outside the scope of the EIA process;
- Statement of impact significance for each issue and alternative, before and after management, specifying whether thresholds of significance have been exceeded;
- Identification of beneficiaries and losers from the proposed development;
- Specification of key risks and uncertainties that may influence the impact assessment findings, including a clear statement of limitations and/or gaps in knowledge or information;
- The specialist’s assumptions and degree of confidence in the impact assessment prediction;
- Summary of key management actions that fundamentally affect impact significance;
- Identification of the best practicable environmental option, providing reasons;
- Identification of viable development alternatives not previously considered;
- References for all sources of information and/or data used.

11. SPECIALIST INPUT TO MONITORING PROGRAMMES

Monitoring may be carried out to:

- Ensure that mitigation or enhancement measures are implemented;
- Evaluate whether mitigation or enhancement is having the expected and desired effect;
- Improve available data or information;
- Determine whether or not predicted impacts are occurring and/or whether or not the models or other tools used to predict impacts are appropriate and useful;
- Check compliance with legal and/or other requirements with regard to environmental quality (compliance monitoring);
- Determine the intensity of impacts and allow for timeous and effective remedial action where necessary, particularly where prediction of such impacts was uncertain because of lack of prior experience and/or scientific knowledge.
- Detect warning signs that significance thresholds or environmental targets are being exceeded or will be exceeded, to allow for prompt remedial action and/or adaptive management through the life of the project to minimise negative effects.
- Evaluate the accuracy of the EIA in predicting impacts, and allow for changes to an EMP or EMS accordingly.

Monitoring can be carried out ***prior to the construction phase*** (to establish a reliable benchmark), or during the ***construction, operational*** and/or ***decommissioning*** phases of a project, depending on the particular risks of significant impacts during these phases and/or the need to monitor compliance with requirements. The visual assessment should provide recommendations for monitoring programmes ideally including input into sketch plans, final tender documentation, site works and maintenance.

Principles that specialists should incorporate into their proposed monitoring programme for different stages of the project cycle are outlined below:

- Monitoring programmes should be agreed to by the proponent, and approved by the relevant environmental authority.
- Monitoring programmes should reflect environmental and aesthetic policies and guidelines applicable to the area, and incorporate the approval conditions of the project.
- Monitoring programmes should be drawn up and administered by a responsible, suitably qualified person, and enforced by an appropriate agency in order to be effective.
- Monitoring programmes should have clear objectives, and be practical and measurable.

Monitoring programmes should include:

- The specific questions to be answered by monitoring;
- The frequency and/or time of monitoring;
- Responsibility for carrying out monitoring;
- Indicators to use in monitoring. The choice of indicators would depend on the particular impacts predicted, and the receiving environment. Since monitoring often has to consider natural fluxes as well as human-induced effects, complementary indicators may be appropriate in monitoring. Indicators should be specific, measurable, achievable, relevant and timely. Appropriate indicators that can be used to evaluate the effectiveness of management actions need to be identified. Where possible indicators should be aligned with key national and provincial indicators in order to track how the project contributes to, or undermines, the realization of local or regional sustainable development targets;
- Significance thresholds or thresholds of probable concern (Section 10.3), which would trigger remedial action or other intervention;
- Responsibility for analysing and evaluating the results of monitoring, and for implementing adaptive management in response;
- Reporting requirements.

Monitoring must be tied in to an effective decision-support system which triggers appropriate management changes depending on the results of monitoring, and clearly identifies who would be responsible for implementing that management.

Pre-construction baseline monitoring

Monitoring programmes should include procedures for the timely review of plans for the proposed project. This could include the review of building plans, landscape plans and

rehabilitation plans by the appropriate agencies responsible for aesthetics and environmental control, to ensure that visual mitigation measures have been incorporated into the design.

Construction phase monitoring

Monitoring programmes should include procedures for ensuring that the specified visual management actions are carried out on site, usually as part of an environmental management plan (EMP). These procedures would typically be the responsibility of an environmental control officer (ECO), or other suitably qualified person.

Operational phase monitoring

Monitoring programmes for the operational stage could include procedures for the on-going control of aesthetic aspects of the project, including signage, lighting, fencing, etc. to ensure that the management actions or guidelines are being applied. All maintenance, upgrading and future expansion of the project should comply with the original approved management actions.

De-commissioning phase monitoring

Monitoring programmes should include procedures for removal, re-use, or recycling at the end of the lifespan of the project, as well as the rehabilitation or redevelopment of the site to a visually acceptable form.

PART E: REVIEW OF THE SPECIALIST INPUT

This part of the guideline identifies specific review criteria that can be used as a quality check.

