

A quality review of environmental impact assessment reports for lodge development in Botswana's Okavango Delta

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PREFACE AND ACKNOWLEDGMENTS

The stated aim of Botswana's Environmental Assessment Act is, *inter alia*, to provide for assessment, mitigation and monitoring of potential environmental impacts of planned developmental activities; thus giving effect to the National Conservation Strategy. This research reflects on the implementation of this Act by environmental practitioners, using development of tourism lodges in the Okavango Delta as a case study. The research possibly constitutes the first systematic exploration of the quality of EIA reports in Botswana.

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ABSTRACT

As part of its domestic and international obligations, and in line with global trends, Botswana has introduced Environmental Impact Assessment (EIA) as the foremost tool for realising sustainable development. This process has been mandatory in the country since the year 2005, and is governed by the Environmental Assessment Act. However, despite over 17 years of enforcement, published and replicable substantive evaluation of this policy tool is near-absent. Research on EIA effectiveness seeks to determine whether EIA achieves its intended goals. Quality-review of EIA reports ascertain whether information reaching authorities is sufficient for decision-making. Findings from reviews in other countries reveal that although EIA information can generally be said to be satisfactory, descriptive aspects of EIA reports tend to be better performed, generally concealing the technical inadequacy of the content. Commentary on EIA efficiency in Botswana is based on perceptions, rather than systematic review. This desktop research, therefore, sought to address this knowledge gap by evaluating the quality of 31 EIA reports for lodge development in Botswana's Okavango Delta. The specific objectives were to (1) identify the overall quality of EIA reports approved between 2013 and 2021 for luxury lodges in the area, (2) compare performance by Review Area, and (3) perform a longitudinal assessment on the overall quality of the reports. The research results would thus potentially inform policy, legislative and institutional reform, as well as continual improvement of the policy tool. The review used the Lee and Colley package, adapted to the legal requirements of the Botswana Regulations, together with best practice guidelines. The resultant package thus had 4 Review Areas, spanning 17 Categories and 75 Sub-categories. For Botswana, research on substantive EIA effectiveness is a fledgling activity, and hence an internationally-important multi-designated site, the Okavango Delta, was selected as the first location to conduct a quality review to determine this effectiveness of EIA in the country. Findings revealed the quality to be borderline-unsatisfactory with nearly four in every five reports being unsatisfactory, though quality had improved between 2013 and 2021. As seen in other countries, quality was better in descriptive than in analytical aspects of the EIA reports.

Keywords:

EIA, EA, wetland, protected area, substantive, effectiveness

TSHOBOKO

Lefatshe la Botswana le itlamile go somarela tikologo ka go diragatsa tsamaiso ya EIA. Tsamaiso e, e e simolotsweng ka ngwaga wa 2005, e sekaseka ditlamorago tsa ditlhabololo mo tikologong. Ere le fa go na le dingwaga di feta lesome le bosupa tsamaiso e e ntse e salwa morago, ga gona dipatisiso dipe tse di sekasekileng fa ele ruri tsamaiso e e thusa mo go tlhokomeleng tikologo. Mo nakong ya gompiano, go lebega baeledilotlhoko ba dirisa maikutlo go sekaseka bomosola ja EIA mo tikologong, gona le go dirisa mekgwa e e tsepameng. Ka jalo, patlisiso e, e ne e itebagantse le go kanoka bomosola ja tsamaiso ya EIA mo Botswana e dirisa boitsaanape jo bo tlhomamisitsweng.

Maduo a patlisiso e, a ka thusa boeteledipele le bomaitsaanape ba EIA ka megopolo ya tokafatso ya EIA. Dipatlisiso tsa mohuta o, di sekaseka mekwalo ya EIA go kanoka ha ele tsa boleng jo bo ka thusang batsaatshwetso ka ditlamorago tsa ditlhabololo tse di akanyeditsweng. Dipatisiso tse di tshwanang le tse, tse di dirilweng mo lefatsheng ka bophara, go balelwa le mo kgaolong ya borwa ja Aferika, di supile fa bomaitsaanape ba rata go dirisa mekgwa o o simolotsweng ke bakwadi ba ba bidiwang Lee le Colley go kanoka mekwalo ya EIA. Bomaitsaanape bao, ba lemogile fa bontsi ja mekwalo ya EIA ele ya boleng jo bo amogelesegang. Le fa go ntse jalo, go lemogilwe fa bakwadi ba okola fela fa godimo fa ba kwala di-EIA. Tshekatsheko e, e ne e lebile mekwalo ya EIA e e diretsweng mafelo a bojanala ko makgobokgobong a Okavango. Makgobokgobo a, a botlhokwa thata mo lefatsheng ka bophara, ka jalo ke tikologo e e tlhokang tshomarelo e e kwa godimo.

ABBREVIATIONS AND ACRONYMS

AIA	– Archaeological Impact Assessment
BAR	– Basic Assessment Report
BEAPA	– Botswana Environmental Assessment Practitioners Association
BOBS	– Botswana Bureau of Standards
CBD	– United Nations Convention of Biological Biodiversity
CBNRM	– Community Based Natural Resource Management
DEA	– Department of Environmental Affairs
DFRR	– Department of Forestry and Range Resources
DNMM	– Department of National Museum and Monuments
DoT	– Department of Tourism
DWMPC	– Department of Waste Management and Pollution Control
DWNP	– Department of Wildlife and National Parks
DWS	– Department of Water and Sanitation
EclA	– Ecological Impact Assessment
EA	– Environmental Assessment
EAP	– Environmental Assessment Practitioner
EAPB	– Environmental Assessment Practitioners' Board
EIA	– Environmental Impact Assessment
EIS	– Environmental Impact Statement
EMP	– Environmental Management Plan
GDP	– Gross Domestic Product
GIS	– Geographic Information System
IBA	– Important Bird Area
KAZA-TFCA	– Kavango–Zambezi Transfrontier Conservation Area
MENT	– Ministry of Environment Natural Resource Conservation and Tourism
MET	– Ministry of Environment and Tourism
NEPA	– National Environmental Protection Agency
ODRS	– Okavango Delta Ramsar Site

ODWHS	– Okavango Delta World Heritage Site
ODMP	– Okavango Delta Management Plan
OKACOM	– The Permanent Okavango River Basin Water Commission
PA	– Protected Area
SADC	– Southern African Development Community
SDG	– Sustainable Development Goal
SI	– Statutory Instrument
ToR	– Terms of Reference
UN	– United Nations
UNCCD	– United Nations Convention of Combatting Desertification
UNDP	– United Nations Development Programme
UNEP	– United Nations Environmental Programme
UNEP-WCMC	– UNEP World Conservation Monitoring Centre
UNESCO	– United Nations Educational, Scientific and Cultural Organization
UNFCCC	– United Nations Framework Convention on Climate Change
WHC	– UNESCO World Heritage Convention
WMA	– Wildlife Management Area

KEY DEFINITIONS

Environment: The physical, ecological, archaeological, aesthetic, cultural, economic, institutional, human health, and social aspect of the surroundings of a person. (EA Act).

Tourism: All activities of persons travelling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes. (Tourism Policy).

Development: A multidimensional undertaking to achieve a higher quality of life for all people. (EA Act).

Wetland: Areas of marsh, fern, 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 the low tides does not exceed six metres. (Ramsar Convention).

Protected Area: A geographically defined area which is designated or regulated area to achieve specific conservation objectives in the areas of wildlife, forests, cultural heritage, monuments, etc. An area under any form of legal protection, e.g., under the Wildlife Conservation Policy (as read with the Wildlife and National Parks Act (CAP. 38:01)), the Forestry Act (CAP. 38:03), or the Monuments and Relics Act (CAP. 59:03). (EA Act).

Environmental Impact Assessment: The process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made. (EA Act).

Environmental Assessment Practitioner: A professional whose work predominantly involves relevant Environmental Assessment work. (EA Act).

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CHAPTER 1 INTRODUCTION

This chapter introduces the research by providing background and context (section 1.1) as well as substantiation of the problem statement (section 1.2) that underpins the research aim and objectives (section 1.3). The scope of the research as well as the potential contribution to knowledge is also explained (section 1.4 and 1.5, respectively). The final section introduces the structure of the dissertation to assist the reader in navigating the different chapters and sections in relation to the research aim and objectives (section 1.6).

1.1 Background

In the twenty-first century, it has become a generally accepted notion that all human development has to be undertaken in a sustainable manner. The sustainability of human development is a concept popularised by the Brundtland Report (Brundtland & Khalid, 1987). The Brundtland report's (1987) definition of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". According to the UN Agenda for Development, "economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development". In pursuit of sustainability, various principles are espoused. Among these are the Preventive, Precautionary, Participatory, Transparency, and Polluter Pays Principles. To give effect to these principles and sustainable development, Environmental Impact Assessment (EIA) was developed as a specific environmental policy instrument that is now legally mandated in every country (Yang, 2019; Bond, Pope, *et al.*, 2020). EIA is internationally recognised as the most successful and widely applied environmental policy instrument.

In Botswana, mandatory EIA has been in place since 2005 (Segosebe, 2020). Botswana is blessed with natural resources and rich biodiversity, with the Okavango Delta being the jewel in Botswana's biodiversity and tourism crown. In line with the country's legislation, developments in a key wetland area such as the Okavango Delta (which is also the only Ramsar site in the country) trigger project EIA studies. This is because this area, in addition to being a wetland of international importance, is a biodiversity-rich formally protected area, part of a transboundary conservation area, as well as a site of key cultural heritage. This pristine area is a hotspot for nature-based tourism, thus vulnerable to degradation of the very natural resource that drives the region's economy. Hence, a reason that EIA is considered a key tool in aiding sound environmental management of the area.

As a predictive tool, EIA is used to aid decision-making when evaluating proposed activities which are likely to have a significant environmental impact (Wylie, Bhattacharjee & Rampedi, 2018). The principle of EIA is that activities with likely impact are subjected to systematic assessment to

identify ways in which the net impact would be assured to tolerable levels (Ridgway *et al.*, 1996). EIA is normally an activity regulated by government, where environmental authorities determine whether the proposed activity may proceed (or how it may proceed). EIA comprises the planning prior to implementation, so that the impact can be addressed in a proactive manner.

The design of EIA also democratizes the decision-making process as not only are the Participatory and Transparency principles observed, but also in that interested and affected parties (I&APs) are afforded the opportunity to be heard (Murombo, 2008; Mathope & Toteng, 2015). As noted by some authors, the goal is to increase activity efficiency, and improve environmental sustainability (Wylie, Bhattacharjee & Rampedi, 2018). Wylie *et al.* further note that although EIA may not alter the final decision (whether the project commences or not), it might influence the way in which the activity will be carried out.

In spite of stated objectives of EIA, implementation challenges are common cause. Boshoff observes that the EIA system does not work as expected (Boshoff, 2019a). Saidi (2010) notes that EIA approvals have simply become a red-tape exercise to secure development permits, rather than a meaningful process to inform decision-making. This has led to a criticism that EIA may be completed even when a proposed activity is clearly wrong (Wylie, Bhattacharjee & Rampedi, 2018), and that implementation of EIA is usually flawed in that the step is usually embarked on at advanced stages -by the point which irreversible decisions have been made.

Some researchers argue that EIA does not aid the developer and is never used/considered; as bleakly observed by Ifflander and Soneryd, "EIA has become a means of ensuring employment of consultants and civil servants rather than aiding in sound environmental management" (2014). Exorbitant but unjustified charges have reportedly become a *modus operando* in the practice (Saidi, 2010). Other scholars similarly note that EIA is seemingly merely an administrative hurdle to be crossed with minimum cost (Retief, 2007).

In many countries, the practice of EIA continues to be shrouded by resistance from various sections of society, owing to its associated costs and time delays (Retief & Chabalala, 2009). In Botswana, local criticism includes the concern that only EAPB registered practitioners are allowed to submit EIA reports, hence making a legal endorsement for a captured market, thus an excuse to charge steep prices to developers regardless of the quality of the service provided. Other criticisms of current EIA regulation within the country include the exclusion of developments by the military and security forces where security may be compromised -in spite of their acknowledged potential environmental impact (Tshwene-Mauchaza, 2013).

The need to establish whether EIA output justifies its generally-accepted challenges has led to a research focus on EIA effectiveness (Sadler, 1996; Morrison-Saunders & Retief, 2012; Alberts *et*

al., 2020). Various studies exist in several regions of the world that focus on determining EIA effectiveness, including in Southern African countries (Sandham, Retief & Alberts, 2022). A key dimension of effectiveness is the so-called 'substantive effectiveness', which evaluates the extent to which EIA contributes to the EIA objectives, namely environmental protection and ultimately sustainable development (Kolhoff *et al.*, 2016; Mubanga & Kwarteng, 2020), realised through informed and accountable decision-making (IAIA, 1999). One means by which substantive effectiveness is measured is by determining the quality of inputs to the decision-making process as reflected in the EIA reports. The rationale being that good quality inputs would lead to better decisions and ultimately more effective outcomes. Unlike in its neighbouring countries, despite nearly two decades of practice, published research exploring EIA 'substantive effectiveness' in Botswana is non-existent, especially in regions with significant biodiversity and tourism value such as the Okavango Delta.

1.2 Problem statement and rationale for the research

Conducting EIAs for development in environmentally sensitive areas is imperative to realising environmental safeguards (Hallatt, Retief & Sandham, 2015; Swanepoel *et al.*, 2019). These include areas with high biodiversity value as well as formally protected areas which have been an important focus of emerging research (Alberts, Retief, Cilliers, *et al.*, 2021). As a wetland of international importance (Department of Environmental Affairs, 2008), a World Heritage Site (Matswiri, 2017), a Protected Area (Republic of Botswana, 1992), part of a transboundary conservation area, and biodiversity-rich region (Ratsie *et al.*, 2011), the Okavango Delta triggers many criteria for requiring EIA studies for developments in the area. Thus, for nearly two decades, numerous mandatory EIAs have been conducted for various projects in the delta.

