

**THE QUALITY OF ENVIRONMENTAL IMPACT REPORTS FOR PROJECTS WITH THE
POTENTIAL OF AFFECTING WETLANDS.**

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ABBREVIATIONS

DEAT: Department of Environmental Affairs and Tourism

DME: Department of Minerals and Energy

DWAF: Department of Water Affairs and Forestry

EIA: Environmental Impact Assessment

EIR: Environmental Impact Report

NGOs: Non-Governmental Organisations.

ABSTRACT

Listed development activities, which may have a substantial detrimental effect on the environment require an Environmental Impact Assessment (EIA). One of the important elements of the EIA process is the submission of a scoping report and/or an environmental impact report (EIR) to the relevant government department and to, specialist and interested and affected parties for review, in order to determine whether the report is adequate and/or whether a greater quantity of information is required before a decision for project approval can be made. Information available in the reports to decision-makers with regard to developments with the potential of affecting wetlands can play a significant role regarding the protection and/or destruction of wetlands. The acceptance of the assessments reports after the authority review process depends, inter alia, upon the quality of the report. However, the current DEAT guideline document on EIA regulations (DEAT, 1998a) does not provide specific guidance to EIA practitioners in considering wetlands within the current EIA, nor any guidance on what a good EIA should include for projects that have the potential of impacting on wetlands, as observed with the World Bank guideline document on EIA and wetlands. Hence, this study aimed at assessing the quality of the EIA assessment reports of four projects with the potential of impacting on wetlands. The objectives of the study included the review by independent reviewers of the quality of four-selected impact reports using a checklist, analysis of the review process results and provision of recommendations to improve the quality of environmental impact reports for projects with the potential of impacting on wetlands.

Based on the review results it is concluded that:

- The four reports were rated as satisfactory despite some omissions and/or inadequacies observed.

- The identification and evaluation of impacts, which forms the core area of the EIA, process was weakly performed.
- The review method is fairly robust and consistent/reliable.

The following were recommended:

- The availability for and use of a quality review checklist by EIA practitioners and authorities as an additional tool to the EIA regulations (DEAT 1997), and the Integrated Environmental Management series (DEAT, 2002) can further improve the quality of the reports for projects with the potential of affecting wetlands.
- The availability for and use by EIA practitioners of a wetland review checklist will assist in ensuring that all key aspects are addressed before submission to the relevant authority i.e. the report is scientifically and technically sound; the report is clearly and coherently organised and presented so that it can be understood and that it has addressed all the important issues to make a decision about the proposed development. This will further assist in fast-tracking the approval process usually delayed by the request of additional information from the applicant as a result of inadequate reports.
- Regular use of the review checklist by EIA practitioners and authorities for ascertaining the quality of the environmental impact reports will contribute to a baseline of EIR quality for evaluation of Wetlands EIA practice under the new regulations due in 2005.

OPSOMMING

Omgewingsinvloedbepalings (OIB) word vereis vir gelyste ontwikkelings aktiwiteite wat 'n nadelige invloed op die omgewing mag hê. Een van die belangrikste elemente van die OIB-proses is die indien van 'n Omvangbepalings- of Omgewingsinvloedverslag aan die betrokke owerheid en ook aan spesialiste en belanghebbende en geïnteresseerde partye vir evaluering, om vas te stel of die verslag voldoende is en of meer inligting benodig word voordat 'n beslissing vir projekgoedkeuring gemaak kan word. Die inligting wat in die verslag aan besluitnemers beskikbaar is ten opsigte van ontwikkelings met die potensiaal om vleilande te affekteer, kan 'n beduidende rol speel in die beskerming of vernietiging van vleilande. Die aanvaarding van die verslag na afloop van die owerheid se evalueringproses hang af, *inter alia*, van die kwaliteit van die verslag. Die huidige OIB-riglyndokument (DEAT, 1998a) verskaf egter nie spesifieke riglyne aan OIB-praktisyne aangaande vleilande nie, en verskaf ook nie enige riglyne oor wat 'n goeie OIB-verslag behoort te bevat waar die moontlikheid bestaan dat die projek negatief op vleilande mag impakteer nie, soos wel waargeneem in die Wereldbank se riglyndokument vir OIB en vleilande. Gevolglik het hierdie studie dit ten doel gestel om die kwaliteit van vier OIB-verslae van projekte wat die potensiaal het om vleilande negatief te impakteer, te evalueer. Die doelwitte van die studie sluit in 'n evaluering van die verslagkwaliteit deur onafhanklike evalueerders m.b.v. 'n stiplys, 'n analise van die evalueringresultate en aanbevelings ter verbetering van verslagkwaliteit vir vleilandprojekte.