12. SPECIFIC EVALUATION CRITERIA

Reference should be made to the *Guideline for the review of specialist input in EIA processes* for the generic review criteria that can be applied to any specialist input. This section only provides specific guidance on reviewing visual input.

Specific aspects that constitute a high quality visual input and against which inputs can be reviewed, include the following:

- is appropriate to the nature and scale of the proposed development (Sect. 8, incl. Table 2);
- provides a full description of the environment and the project (Sect. 9);
- states assumptions, uncertainties and limitations (Sect. 10.5, 10.6);
- considers the project within its wider context (Sect. 9.2);
- provides a clear methodology using accepted conventions for visual assessment (Sect. 8.6);
- includes both quantitative and qualitative criteria (Sect. 10.2);
- cumulative visual impacts have been considered (Sect. 8.5);
- an evaluation of alternatives has been made (Sect. 8.3);
- an explanation of significance ratings, related to bench-marks, is given (Sect. 10.3);
- long term sustainable development objectives are included (Sect. 5);
- recommendations for visual mitigation are sensible and practical (Sect. 10.8);
- recommendations for monitoring programmes have been outlined (Sect. 11);
- the best practicable environmental option has been considered (Sect. 10.9);
- all the visual issues raised in the scoping have been addressed;
- includes a clear summary of mitigation measures, including essential and optional measures.
- graphics, including maps and visual simulations, are clear;
- all sources of information and references are given;

PART F: REFERENCES

- Cooper, L.M. 2004. *Guidelines for Cumulative Environmental Assessment in SEA of Plans*. EMPG Occasional Paper, May 2004.
- Department of Environment Affairs. 1992. *Integrated Environmental Management Guideline Series*. Pretoria.
- Department of Environmental Affairs and Tourism (DEAT). 1998. *Guideline Document: EIA Regulations – Implementation of Sections 21, 22 and 26 of the Environment Conservation Act*. Department of Environmental Affairs & Tourism, Pretoria.
- Department of Environmental Affairs & Tourism (DEAT). 2002. *Specialist Studies, Integrated Environmental Management Information Series 4*. Department of Environmental Affairs and Tourism, Pretoria.
- Department of Environmental Affairs & Tourism (DEAT). 2004a. *Criteria for Determining Alternatives in EIA, Integrated Environmental Management Information Series 4*. Department of Environmental Affairs and Tourism, Pretoria.
- Department of Environmental Affairs & Tourism (DEAT). 2004b. *Cumulative Effects Assessment, Integrated Environmental Management Information Series 4*. Department of Environmental Affairs and Tourism, Pretoria.
- Drummond, J. 1985. *Visual Resource Management: An Introduction to a Growing Need*. *Landscape SA*, Summer 1985.
- Hanna, K.C. 1999. *GIS for Landscape Architects*. ESRI Press.
- Lange, E. 1994. Integration of Computerised Visual Simulation and Visual Assessment in Environmental Planning. *Landscape and Environmental Planning*, 30: 99-112.
- Martin, J. 1993. Assessing the Landscape. *Landscape Design*, June 1993.
- Nicholls D.C. & Sclater, A. 1993. Cutting Quality Down to Scale (The quantitative approach to landscape assessment). *Landscape Design* journal, March 1993.
- Oberholzer, B. 1994. *Visual and Aesthetic Assessment Techniques in Integrated Environmental Management*. Unpublished paper for CSIR workshop.
- Oberholzer, B. 1998. *Visual Guidelines for Communication Masts*. Unpublished report for Cape Metropolitan Council.
- Roy Mann Associates Inc. 1975. *Shoreline Appearance and Design: A Planning Handbook*. For National Parks Service, New England River Basins Commission.

- Scott Wilson Environmental Division. 2000. *Minimising the Negative Environmental Impact of Telecommunication Towers and Related Infrastructure on Rural Areas in Kwazulu-Natal*. For Town and Regional Planning Commission. Policy document, Vol. 84.
- The Landscape Institute with the Institute of Environmental Management and Assessment. 2002. *Guidelines for Landscape and Visual Impact Assessment*. Second ed. Spon Press, London and New York.
- Warnock, S. & Brown, N. 1998. Putting landscape first. *Landscape Design*, March 1998, No. 268: 44-46.
- Young, G. & Townshend, D. 1999. Photographic Simulation: An Integral Part of Visual Impact Assessments. *The Urban Green File*, March/April 1999.
- Zube, E.H. 1970. Evaluating the Visual and Cultural Landscape. *Journal of Water and Soil Conservation*, July-August 1970.
- Zube, E. *et al.* 1975. *Landscape Assessment: Values, Perceptions and Resources*. Dowden, Hutchinson & Ross Inc. Pennsylvania.