Notably, most of the EIAs that have been undertaken in the Okavango Delta are for the development of tourism infrastructure, a sector which happens to be the predominant activity in the area. Effectiveness of EIA is, however, still a contentious issue the world over (Retief, 2007; Retief & Chabalala, 2009; Alberts, Retief, Roos, *et al.*, 2021). Studies on EIA effectiveness, including in Southern Africa, have demonstrated that inadequacies still exist in the quality of EIA reports and the ultimate implementation of EIA (Nakwaya-Jacobus *et al.*, 2021; Sandham *et al.*, 2008, 2013; Sandham & Pretorius, 2008; Tchakounteu, 2021). However, similar systematic studies are not available in Botswana and therefore investigations on EIA report quality is needed, which is the focus of this research.

1.3 Research aim and objectives

In view of the above problem statement, the overall aim of this research was to evaluate the quality of EIA reports for lodge development in Botswana's Okavango Delta. The research thus focuses on report quality as a component of the substantive dimension of EIA effectiveness. The specific objectives of the research were;

1. To identify the overall quality of environmental assessment reports approved between 2013 and 2021 for lodges in Botswana's Okavango Delta,
2. To compare the relative quality of review areas in the reviewed reports, and
3. To perform a longitudinal assessment on the overall quality of the reviewed reports over an eight-year period (2013 to 2021).

1.4 Scope of the research

This research comprised document analysis, specifically through the report quality review method as an indicator of EIA substantive effectiveness. The report quality-review method used was the Lee and Colley review package (Lee *et al.*, 1999). This package was adapted to the legal requirements of the Botswana EA Regulations (Republic of Botswana, 2012). In addition, best practice guidelines also informed the development of the method to enable determination of quality beyond legal compliance. Experiences from research in similar settings further guided the methodology, being reviews on wetland-affecting projects (Sandham, Moloto & Retief, 2008), biodiversity-rich areas (Hallatt, Retief & Sandham, 2015), tourism facilities (Wylie, Bhattacharjee & Rampedi, 2018) and protected areas (Sandham *et al.*, 2020).

To focus the research, only reports for luxury lodges approved between 2013 and 2021 were reviewed. These were reports that fell into Botswana's 2010 Environmental Assessment (EA) regime, as only certified practitioners have been allowed to submit reports since 1 May 2013. In addition, the EA Act was amended towards the end of 2021 with somewhat altered procedures, hence the cut-off year. A total of 31 reports were reviewed, with an effort to be inclusive of various practitioners to enable generalisation of findings. Rather than representative sample, replication logic was applied as recommended for research of this nature (Yin, 2009).

1.5 Potential contribution of the research

This research provided an opportunity to reflect on the prevailing state of EIA report quality in Botswana, and more specifically for tourism development in the world-renowned Okavango Delta. Quality Review is only one dimension against which EIA effectiveness could be determined. By examining the pattern in overall quality of environmental assessment reports for lodges in Botswana's Okavango Delta, areas of strength were identified, hence promoting good

performance. By highlighting the relative quality of review areas in the reviewed reports, areas that require improvement were similarly elucidated. Finally, a longitudinal assessment on the overall quality enabled trend analysis for inference on the standard of report quality and whether additional intervention would be required. The research thus possibly constitutes the first empirical review exploring the quality of EIA reports in Botswana, while focusing on tourism in the Okavango Delta as of particular importance.

1.6 Structure and outline of the dissertation

This dissertation follows the following chapter outline;

Chapter 1 deals with the Introduction, where the research background is provided. Also provided is the problem statement and rationale for the research. The research aim and objectives, as well as the scope of the research are presented. Further, the potential contribution of the research to existing knowledge is indicated, which will also form the basis of potential future publications in peer reviewed journals.

The second chapter deals with the literature review. The chapter draws from theory as reflected in key literature that relates to the research. By highlighting existing knowledge, the chapter identifies gaps that the current research seeks to address. The chapter also uses the available literature information to generate predictions and build a case for the scope and design of the research. The chapter also provide the basis for informing the evaluation criteria.

The Methodology chapter reviews the various approaches for realising the research aim and sub objectives. A preferred method is selected and explained for the specific research. This covers the sampling strategy, data collection procedure as well as the data presentation and analysis approaches.

Chapter 4 deals with the research Results. These are presented in line with the research aim and sub objectives introduced in Chapter 1. Quantitative findings and the qualitative patterns noted during data collection are presented here to inform subsequent chapters.

Chapter 5 demonstrates that the aim and sub objectives of the research have been achieved and also makes recommendations to improve report quality. Discussion and Conclusions are drawn from the findings, and also draw from the literature review in Chapter 2 to bring the conclusions into context. Finally, areas of future research are recommended to take the larger EIA effectiveness debate forward beyond the substantive effectiveness and report quality dimension.

CHAPTER 2 LITERATURE REVIEW

This chapter details existing literature on EIA effectiveness. First, an overview of international literature is presented, with increasing focus on Southern Africa. The first subsection (section 2.1) indicates the setting on sustainable development, appreciates the rise of EIA as a policy tool for realising sustainability. Section 2.2 provides a backdrop by chronicling the history of EIA in Botswana and articulating the procedure for environmental applications in the country. This is followed by an appreciation of global literature on EIA effectiveness, noting key work on report quality with increased emphasis on the study country (section 2.3). Thereafter, section 2.4 focuses on the location selected as a case study for the research (Okavango Delta), to provide a backdrop on the reviewed reports. Lastly, section 2.5 highlights the key environmental issues relevant to tourism development, which is the sector selected for the case study.

2.1 Sustainable Development

There exists a suite of policy instruments which individually and collectively contribute to the realisation of sustainable development (Strydom, 2018). Environmental management relies on different approaches, including among others, Command and Control (CaC), Civil, Voluntary, and Fiscal based approaches.

Popular instruments that relate to these approaches include environmental education, Community Based Natural Resource Management (CBNRM), voluntary standards (e.g. ISO 14001), subsidies, taxes, integrated development instruments, Environmental Management Frameworks (EMFs), Strategic Environmental Assessments (SEAs), and Risk Assessment (United Nations Environment Programme World Conservation Monitoring Centre - UNEP-WCMC, 2015). A key CaC instrument is EIA, which is designed to avoid instances where environmental health is traded off in favour of development. This approach is by far the most widely adopted, and relies on policy and legislative instruments to achieve environmental management objectives. Legislated EIA is understood as an instrument geared towards informing decision making on potential negative effect, and thereby direct decision-making to more sustainable outcomes (Bond *et al.*, 2020).

The principle for using EIA as a means of realising sustainable development has been explored by various scholars. Sustainable Development Goals (SDGs) have been acknowledged as the currency for providing guidance towards global sustainability. As noted by Hacking (2018), 'stretched' EIAs can potentially serve as guiding tools and indicators for project-level sustainable development. 'Stretched' means EIA that includes components outside the traditional aspects. Such additional aspects include explicit links between EIA and Strategic Environmental Assessment, Social Impact Assessment (mainstreaming health, gender, economy, human rights and culture), as well as Multi-Criteria Analysis. However, Hacking (2018) was cautious in offering

the various forms of EIA as means to realising sustainable development, noting the prioritization of biophysical issues over socioeconomic issues in current EIA practice; whereas most SDGs are aligned to socioeconomic issues. Furthering Hacking's argument, Morrison-Saunders *et al.* (2019) were, however, more aggressive in advocating for the adequacy of 'stretched' EIA in contributing towards SDGs. The authors clearly indicated how various forms of EIA are aligned to the various SDGs. The arguments of Morrison-Saunders *et al.* (2019) are persuasive, and thus it can be safely acknowledged that EIA should be seen as a tool for realising the SDGs, and ultimately sustainability.

The history of EIA dates to the advent of the National Environmental Policy Act (NEPA), introduced in the United States of America in 1969/1970 following public activism for environmental consciousness (Holland, 1985). As a policy instrument, EIA is recognised under various international conventions and environmental laws such as the Convention of Biological Diversity (CBD) (1992), Convention on Wetlands of International Importance (Ramsar Convention) (1994), United Nations Framework Convention on Climate Change (UNFCCC), World Heritage Convention (WHC) (UNESCO, 1972) and United Nations Convention to Combat Desertification (UNCCD). These International Environmental Conventions generally require or encourage member countries to implement EIA through domestic laws.

Under the CBD, Article 14 requires contracting parties to introduce "appropriate EIA procedures for proposal with potential effects on biodiversity". Article 14 further requires these parties to "provide mechanisms for taking into account the biodiversity impacts of programmes and policies". Principle 17 of the Rio Declaration on Environment and Development which emerged from the 1992 Earth Summit required signatory nations to use EIA for proposed activities that are likely to have significant adverse impact on the environment and are subject to a decision of a competent national authority (Agenda 21). Similarly, under the Ramsar Convention, Recommendation 6.2 in 1996 and Resolution VII.16 in 1999 call upon Parties to incorporate impact assessment into legislative frameworks and ensure that impact assessments are undertaken where appropriate.

From a financial/economic standpoint, developing countries were supported/pressured to implement EIA by funding institutions. Although frowned upon by some, this approach prevents investors from developed countries taking advantage of the lax environmental legislation in developing countries. The World Bank employs the Environmental and Social Framework (The World Bank, 2012a) as a means of realising the environmental sustainability of funded projects. For wetlands in particular, the World Bank has developed best practice guidelines for EIA (The World Bank, 1997, 2002). In developing countries, EIA was thus more externally-driven -rather than being a product of internal activism. As a result, EIA remains a compliance-driven activity in these countries, rather than being perceived as a value-adding instrument (Sandham, Hoffmann

& Retief, 2008). This history has implications of making EIA seemingly imposed –hence the relatively-poor buy-in in the implementing developing countries. Notwithstanding this, all countries within the key economic region in Southern Africa, being the South African Development Community (SADC) region, have since developed their own EIA legislation (Mubanga & Kwarteng, 2020).

2.2 EIA in Botswana

This section provides a backdrop on environmental assessment in Botswana. This is done to inform the data collection and analysis sections. Salient provisions of law are indicated.

In keeping up with international obligations, Botswana developed its National Conservation Strategy in the late 1980s (Republic of Botswana, 1990). Environmental conservation has thus been a conscious concern of Botswana for decades, as signified by the establishment of the National Conservation Strategy (Coordinating) Agency (NCSA) in the early 1990s (Abucar & Molutsi, 1993). However, legal requirements for EIA as a sustainable development tool were largely absent prior to the early 1990s. At the time, EIAs were voluntary and not systematic.

The first EIA in Botswana was for that Soda Ash Plant in Sua Pan, as a requirement of the lead donor. With the adoption of the National Policy on Natural Resource Conservation and Development (Republic of Botswana, 1990) (the National Conservation Strategy) key environmental issues were identified, and means of addressing these issues proposed. Section 7.3 c) of the National Conservation Strategy stated the intent to require professionally-prepared EIAs as far back as 1990, while Section 7.4.5 stated the need for an EIA for new development projects. Thus, EIAs began to pick up for several major projects.

At the turn of the 20th century, instruments that were being used to realise environmental sustainability within the country included self-regulatory environmental instruments, voluntary EIA (e.g. Metsimotlhabe Water Scheme on requirement of the Minister or the financial donor) and donor-required EIA (e.g. Sua Pan soda ash mine EIA) (Segomelo, 1996; Fink, 2000; Moroka & Dichaba, 2010; Maripe, 2012; Koboto, 2017). Accordingly, 16 EIAs were completed on water and mining projects between 1985 and 2001 (Tarr, 2013).

During the period in question, environmental legislation had proliferated within the region. This included South Africa (Environment Conservation Act Regulations of 1997 and National Environmental Management Act in 1998), Lesotho (National Environmental Action Plan of 1989, and Environment Act of 2001), Zambia (Environmental Protection and Pollution Control Act of 1990), Angola (Environmental Framework Law of 1998), eSwatini (Environmental Management Act of 2002), and Zimbabwe (Environmental Management Act of 2002). Botswana is therefore in

similar standing to other countries in the region in terms of having formally legislated EIA as an environmental policy instrument.

2.2.1 Environmental Assessment Act No 10 of 2010 (CAP. 65:07)

In keeping up with regional trends, Botswana passed its maiden environmental assessment legislation in 2005 (Tshwene-Mauchaza, 2013). Although the 2005 Act made provisions for Regulations, these were never promulgated. Although this Act provided an outline of the content of an EIA report, there was initially minimal guidance on the procedure for implementing EIA in the country. In 2009, however, the EIA Guidelines were published to accompany the 2005 Act. Few years later, the Environmental Assessment (EA) Act of No 10 of 2010 (published 2011) (CAP 65:07) was enacted, repealing the 2005 Act. The Regulations provided for by the 2010 Act were gazetted to operationalise the Act. These provided, among other components, the minimum legal requirements in terms of EA report content.

In line with international trends, Botswana adopts, under the EA Regulations, a “listing approach” supported by a “threshold approach”. This is reflected in section 3 of the EA Act. This clause provides for the identification of a list of activities which are likely to cause significant adverse effects on the environment. In relation to this list, an environmental assessment study is mandatory. The same clause also provides for the identification of environmentally vulnerable locations, on which developments are similarly subject to mandatory EIA. Alongside this provision, corresponding thresholds for determining the necessity of an EIA exist. Under Regulation 3 of the EA Act (SI), Schedule 1 gives a list of activities, locations and thresholds for which an environmental statement is required. Among these are; environmentally sensitive areas (paragraph 1), and tourist enterprises on environmentally sensitive areas (paragraph 12), which are of most relevance to the present research.

Section 4(1) of the EA Act forbids anyone from undertaking or implementing an activity which likely to cause significant adverse effects on the environment (or on an environmentally sensitive environment) without prior environmental authorisation. Although under Regulation 5, Form B, provides for use of EMP for projects which were implemented prior to the enactment of the EIA legislation but would have otherwise required a detailed assessment prior to their implementation, it is not otherwise stated in the Act whether the provisions are retrospective.