Op grond van die evaluering is die slotsom gemaak dat:

- Die vier verslae is bevredigend geëvalueer, ten spyte van enkele weglatings of tekortkominge.

- Die identifikasie en evaluasie van impakte, die kern van die OIB-proses, is relatief swak uitgevoer.
- Die evalueringsmetode is relatief robuust en betroubaar.

Die volgende aanbevelings word gemaak:

- Die beskikbaarheid en gebruik van 'n kwaliteitsevalueringstiplys deur OIB-praktisyns en owerhede as 'n addisionele hulpmiddel tot die OIB regulasies (DEAT 1997) en die Geïntegreerde Omgewingsbestuurreek (DEAT, 2002) kan die kwaliteit van OIB-verslae vir vleilandprojekte verder verbeter.
- Die beskikbaarheid en gebruik van 'n kwaliteitsevalueringstiplys deur OIB-praktisyns kan bydra maak om te verseker dat alle sleutelaspekte aangespreek is voordat die verslag aan die bekwame owerhede voorgelê word, nl. dat die verslag wetenskaplik en tegnies aanvaarbaar is, dat die verslag duidelik en samehanged georganiseer en aangebied is sodat dit verstaanbaar is en al die belangrike sake aangespreek ten einde 'n ingeligte beslissing te maak ten opsigte van die beoogde ontwikkeling. Dit sal verder help om die goedkeuringsproses te bespoedig, welke proses dikwels vertraag word deur die aanvra van addisionele inligting a.g.v. 'n tekort in die aanvanklike verslag.
- Gereelde gebruik van die evalueringstiplys deur OIB-praktisyns en owerhede om die kwaliteit van die verslae te bepaal sal bydra tot 'n basislyn van OIB kwaliteit vir evaluasie van vleiland OIB-praktyk kragtens die nuwe OIB-regulasies wat teen die einde van 2005 of begin 2006 verwag word.

PREFACE

I. PROBLEM STATEMENT

There is an international and national concern for the conservation and sustainable use of wetlands, given their important ecological roles and in recognition of past and present stress on wetlands by human activities. Unfortunately, despite the benefits they offer (Bardecki 1984, Furter 2003, Odum 1983, Kotze 2000), wetlands count amongst the most threatened ecosystems in the world. The reasons for wetland losses and associated declines in biodiversity and ecosystem function include pollution, waste disposal, mining, ground water abstraction, urbanisation, deficiency in planning concept, policy deficiencies and institutional weakness (Barbier et al, 1997; Dugan, 1994). In South Africa it has been estimated that more than 50% of the wetlands ecosystems have been lost mainly through agricultural development and poor land management (DEAT, 1999; Walmsley, 1998). Those that remain constitute the country 's most threatened natural areas. South Africa has a reason to conserve its remaining wetlands, taking into consideration that is a semi-arid and a water scarce country.

In South Africa EIA is a legal requirement for a specified list of activities, which may have a detrimental effect on the environment (DEAT, 1997) or those projects that occur in the list of environments (DEAT, 1992). The existing guideline document (DEAT, 1998a) on the 1997 EIA regulations (currently under amendment) focuses mainly on the South African EIA process in general and less prescriptive on the report content in order to assist those involved in decision-making. The information available in the environmental impact report (EIR) to decision-makers with regard to developments with the potential of impacting on wetlands has a large influence on the extent of wetland protection and/or destruction

One of the mechanisms developed abroad (e.g. Canada and the World Bank) in an effort to protect these invaluable ecosystems is the use of a guidance document for environmental impact assessment (EIA) practitioners on the use of EIA for projects likely to affect biodiversity including wetlands (Canadian Environmental Assessment Agency, 1996, World Bank, 1997, World Bank 2002). Furthermore, the Ramsar Convention has developed a guideline document recommending that their member Parties include wetlands and biodiversity-related issues respectively into the EIA legislation and/or process (Ramsar Convention, 2002; Ramsar Convention, 2004). The guideline documents assist the EIA practitioners to highlight potential impacts likely to be generated and to indicate the type and scope of assessment and environmental planning and management. The DEAT guideline document on EIA regulations does not provide specific guidance to EIA practitioners on specific issues like wetlands, nor any guidance on what a good EIA should include for projects that have the potential of impacting on wetlands, as observed with the World Bank guideline document on EIA and wetlands. Hence the research reported here.