APPENDIX A: DEFINITIONS AND ACRONYMS

DEFINITIONS

<i>Fatal flaw</i>	A fatal flaw is defined as an impact that could have a "no-go" implication for the project.
<i>Impact (visual)</i>	A description of the effect of an aspect of the development on a specified component of the visual, aesthetic or scenic environment within a defined time and space.
<i>Issue (visual)</i>	A context-specific question that asks "what will the impact of some activity/aspect of the development be on some element of the visual, aesthetic or scenic environment?"
<i>Key issue</i>	An issue raised during the scoping process that has not received an adequate response and which requires further investigation before it can be resolved.
<i>Landscape integrity</i>	The relative intactness of the existing landscape or townscape, whether natural, rural or urban, and with an absence of intrusions or discordant structures.
<i>Receptors</i>	Individuals, groups or communities who are subject to the visual influence of a particular project. Also referred to as viewers, or viewer group.
<i>Sense of place</i>	The unique quality or character of a place, whether natural, rural or urban. Relates to uniqueness, distinctiveness or strong identity. Sometimes referred to as <i>genius loci</i> meaning 'spirit of the place'.
<i>Scenic corridor</i>	A linear geographic area that contains scenic resources, usually, but not necessarily, defined by a route. See also <i>view corridor</i> .
<i>Scenic route</i>	A linear movement route, usually in the form of a scenic drive, but which could also be a railway, hiking trail, horse-riding trail or 4x4 trail.
<i>Stakeholders</i>	A subgroup 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 includes the proponent, authorities and all interested and affected parties.
<i>View catchment area</i>	A geographic area, usually defined by the topography, within which a particular project or other feature would generally be visible. Sometimes called the visual envelope.
<i>View corridor</i>	A linear geographic area, usually along movement routes, that is visible to users of the route.
<i>Viewpoint</i>	A selected point in the landscape from which views of a particular project or other feature can be obtained.
<i>Viewshed</i>	The outer boundary defining a view catchment area, usually along crests and ridgelines. Similar to a watershed.
<i>View shadow</i>	An area within the view catchment visually obscured from a particular project or feature by the topography, vegetation or buildings.
<i>Visual absorption capacity</i>	The ability of an area to visually absorb development as a result of screening topography, vegetation or structures in the landscape.
<i>Visual exposure</i>	The relative visibility of a project or feature in the landscape. See also <i>zone of visual influence</i> .
<i>Zone of visual influence</i>	An area subject to the direct visual influence of a particular project.

ACRONYMS

<i>BPEO</i>	Best Practicable Environmental Option
<i>DEA&DP</i>	Department of Environmental Affairs and Development Planning
<i>DEAT</i>	Department of Environmental Affairs and Tourism
<i>DWAF</i>	Department of Water Affairs and Forestry
<i>DTM</i>	Digital terrain model
<i>ECO</i>	Environmental Control Officer
<i>EIA</i>	Environmental impact assessment
<i>EMP</i>	Environmental Management Plan
<i>GIS</i>	Geographic information system
<i>I&AP</i>	Interested and affected party
<i>IDP</i>	Integrated Development Planning
<i>SDF</i>	Spatial Development Framework
<i>TOR</i>	Terms of reference
<i>VAC</i>	Visual absorption capacity
<i>VIA</i>	Visual impact assessment
<i>VRM</i>	Visual resource management
<i>ZVI</i>	Zone of visual influence

APPENDIX B: MODEL TERMS OF REFERENCE FOR SPECIALIST INPUT

Terms of reference for specialist input should include the following elements:

- 1) Project description
- 2) Overview of EIA process and timeframes
- 3) Specific issues and information requirements to be addressed by the specialist
- 4) Key sources of information
- 5) Assumptions, limitations and uncertainties
- 6) Level of input or assessment required, and approach to be used
- 7) Requirements to attend meetings and workshops
- 8) Requirements to liaise and exchange information with other specialists, including list of other specialists on the team
- 9) Protocol for stakeholder engagement
- 10) Report template providing structure of contents, formatting styles and standard terminology (including impact assessment criteria if applicable)
- 11) Clarification of review and integration process
- 12) Requirements for specialist sign off on the specialist report and inputs to integrated reports
- 13) Summary of tasks, deliverables and due dates
- 14) Budget and payment schedule, including penalty clause for late delivery
- 15) Confidentiality agreement
- 16) Protocols for communication with outside parties during the project