This current research focuses on EIA reports for lodge development in the Botswana’s Okavango Delta. As previously mentioned, the delta is a wetland of international importance, among other recognitions. Although Botswana’s legislation does not define wetlands (Republic of Botswana, 2001), Article 1.1 of the Ramsar Convention defines wetlands as “areas of marsh, fern, 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 the low tides does not exceed six metres”. This definition is followed under the Wetlands Policy and Strategy. As noted by Sandham *et al.*, wetlands are among the most threatened ecosystems in the world (Sandham, Moloto & Retief, 2008).

In addition to being a Ramsar Site, the Okavango Delta is a World Heritage Site, which means that it contains cultural and natural heritage considered to be of outstanding value to humanity. This is as per the World Heritage Convention designation. It is a cultural and/or natural site of 'Outstanding Universal Value', which is important across countries and generations. According to the main policy on wildlife conservation in Botswana, the Wildlife Conservation Policy of 1986 (WCP), all areas of the Okavango Delta are either fully protected or partially protected. Furthermore, the Okavango Delta lies within the Kavango–Zambezi Transfrontier Conservation Area (KAZA TFCA) which seeks to maintain ecological connectivity through transboundary natural resource management while incorporating socio-cultural and anthropogenic aspects into the conservation management of the area.

Furthermore, the Okavango Delta is a Protected Area, hosting the fully-protected Moremi Game Reserve (NG/28), and a suite of Wildlife Management Areas (WMAs) in the buffer zone surrounding NG/28. WMAs pursue rural development, in mandating the government to provide the necessary control of the wildlife industry to enable citizens to actively participate in wildlife management and utilization. Inevitably, the ecological and hydrological systems found in the delta make it biodiversity hotspot. It is, hence, in observance of the above provisions that the development of lodges triggers both paragraphs 1 and 12 of the EA Act (SI). Given the sensitivity of the Okavango Delta, the development of lodges specifically triggers paragraph 12(b) of schedule 1, “hospitality facility in environmentally sensitive areas, including but not limited to campsites, lodges and hotels”.

In a bid to minimize negative environmental impacts on pristine wildlife areas while maximizing socioeconomic benefits, Botswana’s Tourism Policy (1990) has long been held as the High Value – Low Volume strategy (Magole & Magole, 2011), resulting in what some believe to be a largely underutilised and somewhat stunted tourism development level in most parks and reserves (Saarinen, Moswete & Monare, 2014).

To comply with the EA provisions, the standing procedure is that applications for environmental authorisation are made to the competent authority responsible for the environment, being the Department of Environmental Affairs (DEA) (successor to the NCSA). Under section 6 of the EA Act, as the competent authority, the DEA may recommend that a study be undertaken, or grant an immediate authorisation absent a study. This is informed by the perceived sensitivity of the receiving location and/or magnitude of the proposed development.

Other laws which cross-reference the EA Act include the Monuments and Relics Act (CAP. 59:03) administered the Department and National Museum and Monuments (DNMM), the Waste Management Act (65:06) administered by the Department of Waste Management and Pollution Control (DWMPC), the Department of Water and Sanitation's (DWS) Water Act (CAP 34:01), the Public Health Act (CAP. 63:01) administered by the Ministry of Health and the Department of Environmental Health, the Botswana Energy Regulatory Authority Act (CAP. 74:11) administered by the Botswana Energy Regulatory Authority (BERA), the Tourism Act (CAP 42:09) under the Department of Tourism (DoT), as well the Mines and Minerals Act (CAP. 66:02) under the Department of Mines. Typically, these laws require an environmental authorisation as a requisite to issuance of permits under their own sectors.

2.2.2 Competent Authority

The competent authority's role is to ensure compliance of the process with specific procedural requirements. The DEA's mandate is solely the coordination of environmental matters, without a specific resource over which the department is responsible. Coordination enables holistic consideration of environmental issues. These are handled by the supporting technical departments, which are also in charge of sector-specific permits. Atmospheric resources are under the DWMPC and DMS, faunal resources under DWNP, waste resources under DWMPC, while floral resources under DFRR. Where an activity is listed, environmental authorisation is a requisite of sectoral licensing in accordance with Section 5(1) of the Act. On its own, an environmental authorisation does not constitute authorisation to commence on a project.

2.2.3 EIA Review process (Quality Assurance)

Provisions for the review of EIA reports are the subject of sections 7 – 13 of the EA Act. Although this research is specifically concerned with the quality of EIA reports, prominent procedural requirements are also highlighted in this section to explain how reports are produced.

One way in which quality of EIA reports is assured is as guided by section 10 of the Act, which mandates the competent authority to review EIA reports submitted to inform final decisions on the reports as per section 12. Importantly, section 9(4) provides for the creation of regulations on the recommended structure of an EIA report, and this is given effect to by Regulations 5 to 8 under schedule 2 (Forms B - E).

The minimum content of an EIA report as prescribed by Form B of Schedule 2 adopts the following outline;

1. Metadata
2. Executive summary
3. Introduction
4. Policy, legal and administrative framework
5. Project Description
6. Baseline Description
7. Stakeholder Consultation
8. Impact Identification and Assessment (including consideration for transboundary impacts)
9. Alternatives Analysis
10. Mitigation Measures
11. Archaeological Impact Assessment
12. Impact mitigation and monitoring plan
13. Conclusion and Recommendations
14. References, and
15. Appendices

The regulations acknowledge that the content need not be taken as static, but rather allowed to vary and be flexible. Furthermore, there is a requirement that all practising environmentalists be accredited (section 37). Accreditation of these environmentalists is done by the Environmental Assessment Practitioners' Board (EAPB). Since 2013, this provision has been enforced as the first two years of the 2010 Act were considered a transition period. Under current legislation, the only legally required specialists are archaeologists (registered) as per the Monuments and Relics Act (CAP. 59:03). No other body of professionals requires formal registration or require mandatory specialist reports for purposes of implementing the EA Act.

Although the content outline is the primary mechanism for guiding the EIA review process in Botswana, additional support is also available as illustrated hereon.

2.2.3.1 Guidelines

Published in 2009 (hence meant to speak to the maiden EA Act), the EIA Guidelines specify the minimum report content for various sectors. Therefore, to a degree, these indicate the standardised structure. In addition to these General Guidelines (commonly referred to as the Green Book, due to the green cover), there are 16 sectoral guidelines. Under the 2005 Act, these expanded on minimum content for EIA studies under various sectors.

2.2.3.2 Review forms

Developed circa 2014, the review forms were developed for internal use by the competent authority in guiding and serving the record of decision. These comprise; the Procedure for Review of Scoping Reports and Terms of Reference (PRO-EA002A), the Checklist for review of Environmental Management Plan Report (ver 03-11-2014), and the Checklist for detailed review of Environmental Impact Assessment Reports (FOR-EA004D). These, however, seem discretionary as anecdotal evidence suggests that these rarely form part of the documented record-of-decision.

2.2.3.3 Procedure

When read in line with section 12 of the EA Act, the law does not limit the number of reviews to be undertaken by the competent authority during the EIA review process. As a result, the review of EIA reports is normally a back-and-forth between consultant and the reviewers (Figure 2-1). Generally, it is accepted that reviewers identify areas for improvement on the first reading, and assuming that the comments have been comprehensively and adequately addressed would approve it during the review of the revised report.

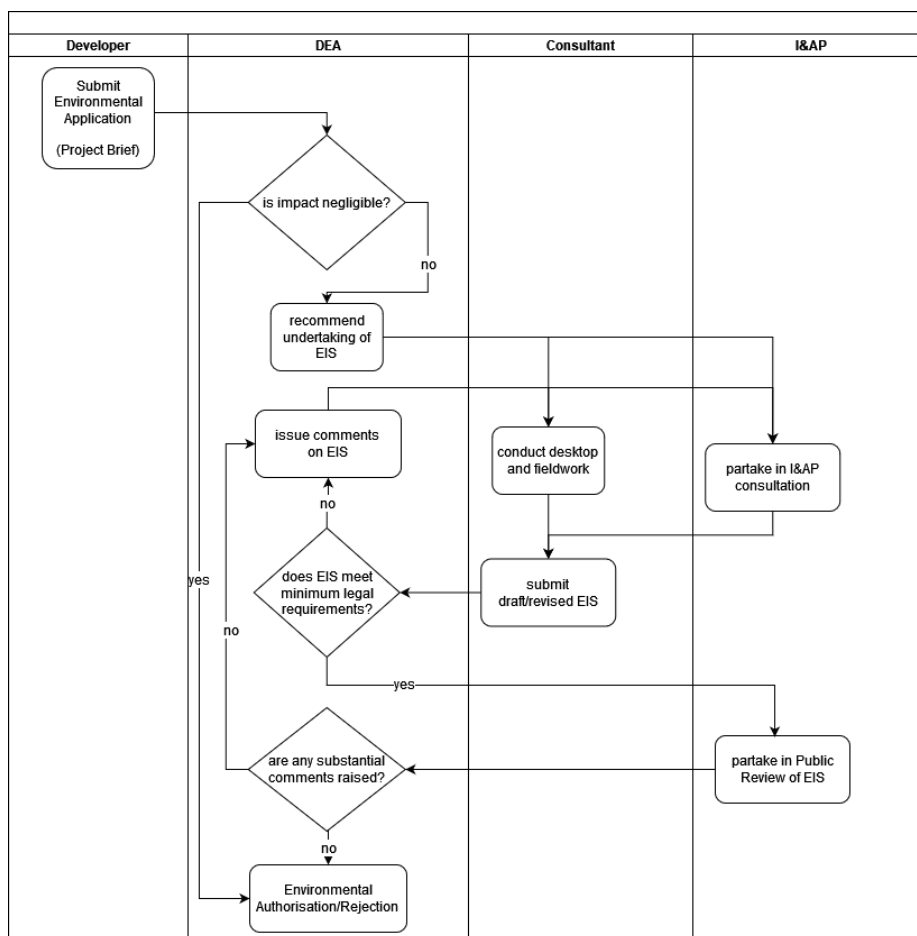


Figure 2-1: Overview of EIA Process in Botswana, application to decision.

Generally, 1 or 2 revisions are required, although revisions of up to five or more are not unheard of. Although not stated anywhere in legal provisions, decision-makers are the supervising reviewers who do the “quality check”. This therefore differs from the provisions in neighbouring South Africa in that the Botswana practice provides an opportunity to the consultant to improve their own work, albeit by inference.

Also widely accepted as part of the review process is the technical review by government departments. However, this was more practiced during the earlier days or in some districts of the country. Similar to the general public, anecdotal evidence suggests that technical departments are consultation-exhausted, therefore do not routinely review EIA report but do so on occasion. Technical departments thus have an opportunity to comment during consultation as well as during review. Although section 17 requires that technical input be considered, the DEA is not required to engage technical departments as review can seemingly be completed without this being undertaken –save for section 8(3) which is specific to Scoping reports.

The public, which includes I&APs, is also given an opportunity to contribute during consultations, as well as to review the document during the public review stage. Unlike the law in neighbouring South Africa, no formal requirement for registration as an I&AP is required. Notwithstanding that, paragraph c of Form B under Schedule 2 (reg 5) requires that the recording of all consulted stakeholders as well as the minutes of the meetings be annexed to the report. In terms of publicising the proposed activity, competent authority discretion is provided for.

Although used synonymously with EMP within this research, an EIA is differentiated from an Environmental Management Plan (EMP) under Botswana law. An EMP (comparable to a Basic Assessment Report under South African law in that no Scoping Report is required) follows the same format as the full EIA, however it is generally more concise (Wylie, Bhattacharjee & Rampedi, 2018). It can be similarly described as “merely a condensed version of the EIA where scoping and impact assessment phase are collapsed into one” (Wylie *et al*, 2018). It is generally accepted that where the impacts are well-understood, it is not necessary to first subject the ToR to review. Another difference between EMP and EIA in Botswana is the public consultation requirement as part of the scoping exercise (section 7). A mandatory public notice period of 28 days (now 10 working days under the 2021 Amendment) is required for EIA but not for EMPs. Similarly, consultation with stakeholders is required for EMPs but does not need to comply with section 7 in terms of public notice and community meetings. With the exception of areas that lie in concessions or within remote communities, several tourism-related infrastructures in the study area were EMPs and not EIAs. For purposes of this research, however, no important distinctions exist between EIA and EMP reports, hence for international comparability, the term EIA was adopted throughout this research.

2.3 The link between EIA quality and effectiveness

The desire to establish the degree to which EIA is realising its stated intentions has led to the rise of a field of research termed EIA-effectiveness (Retief & Chabalala, 2009). In the African region, South Africa has the leading pool of published research in the area of EIA-effectiveness (Sandham, Retief & Alberts, 2022). Other countries in the SADC region with traceable studies include Zimbabwe (Gwimbi & Nhamo, 2016a,b), Lesotho (Talime, 2019; Tchakounteu, 2021), Malawi (Mhango, 2005), and Namibia (Husselmann, 2016; Nangombe, 2020; Nakwaya-Jacobus *et al.*, 2021). Botswana has some articles and dissertations considering the issue of EIA, though not strictly in a scope that is comparable to studies in the neighbouring countries.

In the early 1990s, a seminal global study sought to answer the question whether EIA was achieving its goal of informing decision-making (Sadler, 1996). Since then, numerous studies have considered this issue, leading to an area of research on EIA effectiveness (Sandham, Vyver & Retief, 2013; Boshoff, 2019a). As noted by Mubanga and Kwarteng, EIA performance can be divided into two, given its constitution of a combination of legal framework and actors therein (Mubanga & Kwarteng, 2020). These two categories are (1) procedural performance, and (2) substantive performance. Procedural performance seeks to evaluate the compliance rate of EIA processes in relation to legal provisions, i.e. the extent to which an EIA process correctly follows the mandated steps (considering policy framework; political context; financial resources; public participation; and experience gained at all levels). On the other hand, substantive performance evaluates whether EIA objectives are being achieved (i.e. informed decision making and ultimately sustainable development) (Mubanga & Kwarteng, 2020). Substantive effectiveness pays attention to the extent to which EIA delivers its stated goals (considering regulatory framework; mechanism in decision making; levels of public participation among stakeholders; and report characteristics).