II. AIMS AND OBJECTIVES

Aim

The aim of this study is to assess the quality of the environmental impact reports for projects likely to affect wetlands, and to interpret the results in terms of EIA effectiveness for wetlands.

Objectives

The study has the following objectives:

- i. To review by independent reviewers the quality of four selected environmental impact reports using a checklist;

- ii. To analyse the results of the review process; and
- iii. To provide recommendations to improve the quality of environmental impact reports for projects likely to affect wetlands.

III. STRUCTURE OF THE DISSERTATION

This dissertation is in article format. The format used is that required by the journal Water SA for the submission of a manuscript for publication, with one exception: i.e. tables and figures are inserted in the text rather than as appendices, for improved user friendliness. Following the abstract and the preface the structure of the dissertation will be as follows:

- **Chapter 1**
Provides background information on wetlands.
- **Chapter 2**
Provides background on EIA process in general and South African EIA process.
- **References.** Provides for references referred to in the abstract, preface and chapters 1 and 2.
- **Chapter 3 is the manuscript and consists of the following:**
 - Article abstract:** Provides brief information about the aim of the study, results and conclusions of the study.
 - **The introduction:** Provides an overview on wetlands, the EIA process in South Africa the problem statement leading to the study and the aim of the study.
 - **Materials and Methods:** Provides information on the case studies used, the concept of the Lee Colley review model, the development of a review checklist, the review methodology applied and the review process.
 - **Results and Discussion:** Presents the results of the

quality review of the EIRs, interpretation thereof, and the discussion of the results.

- **Conclusions and Recommendations:** Provides conclusions and recommendations reached from the results of the quality review.
- **References:** Provided according to the style stipulated by the journal *Water SA*.
- **Appendices I to VI:** Quality Review checklist and Review Results.

CHAPTER 1: INTRODUCTION TO WETLANDS

1.1. DEFINITION OF WETLANDS

Wetlands are complex ecosystems, which form an interface between terrestrial and aquatic habitats. The Ramsar Convention of which South Africa is a member party, defines in the text of the Convention, Article 1.1, wetlands as "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tides does not exceed six metres." (Ramsar Convention, 1994). The definition, broad as it is recognises the often, dynamic nature of wetlands and allows the consideration of the place that they have within the broader context of the landscape. This is crucial for wetland management, as it needs to take into account the hydrological linkages, temporal cycles and changes, and the terrestrial components of wetlands (Silvius et al, 2000).

1.2. WETLANDS BENEFITS

Wetlands have been referred as "kidneys of the landscape", because of the functions they perform in the hydrological and chemical cycles (e.g. groundwater replenishment, water purification, sediment and nutrient retention, flood control), and as "biological supermarkets" because of the extensive food webs and rich biodiversity they support (Babier et al, 1997). Features of a wetland system include components, functions and attributes, and it is a combination of all three that make a wetland important to society. Components are the biotic (fish, plants, wildlife) and non-biotic (water, soil and air) features. The interactions between the components express themselves as functions, which include nutrient recycling, erosion control, nutrient retention and sediment retention, the exchange of water between the surface and groundwater and the surface and the atmosphere and flood control. It is important to note that

not all wetlands perform the same functions or produce the same kind of benefits to humans (Barbier et al, 1997).

Society can benefit both indirectly and directly from wetlands (Bardecki, 1984; Mondri Wetlands Project, 2003). The indirect benefits offered to society by wetlands include the following:

- Flood reduction and stream flow regulation: Wetlands act as sponges, they provide for storage of water during periods of high flow, allowing the water to seep out gradually, augmenting low periods in stream flow thus playing an important role in flood control.
- Groundwater recharge and discharge: Wetland areas where groundwater is discharging are often referred to as seepage wetlands because they are places where the water seeps slowly out into the soil surface.
- Water purification: Wetlands are natural filters, helping to purify water by trapping pollutants (i.e. sediment, excess nutrients [most importantly nitrogen and phosphorus] heavy metals, disease-causing bacteria and viruses and synthetic organic pollutants such as pesticides). Thus, the water leaving a wetland is often purer than the water, which enters the wetland (Kotze, 2000).
- Erosion control by wetland vegetation: Shoreline wetlands provide protection from erosion. Wetland vegetation is generally good at controlling erosion by: (1) reducing wave and current energy; (2) binding and stabilizing the soil; and (3) recovering rapidly from flood damage.
- Biodiversity support: Wetlands particularly shallow open water and marshes, provide food, shelter and spawning sites for a wide variety of fish and invertebrate species. There are many different plants and animals that depend on wetlands, and without the habitat that wetlands provide, they would not be able to survive. Several of these species, such as the White-winged Flufftail and Wattled Crane are threatened in South

Africa.