Other authors categorise EIA effectiveness research into four, adding transactive and normative dimensions as the other two categories (Loomis & Dziedzic, 2018). Transactive effectiveness focuses on the extent to which the EIA delivers value for money (considering how resources are used). Normative effectiveness considers perceptions on the impact assessment process, and can lead to changes in terms of views based on the lessons and experience learned, and how these views bring about normative outcomes to policy and lower levels.

EIA effectiveness studies adopt a large array of approaches. Common among these are post-authorisation implementation (Tsehlo, 2003; Cele, 2016; Gwimbi & Nhamo, 2016a), review of institutional arrangement (Peterson, 2010; Nakwaya-Jacobus *et al.*, 2021), review of legislation (Sandham *et al.*, 2013; Montaña, Tshibangu & Malvestio, 2021), authorisation conditions (Davidson, 2011; Caddick, 2015; Boshoff, 2019b; Alberts, Retief *et al.*, 2021), consideration of

alternatives (Mdungazi, 2021), specialist input (Hildebrandt & Sandham, 2014; Hallatt, Retief & Sandham, 2015; Sandham & Retief, 2016; Kruger & Sandham, 2018; Swanepoel *et al.*, 2019), evaluation of accuracy of predictions (Jordaan, 2010), report quality (Sandham, Hoffmann & Retief, 2008), adequacy of regulations (Sandham *et al.*, 2013), follow-up interviews (Swanepoel *et al.*, 2019), and stakeholder interviews (Husselmann, 2016; Roos *et al.*, 2020).

Based on the premise that good practice is unlikely to come from poor quality reports, and that poor-quality reports undermine decision-making (Boshoff, 2019a), the review of report quality is among the more common means of determining potential EIA effectiveness (Sandham & Pretorius, 2008). Quality is taken as an indicator of effectiveness in that poor-quality reports are expected to lead to poor or ineffective outcomes – ‘garbage in garbage out’. As noted by Sandham *et al.*, report quality does not imply EIA effectiveness, but merely one means of contributing to the quality of decision-making (Sandham & Pretorius, 2008; Bond, Retief, *et al.*, 2020). Reviews of EIA documentation may reveal that there are inadequacies but that overall the information is sufficient to inform the decision. By evaluating the documented outputs of the EIA process and to determine whether they are ‘fit-for-purpose’, checklists and review criteria have become a preferred way of testing the quality (Fry & Scott, 2011).

2.3.1 EIA quality review

A lot has been done across the world in terms of evaluating the quality of EIA reports since Sadler (1996). Within the Southern African region, publications on EIA quality review are dominated by far by work emanating from South Africa (Alberts *et al.*, 2022; Sandham, Retief & Alberts, 2022). Early work considering EIA report-quality in the country looked at the Free State Province of South Africa (Kruger & Chapman, 2005). This sought to establish whether the quality of EIA reports used to inform decision-making complemented the legislation in place to support sustainable development. The authors observed a poor degree of compliance of the reports with EIA regulations. They also noted inadequate specialist input, inadequate alternatives consideration as well as inadequate public involvement. Notably, the assessment method employed by the consultants who authored the sampled reports was criticised for being subjective.

In South Africa’s Limpopo Province, Sandham *et al.* performed a quality review on a random sample of EIAs (Sandham, Siphugu & Tshivhandekano, 2005). Aspects selected for quality review were; baseline information, specialist input, time to decision and record of decision. The research found baseline information in these EIAs to be satisfactory, with the key exception of social baseline. In spite of room for improvement on capacity and skill in EIA compilation and review, the research found EIA practice in the Limpopo Province to generally be well-compliant to the regulations and guidelines. In another province of South Africa, North West, a 28-report quality review used the Potchefstroom review package to take on a similar task (Sandham &

Pretorius, 2008). Results revealed over four-fifths of the reports to be satisfactory in spite of inadequate important information in some parts. Considering whether the report quality made a difference to decision-making, the authors concluded that indeed the reports in the sample improved environmental protection in the province.

A similar degree of report quality was found by Sandham *et al* in an evaluation of EIAs in the mining sector (Sandham, Hoffmann & Retief, 2008). This evaluation was driven by the prior perception that as a self-regulating industry, mining EIAs risked being below standard as compared to other sectors -which the research refuted. The review used a Lee and Colley review package, customised to the mining industry. The key findings were that the quality of the 20-sample review was satisfactory, hence comparable to those in other sectors. An important finding of the research was that the poor consideration of alternatives in the sector was a result of legislation, which did not prescribe appropriate means of considering alternatives. For the explosives manufacturing industry, an EIA effectiveness study carried out in 2008 (Sandham, Hoffmann & Retief, 2008) showed a similar level of quality among EIA reports produced for the sector. All the reports were satisfactory, although none were of particularly high quality. Consistent with findings elsewhere, these reports showed descriptive and presentational aspects to be better-performed than technical aspects, though to a lesser degree than other studies. The reduced variation was attributed to a lesser quality of technical aspects in the study's sample as compared to other studies.

Focusing on renewable energy in South Africa, Boshoff conducted a quality review of 25 EIAs of solar projects of 25MW or more (Boshoff, 2019a). As all other studies, the research employed an adapted Lee and Colley package. Deviating from other studies' findings, the research observed the communication aspect of the reviewed reports to be performed poorly -thus undermining the presentation of the technical findings within the reports. The theoretical approach to project sustainability goals without genuine effort to plan or suggest feasible mitigation was noted as another shortcoming.

A sector-specific research focusing on biodiversity hotspots was conducted by Hallatt, Retief and Sandham (2015). This research focused on 26 reports for developments in South Africa's Cape Floristic Region. Using a review package customised for biodiversity impact assessment, the research found the overall performance in the sampled reports to be satisfactory. Importantly, however, 81% of the ratings were found to be borderline cases (i.e. either C or D), consistent with international trends. Overall, however, the management measures pertaining to biodiversity management in the study area were found to be considerate, compared to superficial measures found in international practice.

For tourism-related infrastructure, Wylie, Bhattacharjee and Rampedi evaluated the quality of EIA reports in South African PAs (2018). This research found that the reports surpassed the average quality of EIA reports. This good quality was attributed to extensive research in South African PAs and hence a considerable pool for informing both the baseline as well as impact prediction. Similar to this study, Sandham *et al* sought to determine the quality of 24 EIA reports for developments in South African national parks (Sandham *et al.*, 2020). The findings of this study were consistent with that by Wylie, Bhattacharjee and Rampedi in reflecting good practice within PAs. Given that the Okavango Delta is the most researched region in Botswana in terms of environmental research (Morrison, 2021), a similar pattern was expected for the reports used in the current research.

Similarly important was research conducted by Sandham, Moloto and Retief (2008). The research focused on 4 EIA reports for infrastructural projects in wetlands of South Africa. The review found all the assessed studies to be of satisfactory quality, with descriptive components receiving higher scores than analytical components. Among the better-performed areas were environmental descriptions and biological components, while impact identification, magnitude, significance of impact site description and waste were the weaker-performed areas.

Outside South Africa, in Namibia's Erongo Region, 16 EIA reports conducted between 2010 and 2019 were reviewed for quality, with a majority of projects being from the mining sector (Nangombe, 2020). The review used evaluation criteria adapted from Ahmad and Wood to determine the number of reports complying with the various EIA evaluation criteria (Ahmad & Wood, 2005). The results indicated that most EIA reports met minimum legal requirements, including consideration of sectoral authorities' input in the EIA process criteria, as well as requirements for mitigation and monitoring impacts. The research, however, revealed that for non-mandatory aspects such as coordination with planning and pollution control bodies, and consideration of training and capacity-building component, performance was inadequate. In summary, therefore, the research revealed adherence to minimum requirements and minimal effort to extend beyond this.

In the Kingdom of Lesotho, Talime used the Lee and Colley review package to assess the quality of 15 EIA reports (Talime, 2019). In addition to this, the author also conducted consultations with environmental practitioners and technical stakeholders. Consistent with other studies in the region, the research's findings revealed inadequacies in project description, impact identification, evaluation and mitigation, alternatives analysis, as well as I&AP consultation exercises (Talime, 2019). Another research performed a follow-up of Talime's review, with the intention of determining changes in the quality of EIA reports in the country (Tchakounteu, 2021). Results from 15 reports showed 87% to be of satisfactory grade (A-C), reflecting overall quality improvement in the reports over time, largely in Review Areas 2, 3, and 4. Furthermore, the

research revealed the average quality of EIA reports in Lesotho to be slightly below international quality.

Assessing the quality of 22 mining EIAs conducted in Zimbabwe between 2003 and 2010, Gwimbi and Nhamo found satisfactory scores to be between 68% and 77% of the review sample (Gwimbi & Nhamo, 2016a). This research focused on impact identification and evaluation as well as adequacy of proposed mitigation. Another research by Gwimbi and Nhamo focusing on follow-up highlighted limitations in the current approach to the aspect's conceptualization (Gwimbi & Nhamo, 2016b).

Studies considering quality and/or substantive effectiveness of EIA in Botswana are largely absent. A key published research from the country emphasised on procedural and normative effectiveness, focusing on Strategic Environmental Assessments (SEA). In the research, the authors noted that SEAs were rarely used owing to inadequate awareness of implementing authorities, as well as weak requirements for the SEA in the law (Makaba & Munyati, 2018). This thus led to this useful tool falling short of its indented objectives due to procedural reasons. Another publication which considered the procedural effectiveness of EIA in Botswana (Tshwene-Mauchaza, 2013) acknowledged the widespread use of EIA, though noting some limitations in the manner that is being conducted in the country.

Several publications have considered the normative effectiveness of EIA in Botswana. Noting the recognition of public participation, some authors have observed that Botswana's provisions for enabling public participation were consistent with international best practice (Mathope & Toteng, 2015). In spite of this, several opportunities for improvement have been noted requiring legislative reform (Madebwe, 2019, 2020; Madebwe, Chitsove & Pfumorodze, 2021).

During a survey of literature, only a single exercise focusing on EIA report quality was located for Botswana. This was the External Review Draft Environmental and Social Impact Assessment (ESIA) Report Botswana South Africa (BOSA) Transmission Project (Green Global, 2018). The review used the Lee and Colley package, adapted to Botswana's regulations. In the review, the EIA report considered was found to be complete and generally well-performed.

The emergent pattern from the studies mentioned here was that quality review is a widespread practice within the region. This almost always employed the Lee and Colley review package, customised to the sector or geographic area in question. In terms of comparative performance of review areas, it was common to find descriptive aspects as better-performed than analytical aspects. Despite limited sample of studies, EIA reports that were based in areas with abundant research tended were also better performed than others. However, in some specialist sectors, the communication of results was performed weaker than other technical areas. Consistent with

findings in other parts of the world, factors responsible for the poor performance of EIAs were found to include inadequate study time, inadequate baseline data, weak EIA teams, the lack of EIA experts, inadequate funds and weak Terms of Reference (Kabir & Momtaz, 2012).

Given the widespread consideration of EIA effectiveness in the SADC region, and a conspicuous absence of published substantive research on EIA quality in Botswana, it follows that the present research was anticipated to fill of this information gap and inform regional comparisons.

2.4 Okavango Delta

To provide context for the research, this section discusses the Okavango Delta as the identified case study and study area for the EIA quality evaluation.

The Okavango Delta falls entirely within the boundaries of Botswana, terminating the Okavango River Basin (see Figure 2-2). Botswana falls in the 99th percentile of least densely populated countries in Africa (The World Bank, 2012b). By contrast, at an income-per-capita level, Botswana ranks in the 99th percentile. Due to this combination of high Gross Domestic Product (GDP) and low population density, the country has since 1995 been considered an upper middle-income country. A semi-arid land, infrastructural development remains comparatively non-existent. Historically, Botswana was considered a cattle country, and remains largely so (The World Bank, 2015). The economy has been based on revenue from only a handful of mines -although contribution from this sector has largely diminished over the years (Bank of Botswana, 2021).

In Botswana's North West District lies a key land feature important on both the national and international stage. Considered to be an area of considerable ecological diversity and scenic beauty, the Okavango Delta hosts pristine combinations of water, riverine flora and fauna (Turpie et al., 2006). This scenic combination thus provides an attractive scenery and unique recreational value. Nature-based tourism in the Delta provides an estimated 40% of employment opportunities in the North West (Ecosurv, 2012). Although not every single spot of the Okavango Delta Ramsar Site is a wetland, the majority of the area is associated with river channels or floodplains. It is generally accepted that the water table is very high (Department of Environmental Affairs, 2008). Riparian vegetation is associated with most environs. This tends to host an abundance of tourist lodges, which are almost always riverfront located.

In 1996, the Okavango Delta was designated a Ramsar site owing to its importance for water birds. To this day, it remains the only Ramsar site in the entire country (Republic of Botswana, 2021). Since then, the delta was in 2013 listed as a World Heritage Site (Matswiri, 2017).

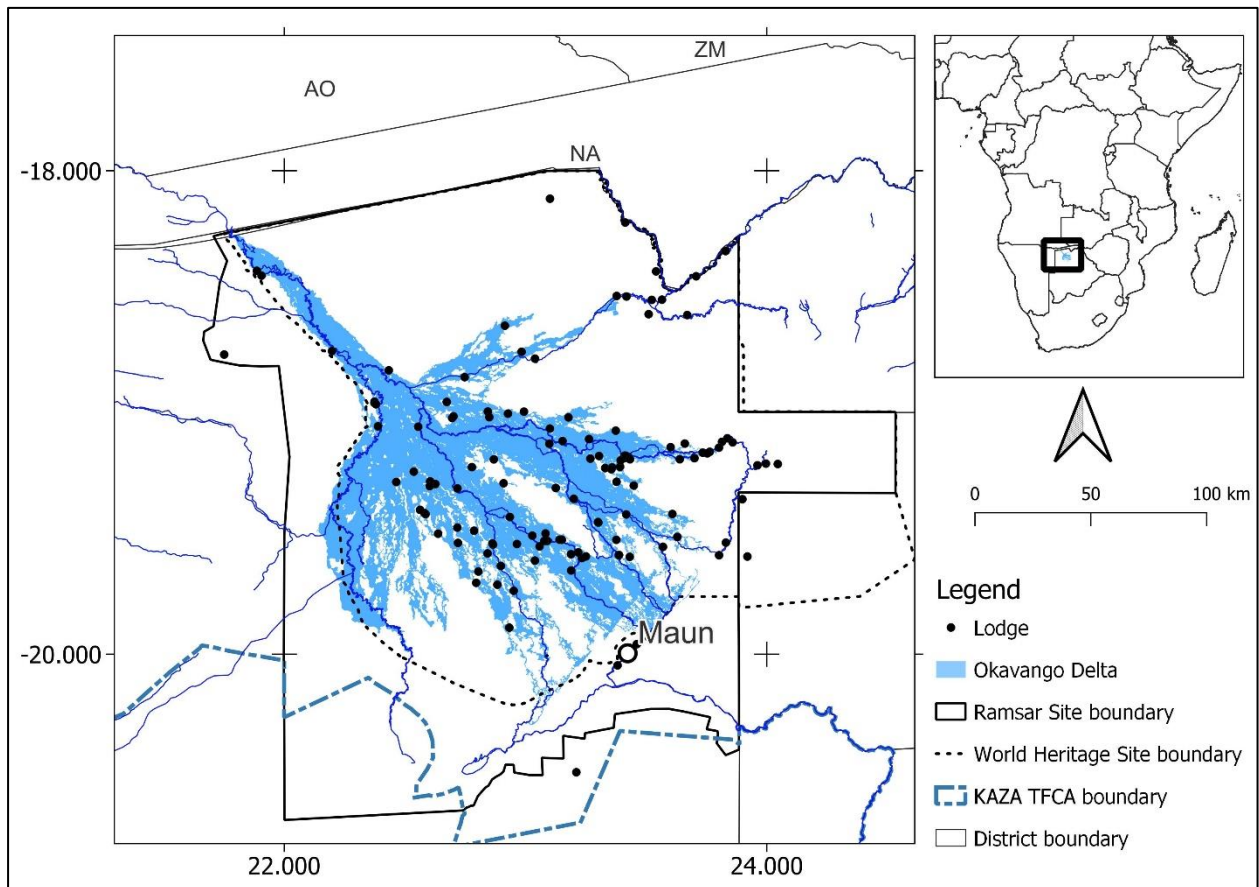


Figure 2-2: Map of Study Area indicating distribution of lodges in the Okavango Delta

2.4.1 Environmental Management in the Okavango Delta

In principle, the environmental management of the Okavango Delta is informed by the Okavango Delta Management Plan (Department of Environmental Affairs, 2008; Nkhwa, 2015). The implementation of this tool has, however, been found to be inadequate. In spite of this, national legislation and institutions remain in place to ensure the optimal use and conservation of this important region. Other tools and institutions contributing towards environmental management of the area include the Okavango Panhandle Management Plan, as well as the Permanent Okavango River Basin Water Commission. Access limitations related to Tsetse fly (*Glossina spp.*) in the area have historically prevented extensive inhabitation of the delta, however, with Tsetse fly eradication programmes in the past few decades, the previously pristine area has realised an increase in human presence. Incidentally, the Tsetse Fly eradication program was one of the early EIAs conducted in the Okavango during the early 1990s.

As of 2022, tourism led the cumulative number of applications for environmental authorisation in the North West District (Table 2-1). This is further testimony on the overwhelming dominance of

the sector within the area. Considering that a notable amount of infrastructure is also developed to support the tourism sector, the industry therefore has an even more important relevance in the overall activity within the region. It thus follows that tourism emerges as an important activity for taking stock of EIA effectiveness in the North West District.

Table 2-1: Environmental Applications within Botswana’s North West District

#	Sector	Count*	%
1.	Tourism	1215	32
2.	Infrastructure	1029	27
3.	Agriculture	693	18
4.	Extractive	214	6
5.	Other	151	4
6.	Energy	128	3
7.	Development Plans and Geotechnical Studies	128	3
8.	Food Industry	82	2
9.	Textiles	57	2
10.	Chemical Industry	25	1
11.	Metal Processing	26	1
12.	Wood	14	0
13.	Glass Industry	6	0
14.	Leather	6	0
15.	Paper	12	0
16.	Rubber Industry	4	0

Source: (DEA, unpublished).

*As per the EA Act, where in the opinion of the competent authority an activity may be implemented without adverse environmental impact, the project may be authorised to proceed without being subjected to an EIA (section 6(3)). Hence, not all applications here equate to an EIA study: recommendations for EIA are usually in the order of 15%, with even less being ultimately submitted for review. Records cover years 2005-2022.

The DEA’s system for classification of tourism projects is largely guided by the DoT licensing categories (as per section 16(1) of the Tourism Act (CAP. 42:09), being Agro-tourism, Backpackers, Bed and Breakfast, Campsites, Cultural Villages, Guest House, Hotels, House Boats, Lodges, Safari, and Self-catering Apartments.

Given the sensitivity of the receiving environment, it is commonly accepted that EIA provides safeguards against the erosion of the very resource on which tourism itself is based (hence promoting sustainable tourism). Due to ecological and economic importance, it is anticipated that these EIA reports would be comparatively well-executed. Owing to repeated exposure to these types of reports by both the consultants and reviewers, it is anticipated that tourism EIAs in North West signify best practice in the EIA industry, hence presumably biased in that regard. Generally, tourism is among the top 5 income-earners for the country, both for government and at household level -especially in northern Botswana (Bank of Botswana, 2021). It thus holds that environmental

sustainability is financially dependent on nature-based tourism (ecotourism), which in turn depends on environmental sustainability (Huysamen, 2019). Luxury lodges are generally accepted as having a greater environmental impact (Alberts *et al.*, 2022). Industry standards, however, also encourage sustainable practices within the industry owing customer/guest preferences (Morrison-Saunders *et al.*, 2019) -inherently making them self-regulated. According to unpublished MET records on research permits, the Okavango Delta regions leads by far as the most researched geographic area in Botswana in terms of environmental research.

2.5 Environmental Impact of Lodge Development

Schools of thought on tourism impact assessment lie in the continuum between pro-tourism standpoints and staunch ecotourism (Warnken & Buckley, 1998). Pro-tourism perspectives perceive environmental impacts of tourism to be by far outweighed by poverty alleviation and development needs of receiving communities to require hindrances to the development to tourism infrastructure. In spite of normative requirements, regulators and environmental consultants are seen paper pushers who actually contribute little to sustainable tourism. Ecotourist approaches recognise the natural resource base as key in supporting the consumerist behaviour of the tourism enterprise, hence requiring explicit precautionary planning to ensure the continued satisfaction of customer expectations.

Botswana lies on the protectionist perspective, requiring mandatory EIA for tourism development in environmentally sensitive areas. While Botswana's tourism policy presumed low tourist volumes to be consistent with environmental protection (Magole & Magole, 2011), luxury lodges are believed to have a very high total ecological footprint (Alberts *et al.*, 2022).

Tourism impact includes challenges owing to remoteness, poor management of waste results in the deterioration of water quality and quantity (improper soakaways, phosphate loads and leaching, excessive abstraction) (Baker and Mearns, 2017), an aggregation of scavengers to organic waste, and land pollution due to improper disposal of solid waste. The loss of species diversity (particularly where species in question are endangered) (Warnken and Buckley, 1998), this includes macroinvertebrates also arises with continuous ecosystem degradation. The establishment of lodge site and routine operations likely results in the loss of nesting sites, habitat, groundcover, while impacts of wildlife include the disruption of movement. The modification of character of receiving environs is another acknowledged impact, such as change in culture and traditions. In addition, given the isolation of staff, -family breakdowns, and disease spread are acknowledged social impacts. This is exacerbated by the low resilience vulnerability of employees and host communities, who typically have low education levels and are generally cash poor. This self-perpetuating cycle of vulnerability leads to persisting exploitation in such scenarios.

2.6 Conclusion

EIA effectiveness studies seek to answer the question whether EIA achieves its goal of informing decision-making. EIA quality-review addresses this aspect by determining whether information reaching the decision-makers is of good quality. Several studies conducted in across the world, including Southern Africa, have over the decades used an adapted Lee and Colley Review Package to address this question. Findings from these have shown that although this information can generally be said to be satisfactory, descriptive aspects of such reports tend to outperform the analytical aspects. For Botswana, research on substantive EIA effectiveness is a fledging activity, and hence the Okavango Delta was selected as the first location to conduct an EIA quality-review to determine the usefulness of EIA in this internationally-important multi designated site.

CHAPTER 3 METHODOLOGY

This chapter reviews the various approaches for generating empirical evidence on the quality of EIA reports. In the current research, the overall aim was to gauge the quality of EIA reports approved between 2013 and 2021 for lodge development in the Okavango Delta. An overview of the approach is firstly provided in section 3.1. The strengths of various methods are compared, with relevance to the current research's settings. Then, a preferred method is selected for the specific research section 3.2. The structure of the selected method is detailed under section 3.3. Section 3.4 elaborates the data and analysis approach. Thereafter, assumptions and limitations are expressed in section 3.5. Lastly, ethical considerations are expressed under section 3.6.

As noted by Loomis and Dziedzic (2018), evaluations of EIA effectiveness may be from procedural, substantive, transactive and normative dimensions. This research solely relied on the substantive dimension, with EIA report quality as an indicator of potential EIA effectiveness. This employed the document analysis approach, in which an empirical method was adopted to address the aim and sub objectives. An adapted Lee and Colley EIA report review package (Lee *et al.*, 1999) was used as the preferred quality review method. This package was adapted to the legal requirements of Botswana as prescribed by the EA Regulations. The adapted package was further augmented with international best practice to enable the determination of quality beyond legal compliance.

3.1 Sample selection

A total of 31 reports were purposively selected from a pool of a few hundred approved EIA reports in Botswana's North West District (Table 3-1). This selection approach followed the method used for a similar study in South Africa's Free State Province (Kruger & Chapman, 2005). As previously mentioned, only reports relating to tourism projects (Category B of Tourism Regulations) were selected (specifically, luxury lodges). Additionally, these were only the developments that fell within the boundaries of the core Okavango Delta (see Figure 2-2). Furthermore, only those reports approved between 2013 and 2021 (inclusive) were considered. Typically, reports take between a few months and a few years between first submission (draft) and final approval. Although tourism infrastructure under the DEA classification also includes guesthouses, campsites, hotels, agrotourism projects, houseboats, boat rides and general safaris; only lodge developments (camps) were included.

Table 3-1: EIA reports used in the research

Year	Title	EAP
2013	Mopiri Lodge in NG/7 by Leganang Motanzi	1
2013	Sandibe Okavango Safari Lodge in NG/31 Zone 2 by andBeyond	2
2013	Tubu Tree Camp in NG/25 by Ngamiland Adventure Safaris (Pty) Ltd	3
2014	Banoka Bush Camp in NG/18 by Safari Adventure Company (Pty) Ltd	1
2014	Linyanti Tented Camp in NG/15 by Linyanti Explorations (Pty) Ltd	1
2014	Little Vumbura Camp in NG/22 by Okavango Wilderness Safaris (Pty) Ltd	4
2014	Shakawe River Lodge in NG/10 by Shakawe Fishing Safaris (Pty) Ltd	5
2015	Camp Okavango in NG/21 by Desert & Delta Safaris (Pty) Ltd	5
2015	Chief's Camp in NG/28 by Sanctuary Retreats	2
2015	Gomoti Tented Camp in NG/33 by Santawani Partnership (Pty) Ltd	4
2015	Mombo Camp in NG/28 by Wilderness Safaries (Pty) Ltd	4
2015	Vumbura Plain Camp at NG/22 by Okavango Wilderness Safaris (Pty) Ltd	4
2016	Drotsky's Cabins in NG/10 by Eileen Drotsky	1
2016	Jacana Camp in CHA NG/25 by Ngamiland Adventure Safaris (Pty) Ltd	2
2016	Jao Camp, Concession Headquarters and related infrastructure in NG/25 by Ngamiland Adventure Safaris (Pty) Ltd	2
2016	Kwetsani Camp in NG/25 by Ngamiland Adventure Safaris (Pty) Ltd	2
2016	Zarafa Camp in NG/16 by Linyanti Explorations (Pty) Ltd	2
2017	Camp Moremi in NG/28 by Desert & Delta Safaris (Pty) Ltd	2
2017	Chitabe and Chitabe Lediba camps in NG/31 by Flamingo Investments	4
2017	Khwai Camp in NG/19 by Kgori Safaris (Pty) Ltd	4
2018	Baines' Camp in Zone 1 of NG/32 by Sanctuary Retreats	2
2018	Khwai Leadwood Camp in NG/19 by Ntsogotlho Holdings (Pty) Ltd	6
2018	Xigera Camp in NG/28 by Great Explorations (Pty) Ltd	2
2019	Mankwe Bush Lodge in NG/43 by Kgori Safaris (Pty) Ltd	2
2019	Selinda Camp in NG/15 by Linyanti Explorations (Pty) Ltd	2
2019	Shinde Camp at NG/21 by Ker and Downey Botswana (Pty) Ltd	7
2020	Pepere Island Lodge in NG/23A by All Star Investments (Pty) Ltd	1
2020	Two Lagoons Camp in NG/23A by Makgobokgobo Youth Trust	1
2021	Little Vumbura in NG/22 by Okavango Wilderness Safaris (Pty) Ltd	2
2021	Seba Camp in NG/26 by Abu Private Reserve	2
2021	Xaro Lodge in NG/10 by Xaro (Pty) Ltd	8

An effort was made to be inclusive in terms of practitioners. As already noted, prior to 2013, the formal requirement for practitioner registration was not enforced, hence authors varied widely, hence the presumption that quality similarly widely varied. However, considering that it has been nearly 10 years that only a select pool could submit draft reports, the current arrangement can now be safely considered to be an established practice. The period under which this practice has been observed is under this research considered a unique period sufficient for evaluation under similar conditions. Among the accredited practitioners, there are generally less than 10 practitioners either permanently based in the Okavango region (Environmental Assessment

Practitioners Board, 2022) or with regular assignments in the area. This therefore means that analysis would be confined to these practitioners.