- Chemical cycling: Wetlands, particularly peatlands serve as carbon sinks (stores). The decomposition of organic matter is slowed down by the anaerobic conditions present in wetlands. This results in wetlands trapping carbon as soil organic matter instead of releasing it into the atmosphere as carbon dioxide.

The direct benefits offered to society by wetlands include the following:

- Livestock grazing: Wetlands, especially temporarily and seasonally waterlogged areas, may provide very valuable grazing-lands for domestic and wild grazers.
- Fibre for construction and handcraft production: Wetland plants are used for providing valued material for products such as mats, baskets and paper (produced from papyrus, which is a sedge). There are several plant species, which are suitable and are used extensively for making handcrafts in South Africa, such as the rush (*Juncus kraussii*), and the sedges (*Cyperus latifolius* and *Cyperus textiles*). The common reed (*Phragmites australis*) is used for construction purposes. Some wetland plants are also collected for medicines.
- Valuable fisheries: Although the value of wetlands for fisheries varies greatly, floodplain wetlands and estuaries are typically valuable in the production of fish for human consumption, e.g. in the Pongola floodplain in Northern KwaZulu-Natal.
- A valuable source of water: Because water is stored in wetlands, they provide sites for the supply of water for domestic and livestock use, as well as for irrigation.
- Economically efficient wastewater treatment: Natural wetlands are sometimes purposefully used to treat polluted water and many artificial wetlands are being created for wastewater treatment.
- Aesthetics and nature appreciation: Although wetlands which fringe

| SUB-CATEGORY | BPSS | MM-RS | MM-RDW | DISNR |
|--|------|-------|--------|-------|
| 2.1.8. There should be a level of agreement between the environmental consultant and the specialist report(s) regarding the assessment of the potential impacts and conclusions reached. | | | | x |
| 2.2.1. The project must be divided into four phases (Pre-construction-, Construction-, Operational- and Decommissioning phase) from which impacting activities can be identified. | | x | x | x |
| 2.2.2. All the possible impacts from each phase must be identified. | | x | | x |
| 2.3.1. There should be a genuine attempt to contact the general public and special interest groups, this must be done through a notice/ advertisement in the local or national paper, an example of the notice must be included in the report. | | | x | |
| 2.3.2 In the report there must also be a description of the onsite notice that was placed on the proposed development site. | | x | x | |
| 2.3.8 A list of issues that were identified as being of concern to interested and affected parties must be included. | x | x | | x |
| 2.3.9. Notification criteria, which entails the reason for their participation in the various stages of the process, where the report can be obtained, where it can be examined (libraries), where and to whom the comments on such reports should be sent to, the specified period for receiving comments must be included. | | x | | x |
| 2.4.2. Where possible, predictions of impacts should be expressed in measurable quantities with ranges and/or confidence limits as appropriate (with the help of the criteria provided in the guideline document e.g. Nature of the impact, Extent, Duration, Intensity and Probability) | | | | x |
| 2.5.2. The significance of an impact should be assessed; account should be taken of the nature, duration, intensity, extent and probability of the impact in conjunction with national and local societal values. | | x | | |
| 2.5.3 A description of the proposed method of assessing the significance of the impacts should be given thus the rating and ranking of impacts to attach values to impacts. | | x | | x |
| 2.5.4. It should be indicated where there are uncertainties, or where data could not be obtained. | | | | x |
| 3.1.1. The method used to identify the alternatives must be clearly described for example informal discussions with authorities, overlay maps that indicate different environmental and socio-economic factors, brainstorming or the Delphi technique. | | | | x |
| 3.1.3. A minimum of two alternatives should be investigated in further detail. | x | | | x |
| 4.1.2. Information should be logically arranged in sections or chapters and the whereabouts of important data should be signalled clearly. | x | | | |