To make the review representative in terms of practitioners would mean considering reports as per the proportion of submissions per practitioner. In such a scenario, practitioners who submitted more reports would be proportionately represented in the sample. This, however, was not considered essential as the purpose was not to make the sample statistically representative. Similarly, it would be ideal to indicate the reviewing officer and their qualifications in the dataset. This is because the variability of scrutiny by reviewers has been found to influence the quality of approved EIA reports (Peterson, 2010; Mubanga & Kwarteng, 2020). This is more so in Botswana where reviewers issue comments to consultants for report improvement. Notwithstanding the awareness of this important factor, this information is not systematically collected by the DEA, hence would have been unattainable for the research. Likewise, no attempt was made to read the reviewer comments and supporting documents (record of decision).

The critical factor that determined selection of a particular EIA was report availability. Although the ultimate sample might not have been a statistically representative one, an attempt was made to ensure spread across years, as well as across consultants -subject to report availability. Notwithstanding this, the sheer number of the reports available (few hundred) made it unattainable to target a statistically representative number. Instead, replication logic was sought, this generalised findings within context across cases -in this instance for luxury lodges in the Okavango Delta. The results could therefore reasonably be expected to replicate for similar contexts. Replication logic relies on context-specific analysis of a sample of cases (Yin, 2009). The sample of reports thus would give an idea on the quality of EIA reports prepared for luxury lodges in the Okavango Delta during the study period (under similar circumstances).

According to the DoT Guidelines, lodge/camps are facilities outside built-up areas (in protected areas), while hotels are those facilities that are inside towns/villages. In addition, only those reports which had completed the approval process were included in the review sample.

3.1.1 Sample evaluation

The research critically reviewed thirty-one (31) reports for quality. These were reports that had been approved between the years 2013 and 2021 (inclusive). The facilities being assessed in these reports were found to primarily be tented camps, although brick and mortar facilities were occasionally included. The grading in these facilities ranked from 3 to 5 stars. All were Category B facilities as categorised by the Tourism Regulations. The average bed size among the facilities included in the sample was 8 rooms, while the average number of staff units was 24.

The total number of EAPs involved in the studies was 8, although a third of the study sample was actually led by only one of these EAPs. On average, there were 3.4 reports reviewed for each study year, ranging between 3 and 5. The only the exception was the year 2021 which only had 2 reports in the sample, the total count of reports meeting the inclusion criteria for that year.

The locations of the facilities sampled were spread across 17 CHAs, with NG/28 and NG/25 having the most reports in the sample (4 each). On average, lodges in the sample were 100 km from Maun. One of the lodges was represented in two different reports (one approved in 2014 and another one in 2021), hence appearing twice in the sample –albeit for different reports.

The average year in which the sampled lodges had started operations was 2006, with the earliest having started in 1981 and the most recent being 2009. Hence, for most of the developments, the lodge was already pre-existing prior to the inaugural EA Act. EIAs were, therefore, performed for the regularisation of existing operations, or to inform proposed modifications. Other EIAs were conducted as a requirement for lease renewal, or performed routinely to ensure ongoing environmental compliance of continuing operations.

3.2 Overall approach

The overall approach comprised identification of Review Areas, followed by Categories and lastly Sub-categories. Performance scores were allocated to each Review Area/Category/Sub-category in reverse hierarchy as indicated hereon. Under each hierarchical level, specific indications of performance were generated and finally collated for eventual interpretation. Each of these are detailed in turn hereon.

The Lee and Colley (Lee *et al.*, 1999) package is the leading method of evaluating the quality of EIA reports. This is testimony to its overall simplicity, adaptability, ease of use, as well as its ability to pick apart a detailed report and to reveal its strengths and weaknesses (Fry & Scott, 2011). Packages adapted from the method have enabled the identification of deficiencies in reports and led to identification of common themes and important developments in revising the EIA guidelines (Fry & Scott, 2011). The method comprises “a hierarchical grouped set of criteria focusing on aspects of the EIA process” (Sandham & Pretorius, 2008) (see Figure 3-1).

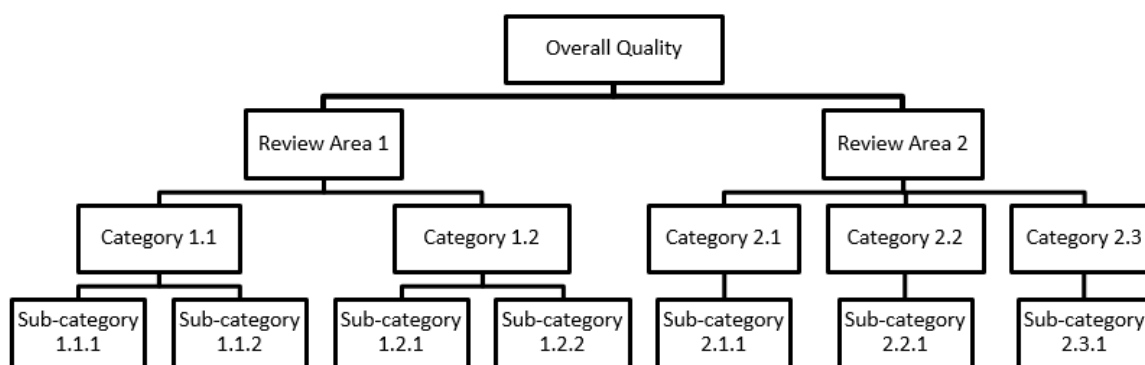


Figure 3-1: Hierarchical structure of Lee and Colley Review package

A bottom-up scoring of quality rating is performed to ultimately generate a rating score per report, or per sample pool (Table 3-2) (Sandham & Pretorius, 2008). Criteria are graded A-F, with A being of the highest score.

Table 3-2: List of assessment symbols

Symbol	Explanation
A	Generally well performed, no important tasks left incomplete.
B	Generally satisfactory and completed, only minor omissions and inadequacies.
C	Can be considered just satisfactory despite omissions and/or inadequacies.
D	Parts are well attempted but must, as a whole, be considered just unsatisfactory because of omissions or inadequacies.
E	Not satisfactory, significant omissions or inadequacies.
F	Very unsatisfactory, important task(s) poorly done or not attempted.
N/A	Not applicable. The review topic is not applicable or irrelevant in the context of this EIA report.

Acknowledged limitations of the Lee and Colley Review Package include equal-weighting of the review criteria, inherent subjectivity, and overgeneralisation (Sandham & Pretorius, 2008). The concern over equal-weighting of criteria stems from the observation that low-hanging report aspects tend to smooth out poor performance of difficult-to-attain performance areas, hence skewing the representation of a report's overall quality. In such circumstances, widely-varying reports could be rated similarly in spite of inherent differences. As noted, aspects such as biodiversity impact assessment require in-depth scientific analysis (Hallatt, Retief & Sandham, 2015). Common means to addressing subjectivity during quality review normally involve using reviewing teams or repeated capacity building of individual reviewers to ensure the gaining of

experience. Transparency through stated justifications in determining rating scores also aids in standardising rating.

3.3 Description of Review Areas

Reports were rated across four Review Areas as derived from the Lee and Colley review package. These were as indicated in Table 3-3. The selection of these areas is justified by the relative importance of these aspects to the overall EIA process and was consistent with the areas selected by similar studies in the region (Sandham & Pretorius, 2008).

Table 3-3: Summary of Review Areas used in the research

Review Area	Description of Review Area
1	Description of project and environment
2	Identification and evaluation of key impacts
3	Alternatives and impact mitigation
4	Communication of results

Description of project and environment were mainly found under sections 5 and 6 of an EIA report, while the description of alternatives might be only introduced in section 9 of each report (in instances where the report strictly adhered to the format indicated under section 2.2.3 of this dissertation). These sections would provide detail on the nature of the projects, key aspects including components of key environmental consideration, access option, as well as phase wise breakdown of anticipated products. Process flowcharts would also be expected under this Review Area. The description of the receiving environment would indicate biophysical and socioeconomic settings of neighbouring land uses.

Identification and evaluation of key impacts: This mainly involved the inventorying of anticipated impact as a result of triangulation of desktop work, field observations, and I&APs consultation. The evaluation would use named methods to identify thresholds for acceptability against named standards. A reliance on value judgments by practitioners (Boshoff, 2019a) usually constitutes this section. This would be concluded with the identification of key impacts for prioritization of mitigation and monitoring activities. Writeup informing this Review Area would normally be found under section 8 of an EIA report, although also synthesised from information found under chapters 4-7 and 11 of each report.

The Review Area on Alternatives and Mitigation continues on the previously identified alternatives. This also continues on impact prediction by indicating the anticipated residual impact following the implementation of different alternatives. This section fell almost entirely under section 9 of each report. Rather than merely inventorying alternatives and mitigation, these should

not be framed vaguely (Hallatt, Retief & Sandham, 2015). Finally, the preferred option is indicated and recommended, as justified by the impact prediction.

Communication of Results generally spans the entire report. As noted by Boshoff, an indifferent attitude by practitioners towards document readers can undermine the purpose of a report (Boshoff, 2019a). It is for this reason that this Review Area is given due attention as a standalone criterion.

3.3.1 Categories and Sub-categories

Under each Review Area, several Categories were assessed as demonstrated in Table 3-4. A total of 17 Categories were considered per report (Wylie, Bhattacharjee & Rampedi, 2018). The rating of Categories was assigned independently, hence no effort made reconcile the weighing of one Category with another. Similarly, notwithstanding the acknowledged limitations of equal weighing of Categories, no attempt to weigh the various Review Categories was done.

Table 3-4: Summary of Review Categories used in the research

Review Area	Category	Description
Project/environmental description	1.1	Project description
	1.2	Site description
	1.3	Waste
	1.4	Environmental description
	1.5	Baseline description
Impact assessment	2.1	Definition of impacts
	2.2	Identification of Impacts
	2.3	Scoping
	2.4	Prediction of impact magnitude
	2.5	Assessment of impact significance
Alternatives and mitigation	3.1	Consideration of feasible alternatives
	3.2	Scope and effectiveness of mitigation measures
	3.3	Mitigation and Monitoring plan
Communication of results	4.1	Layout
	4.2	General Presentation
	4.3	Presentation of Environmental Issues
	4.4	Emphasis of impacts

As noted earlier, the legal provisions only specify the minimum requirements of an EIA report. Thus, a report that satisfies the minimum legal requirements would be regarded as complete,

rather than necessarily good quality. To enable the determination of quality beyond legal compliance (completeness of information), international best practice was used to generate the review subcategories used under this review package. Additional literature considered to adapt the subcategories were a study on wetland-affecting projects (Sandham, Moloto & Retief, 2008), another on biodiversity-rich areas (Hallatt, Retief & Sandham, 2015), another on tourism facilities (Wylie, Bhattacharjee & Rampedi, 2018) and yet another on protected areas (Sandham *et al.*, 2020). In addition, these were reconciled with Ramsar recommendations of EIA (Ramsar Secretariat Convention, 1997). Each individual criterion is specified for transparency and repeatability/replicability. A total of 75 Sub-categories were identified for quality review of the reports in the sample. In the interest of brevity, Review Sub-categories have been placed under Annexure A of this dissertation.

3.4 Data collection and analysis

Data collection followed the Lee & Colley approach (1999). This involved careful and systematic reading of each report against set criteria to determine the degree to which each criterion was fulfilled by the report. Reading was followed by an assignment of a rating score per Sub-category in line with the rating categories indicated under Table 3-2. Performance scores were allocated to each Review Area/Category/Sub-category in reverse hierarchy. Recording was done on a spreadsheet designed specifically for the purpose.

Following the assignment of Sub-categories in the collation sheet, higher categories would also be assigned scores. These would in turn be followed by an assignment of rating scores per Review Area following the hierarchical levels indicated in Figure 3-1. Rather than a calculated score that is derived from a category below it or some other numerical formula, the score in the next upper level is independently assigned a based solely on the reviewer's impression of the overall performance -with the assumption that ratings between different levels of the same Review Area would reflect comparability. Thresholds between one rating score and another could thus be less explicit and somewhat arbitrary subjective (Kabir & Momtaz, 2012; Anifowose *et al.*, 2016). Comments were extensively recorded to justify the score that was ultimately selected (Wylie, Bhattacharjee & Rampedi, 2018).

3.4.1 Overall Quality

Following the approach of Lee & Colley (1999), a determination of quality across the review sample was performed by tallying the number of rating scores recorded per review criterion. The total number of rating scores were tabulated, and this used as a basis for further analysis.

The information was further analysed to indicate the percentage of reports scoring a certain rating on a particular criterion. As illustrated under Table 3-4, this was performed for all Sub-categories, Categories and Review Areas.

Under each Review Area, each report was rated on a scale of between A and F, with A being the best score and F the poorest -as illustrated in Table 3-2. This rating score was then derived. Since the ratings were based on the reviewer's impressions of the report's satisfaction of the standard, they were partly subjective. As noted by Fry and Scott (2011), "ensuring 'completeness of information' is much harder as it requires one to know when this point has been reached and this can be subjective". To aid transparency, notes were, however, made to illustrate the decision. Since each grade was informative, e.g., C indicating "satisfactory despite omissions and/or inadequacies", the negligible inadequacies/omissions were detailed. Using this approach, the review equally considered the strengths alongside the weaknesses of the report, rather than solely criticising the report quality. To illustrate the subjectivity of the data collection method; while maps could be assessed for adequacy by using GIS standards, the same cannot be done for other presentation components such as the adequacy of process flow diagrams. It thus relied entirely on the reviewer's impression.

Following a rating of each report, the performance of the pool was derived from the proportion of reports per rating per Review Area. Percentages of the sample rated as 'good', 'satisfactory', 'borderline' and 'poor'. A final rating sheet was compiled, and a matrix of various reports developed from these. To determine the overall rating across the sample pool, reports were similarly aggregated. However, rather than a descriptive assignment of scores, percentages were calculated looking at the ratings assigned to determine how each component was performed overall. A single collation sheet summarised report quality across the study sample, indicating years and Review Areas to enable further analysis. To enable further analysis, an assigned numerical number indicating the environmental consultant that authored the report was captured (see Table 3-1).

This rating procedure is inevitably subjective, but would be expected to be transparent. A single reviewer would be expected to be consistent in rating similarly performed reports. Repeatability/replicability is also anticipated as explicit justification of scores in made. Admittedly, reviewer experience plays a part in the ultimate rating as competence improves over time.

3.4.2 Data presentation

Data presentation similarly followed the Lee & Colley approach (1999). Analysis was predominantly through descriptive statistics. In addition, visualisation was undertaken to highlight salient patterns. Bar charts were used to illustrate the distribution of overall scores, as well as to

demonstrate distribution of Review Areas. In-text citations of overall performance were indicated as per the general trend in EIA quality review. This was also done for Objective 3 to illustrate the longitudinal trend analysis. A matrix of evaluation results was also prepared to illustrate the comparative performance of Review Areas.

3.4.3 Data analysis

Only Objective 2 was subjected to statistical analysis. Following the test for normality (Shapiro and Wilk, 1965), a parametric test for differences between two or more groups of an independent variable on a continuous or ordinal dependent variable was used. The Levene's test was used to determine common variance. Thereafter, one-way ANOVA was used to determine whether there was any significant statistical difference among the overall ratings assigned to the Review Areas and subsequent review categories. Analyses were undertaken in IBM Statistical Package for Social Science (SPSS; ver 28.0), (IBM Corp., 2021).

3.5 Assumptions and limitations

Given the wide array of means by which EIA effectiveness can be determined (Mubanga & Kwarteng, 2020), this research was only able to infer findings to the selected indicator, being EIA report quality. Noting the acknowledged limitations of the selected review method, such as bias and inherent subjectivity (Sandham, Carroll & Retief, 2010), transparency was emphasised in determining the scores used to rate quality. It was also acknowledged that the quality of reports could vary widely owing to various factors, hence the findings were reasonably confined to the context of the review sample. Notwithstanding the limitations of the chosen method, the approach was selected as it enabled comparison with other studies across the world (Pöder & Lukki, 2011).

In spite of all effort to be objective, the Lee and Colley approach is inherently subjective (Sandham, Carroll & Retief, 2010; Kabir & Momtaz, 2012; Anifowose *et al.*, 2016). Hence the transition line between satisfactory and unsatisfactory (between the C and D grades) can easily differ from one reviewer to the next (Wylie, Bhattacharjee & Rampedi, 2018). This is subject to reviewer attributes such as qualifications and experience (Peterson, 2010). In Botswana, EIA regulations are non-prescriptive, and thus open to interpretation, what might suffice for one reviewer in terms of quality may not satisfy another. This is an undeniable reality of EIA review. Standardisation amongst reviewer including continuing professional development, and team reviewing are all means at which subjectivity is generally reduced. This quality review was therefore made with the caveat that result may, within, reason, vary between reviewers.

The sector selected for the study is that of tourism, specifically lodge development (and operation). According to the Guidelines for Tourist Related Accommodation (Department of Tourism, n.d.), the different types of accommodation establishments are recognised as (i) hotels,

(ii) lodges and camps (iii) guest houses, (iv) camping and caravan sites (v) self-catering apartments, (vi) cultural villages, and (vii) backpackers. The Guidelines define lodges as “establishments which sell exclusive packages to natural or historical locations, which may include game drives, fishing, boat drives, rock/hill climbing, and horse riding”. Both camps and lodges are located outside town, usually in WMAs and PAs. By virtue of being in remote areas, camps and lodges offer complete services to the clients. Both lodges and camps fall under category B of the schedule referred to under per section 16(1) of the Tourism Act (CAP. 42:09). For purposes of this study, these were treated as synonymous. In each case they comprised front-of-house, back-of-house, associated components, and safari outings. The only distinction between camps and lodges is that camps are usually for exclusive use of resident guests and offer additional activities beyond accommodation (Department of Tourism, n.d.).

To further ensure comparability among the reviewed reports, the inclusion criteria were confined to lodges which were considered high-end or luxurious. Globally, lodges range from low-end to high-end. Incidentally, most lodges that exist in the study area are high-end. Luxury lodges are typically low-capacity (up to 12-room capacity). Although even luxury lodges differ amongst themselves, it was accepted that all the 3–5-star grading for the facilities within the study area met the standard of what is meant to be “luxurious”. Although associated infrastructure such as roads airstrips, sewage treatment plants, photovoltaic solar plants, and bridges in the area are developed mainly for tourism purposes, they are classified under a different sector in the DEA’s current recordkeeping structure. It is hence acknowledged that lodge development in this case was confined to the main area, neglecting what is a valid component that contributes to the overall footprint of the development.

3.5.1 Limitations

The limitation of the Lee and Colley method through equal weighing of Review Areas has been extensively discussed in other research (Sandham, Carroll & Retief, 2010; Kabir & Momtaz, 2012; Anifowose *et al.*, 2016). In spite of protracted effort to remain objective, the chosen method of quality review remains inherently subjective, and relies heavily on the reviewers to apply their minds to the task. Hence, while the findings of the study might be comparable to other international studies, it is possible that a different reviewer would obtain a variation in the scores.

The interaction between different Review Areas requires conscious consideration during assignment of score. Correlation might result in double penalisation or duplication of scores. In addition, given that the sole purpose of EIA is to undertake environmental assessments, it is difficult to assess descriptive aspects on their own; in the absence of content, good presentation is meaningless. In the absence of proper results-communication, commendable analytical exercises are, however, similarly meaningless. Despite this, it is undesirable to assign equal

weight to these different aspects. As a result, reports are rated as satisfactory, when in fact they are far from realising the intent of an EIA. Low-hanging fruit are used to gain points, concealing the inadequacy of the resultant report.

3.6 Ethical considerations

The information contained in the study sample was considered non-confidential as it was available for review by the general public. This is because approved EIA reports are considered public records in Botswana (this provision has since been removed under the 2021 EA amendment Act). These are kept in the DEA libraries/archives across various district offices for public reference. However, as all environmental research is coordinated in the country by the MET Permanent Secretary through the Research Coordinator, an application was made to conduct the research. This was granted on 14 March 2022 (REF: ENT 8/36/4 LII (58)). To comply with the North West University ethics requirements, a clearance application was made to the North West University ethics committee, and the proposal approved under number NWU-01218-22-A9.

Care was taken to ensure that conclusions drawn were informed by the findings. Where necessary, data were anonymised to protect identities. Furthermore, care was made to ensure that findings were drafted in a manner that did not insinuate the endorsement or victimization of any particular EAP. Moreover, conscious effort was made to ensure that findings remained objective, and merely as suggestions of improvements -rather than criticizing consultants.

3.7 Chapter summary

In line with the aim of the research of generating empirical evidence on the quality of EIA reports approved between 2013 and 2021 for lodge development in the Okavango Delta, the research employed an adapted Lee and Colley review package to determine report quality for this sector. The review used 4 Review Areas, spanning 75 Sub-categories across 17 Categories. Results were visualised to highlight salient patterns. A column chart and in-text citations of percentage indicated the general trend in EIA quality. Additionally, a bar chart was used to demonstrate distribution of Review Areas. Data analysis was through one-way ANOVA to determine statistical difference among the overall ratings assigned to the Review Areas and subsequent review categories.

CHAPTER 4 RESULTS/DATA ANALYSIS AND DISCUSSION

This chapter details the findings of the research by presenting the overall observations under section 4.1, while section 4.2 presents the qualitative patterns noted during data collection. The specific objectives of the research were; (1) to identify the pattern in overall quality of environmental assessment reports for lodges in Botswana's Okavango Delta, (2) to compare the relative quality of Review Areas in the reviewed reports, and (3) to perform a longitudinal assessment on the overall quality of the reviewed reports over an eight-year period (2013 to 2021).

As previously mentioned, the collection of data was guided by the Lee & Colley method (1999), which determines the quality of each report for every review criterion established for the study. The review criteria were; Sub-categories (Annexure A), Categories (Table 3-4) and Review Areas (Table 3-3). For each review criterion, the score was determined as guided by the assessment symbols indicated by Table 3-2; a scale of between A and F, ('well performed' and 'very unsatisfactory', respectively). To determine the degree to which a report satisfied the review criterion, the legal requirements as well as best practice were used as the standard.

Following the assignment of performance scores per review criterion, the overall score per report was deduced. This was done incrementally, starting with performance per Category, then per Review Area. Thereafter, the overall performance across the review sample was calculated by tallying the number of rating scores recorded per review criterion. As a basis for further analysis, the information was further analysed to indicate the percentage of reports scoring a certain rating on a particular criterion. Relative performance per Review Area was similarly derived based on proportions of scores within the overall pool. For Objective 3 (longitudinal assessment), the year of report was interpreted in correlation with overall report score to deduce change in performance over the review period.

4.1 Quantitative results

The overall quality of EIA reports in the study sample was unsatisfactory, with only 22.6% of the reports receiving a satisfactory rating (C and above). This amounted to nearly four in every five reports being unsatisfactory. Of these, the highest rating achieved in the sample was "just-satisfactory" as no reports received a "satisfactory" (A-B) or higher as an overall rating. Final ratings ranged between C and F, with just over half of the reports receiving a D ("just-unsatisfactory"). Borderline cases (C-D) accounted for three-quarters of the ratings, while the remainder (25.8%) were found to be unsatisfactory (E-F).

Review Areas 1 and 4 generally received the higher ratings, with 57% of the categories under Review Area 1 receiving satisfactory ratings (C or higher) (Table 4-1). Performance was even

better under Review Area 4, with 69% of the rating scores being C or higher. By contrast, Review Areas 2 and 3 were poorly performed, with 62% of the scores graded under Review Area 2 being D or lower, while Review Area 3 was the most poorly performed with a satisfactory score in only 7% of the cases (n=434).

Table 4-1: Distribution of scores per Review Area

RA	n	A-B	C-D	E-F	C+	D-
1	837	32%	53%	15%	57%	43%
2	589	14%	46%	39%	38%	62%
3	434	0.5%	26%	73.3%	7%	93%
4	434	50%	36%	14%	69%	31%

On closer inspection, performance under Review Area 4 was found to be skewed towards satisfactory scores, with 50% of the reports receiving an A-B ranking, 36% being borderline (C-D), and only 14% receiving unsatisfactory scores (E-F). The other descriptive Review Area (RA1) received a more normally distributed range, albeit still being left skewed. Scores under this area were mainly in the borderline area (53%, C-D), while satisfactory (A-B) scores accounted for 32%. Unsatisfactory (E-F) scores accounted for the least percentage at 15%, a value that was almost identical to that found under Review Area 4.

Performance under Review Area 2 was more normally distributed, but skewed towards unsatisfactory scores, with 46% of the scores being borderline (C-D). This was closely followed by unsatisfactory scores (E-F) at 39%. Satisfactory scores (A-B) only accounted for 14% under this Review Area. Review Area 3 was unusually skewed towards unsatisfactory scores at ~73% for E-F and the remaining ~27% as borderline cases (C-D). No reports scored satisfactorily (A-B) under this Review Area.

The descriptive report aspects were thus consistently performed better than the analytical areas. Review Area 4 was better performed among all the Review Areas, followed by Review Area 1. This was then followed by Review Area 3, while Review Area 4 was the worst performed.

Analysis assumed the observations to be obtained independently and randomly from the population. To test whether the data of each factor level were normally distributed, a Shapiro-Wilk test was conducted. This revealed that the scores of the Review Areas were not significantly different from normal distribution ($W = 0.91997$, $p\text{-value} > 0.05$), and hence normality was assumed. In addition, the Levene’s test was used to determine common variance. The scores were found to be homogenous ($df_3 = 1.4745$, $F = 0.2249$). The data were thus found to be robust to assumptions of a one-way ANOVA test. This test thus was performed and indicated significant

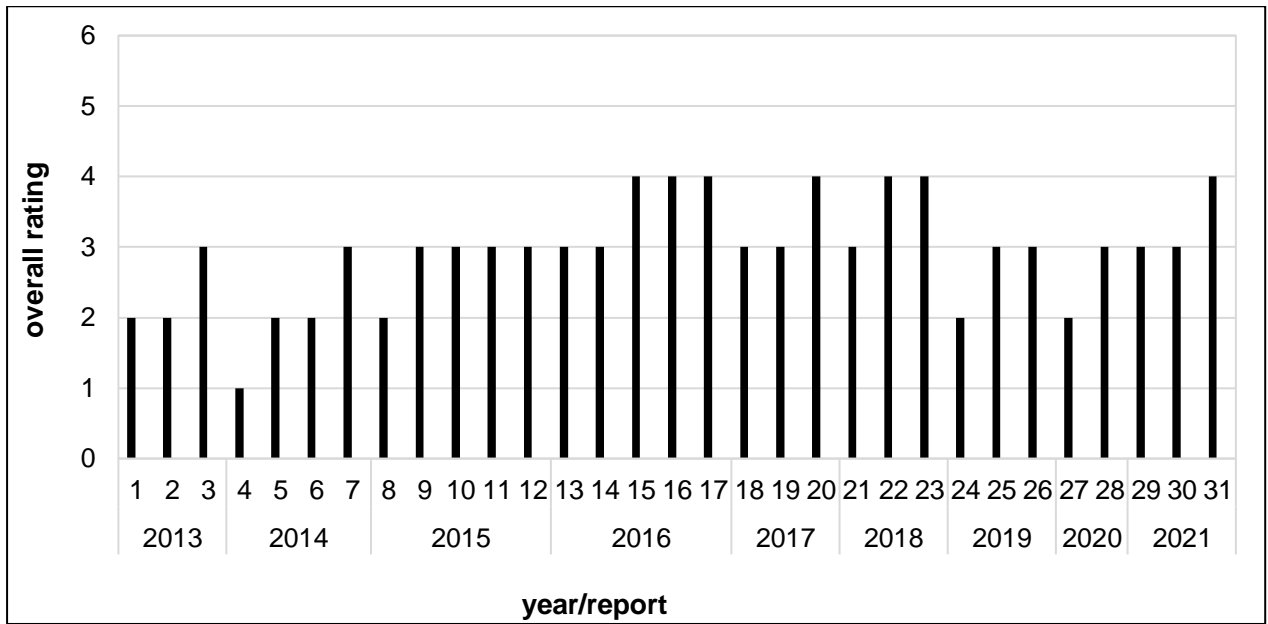
difference in the performance between the scores obtained per the Review Areas ($p < 0.05$). To reveal where statistical difference laid, a post-hoc Tukey multiple comparisons of means (95% confidence level) was conducted. Statistical difference was found between Review Area 3 and Review Area 1 ($F = 15.787$, $df = 3$, $p < 0.05$), between Review Area 4 and Review Area 2 ($p < 0.05$), and between Review Area 4 and Review Area 3 who each had an adjusted p-value of < 0.05 . Therefore, only Review Area 1 and Review Area 2 had similar performance scores.

An inspection of the Review Category scores revealed a pattern that closely matched the distribution of total scores (Table 4-2). Borderline cases (C-D) accounted for over half of the scores. Where borderline scores fell below 50% of the sample, these were in the unsatisfactory (E-F) range. Of the 17 Review Categories, only 3 had predominantly satisfactory scores (A-B). These were, Layout, General Presentation, and to some degree, Presentation of Environmental Issues.

In terms of longitudinal trends, a cursory trend analysis suggested an improvement in the general quality of EIA reports in the sample over the study period. This was linked to the absence of reports rated as E or lower beyond the year 2015, and an emergence of ratings of satisfactory or higher from the year 2016 (Figure 4-1). Owing to low sample size per year, overall-rating-per-year was avoided as an indicator of performance.

Table 4-2: Overview of results of quality review of a sample of 31 EIA reports

Summary of Review Category scores		A	B	C	D	E	F	%A-C	%A-B	%C-D	%E-F
1.1	Project description	0	6	18	7	0	0	77	19	81	0
1.2	Site description	0	9	11	10	1	0	65	29	68	3
1.3	Waste	0	3	4	16	6	2	23	10	65	26
1.4	Environmental description	0	4	11	10	5	1	48	13	68	19
1.5	Baseline description	0	3	10	10	6	2	42	10	65	26
2.1	Definition of impacts	0	0	7	16	7	1	23	0	74	26
2.2	Identification of Impacts	0	4	9	9	7	2	42	13	58	29
2.3	Scoping	1	3	11	8	0	8	48	13	61	26
2.4	Prediction of impact magnitude	0	4	2	9	14	2	19	13	35	52
2.5	Assessment of impact significance	0	0	5	10	12	4	16	0	48	52
3.1	Consideration of feasible alternatives	0	0	2	3	17	9	6	0	16	84
3.2	Scope and effectiveness of mitigation measures	0	0	3	9	16	3	10	0	39	61
3.3	Mitigation and Monitoring plan	0	0	1	10	18	2	3	0	35	65
4.1	Layout	2	15	9	4	1	0	84	55	42	3
4.2	General Presentation	1	17	7	4	2	0	81	58	35	6
4.3	Presentation of Environmental Issues	1	11	6	4	8	1	58	39	32	29
4.4	Emphasis of impacts	0	6	4	15	5	1	32	19	61	19
Summary of Review Area grades											
1	Description of project and environment	0	2	12	15	2	0	45	6	87	6
2	Identification and evaluation of key impacts	0	0	6	13	9	3	19	0	61	39
3	Alternatives and impact mitigation	0	0	1	8	16	6	3	0	29	71
4	Communication of results	0	9	8	11	3	0	55	29	61	10



6=A, 5=B, 4=C, 3=D, 2=E, and 1=F

Figure 4-1: Distribution of scores over review period

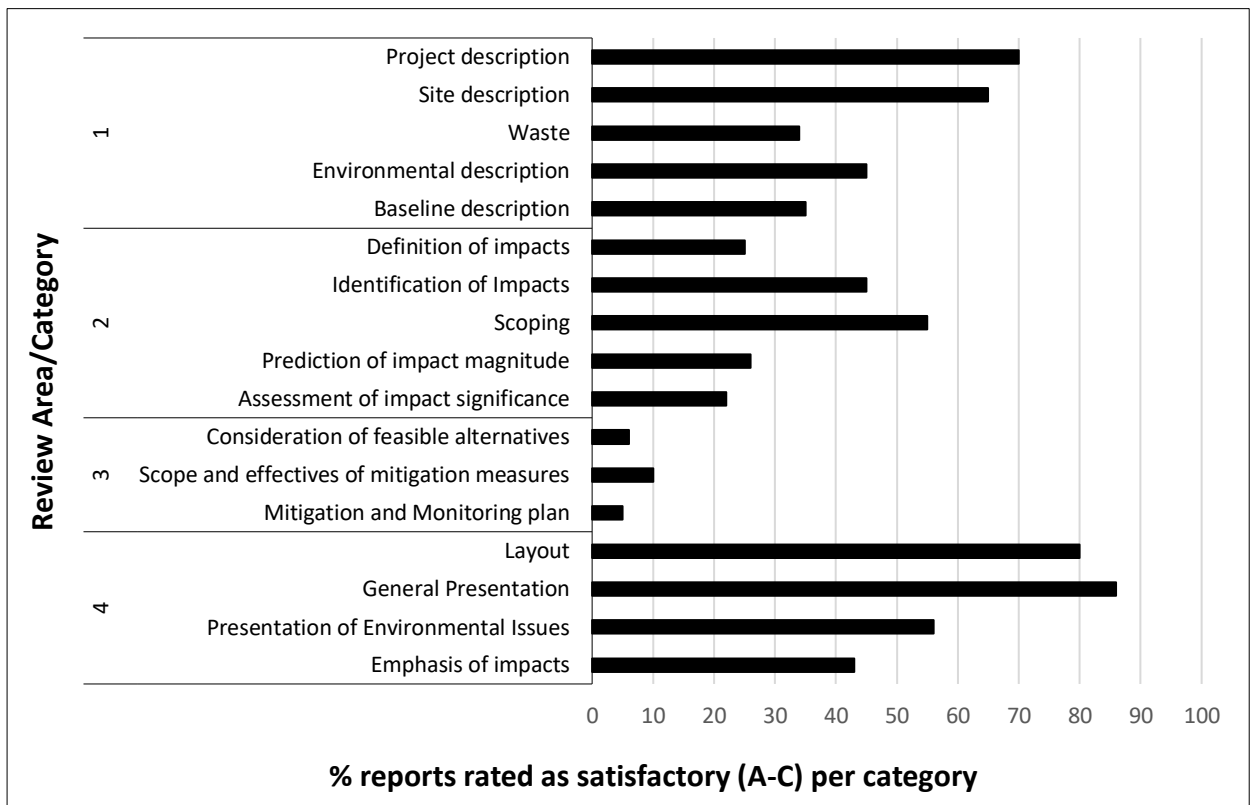


Figure 4-2: Distribution of scores per Review Category

The presentation of results so far likely concealed subtle trends in explaining performance in the Review Areas. Hence, additional presentation of findings at Category level is presented hereon to inform the interpretation of results obtained at Review Area level.

The percentage of reports obtaining a satisfactory score (C and above) per category under Review Area 1 (RA1) ranged between 34% and 70%. Review Area 2 (RA2) was among the poorly performed areas, with an average of 34.6% reports obtaining a satisfactory score per category (range 22% -55%). Review Area 3 (RA3) was the least satisfactorily performed, as the percentage of reports obtaining a satisfactory rating per category was below 60%. Within this Review Area, 3.2 (Scope and effectiveness of mitigation measures) obtained the highest scores, and only 6% of the scores were satisfactory. Under Review Area 4 (RA4), performance ranged between 43% and 86% per category (average 66%), with 4.2 (General Presentation) scoring the highest and 4.4 (Emphasis of Impacts) receiving the lowest score within the Review Area.

Salient observations made during the review are highlighted under this subsection to further inform the discussion and interpretation of findings.

4.2 Qualitative observations

4.2.1 RA1: Description of Project and Environment

The articulation of the proposed project was generally satisfactorily performed. Reports largely included location in coordinates, aerial images, and GIS maps. Among the better-performing reports, additional detail provided included building designs and structural plans. This contributed to the high rating of the Review Area as the report could reasonably articulate the proposed development. Project proponents were well-identified, as well as EAPs who were leading the EIA.

All references to Review Sub-categories hereon refer to the Sub-categories indicated in Annexure A of this dissertation. In a few of the reports, the consultants actually only provided the geographical setting that covered the entire delta, without providing any information more specific beyond that resolution level (Review Sub-category 1.1.3). While this is useful for introduction and context setting sake, it does not address the purpose of the environmental description given that a lodge-sized operation is unlikely to have impact that is significant at a sub-basin scale. The better-performed geographical settings confined themselves to concessions within the Delta, but even so, this was inadequate. Given that concessions typically hold more than one lodge, it is not ideal that the baseline description remains at concession level at this environmental impact is thus not attributable to a specific lodge. While the consultant might do this to enable quick copy-and-paste between EIA reports for related lodges, it boils down to the EIA exercise then not contributing any new information.

Reports that did not provide detail at a locality and lodge-catchment resolution therefore did not attract good ratings. Ideally, the setting would focus on the locality (zone) and buffer. In the absence of, for example, a land cover map for the proposed site, it becomes difficult to quantify the total area to be lost during construction, and thus EIA served limited purpose in informing decision-making. This reflects a room for improvement in the descriptions of the geographical setting of the lodges. According to paragraph f of Form B (Reg 5, schedule 2), the document should “provide an appraisal of dimensions of the study area and descriptions of relevant physical, biological and socio-economic conditions as this is important for future monitoring and auditing”. In instances where delta-wide appraisals are provided, future monitoring and auditing are not enabled.

In describing the nature of production process (Review Sub-category 1.1.6), the reports were all confined to the construction phase of the lodge, rather than operation, with the presumption that lodge operation was obvious. Firstly, this is not ideal given that the construction phase is typically only a few months, compared to operation which extends beyond a decade. However, given that this informs the aspect identification as well as impact rating, the poor articulation of this aspect limits the effectiveness of the exercise. As a result, high rating scores could not be awarded for this reason.

Similarly, the nature and quantity of raw materials (Review Sub-category 1.1.7) was confined to the construction phase, whereas the raw materials during operation would have a longer-lasting presence, as well as inform the determination and projection of, for example, waste to be generated over the project lifespan. Given the experience of consultants with lodge operations over the years, it is ideal that experiences from lived experiences and challenges be used to actually inform ongoing waste management and continual improvement of operations over the years. This point deserves emphasis; leases, land use management plans and water rights oblige lodges to routinely measure and systematically monitor their waste generation as well as water quality and quantities, among other environmental indicators. Hence, this provides an essential data source for practitioners to inform present projects as well as similar developments. The failure to either generate these data, or take up these data thus infers a failure by either party to perform environmental due diligence.

Another important category that was underperformed under the description was the legal setting (Review Sub-category 1.1.10). This provides, among other things, a yardstick for determining significance of impacts in terms of local, national and international quality standards. To their credit, the authors were generally able to present an exhaustive list of documents of environmental relevance. However, consultants commonly confined themselves to preambles of the legal documents, rather than pointing out salient provisions and sections that were triggered by the proposed development. Lodges are subject to an array of standards on waste handling,

infrastructure, water monitoring and other indicators which the EIA should explicitly point out and bring to the attention of the developer. Given the dismal effort at mainstreaming this knowledge, what this ultimately results in is that the report does not contribute any new knowledge to the client, consequently, the client becomes noncompliant purely due to lack of awareness, defeating the purpose of the EIA in this regard. For some, a summary of required authorisations would be one key step towards achieving the purpose.

One key constraint in the management of waste by lodges in the Okavango Delta is their remoteness. Given that these lodges include luxury accommodation and staff villages, tangible assessment of waste projections, implications and useful recommendations would serve to not only determine the desirability of the proposal, but also inform lodge management going forward. In most of the sampled reports, proposals on handling and transportation of waste (Review Sub-category 1.3.1) would typically indicate that the same trucks used to deliver supplies would carry waste on return trips. This suggestion directly contravenes the Waste Management Act as well as the Public Health Act. Whether alternative arrangements were feasible was, however, explored in none of the reports, thus suggesting that EIA was not serving its purpose in this regard.

It must be noted, however, that there was a general improvement in the estimation of types and quantities of wastes over the years (Review Sub-category 1.3.5), albeit emphasising on liquid waste. Given the challenges in adaptive waste management that are realised as lodges continue operating, it is vital that this aspect be explicitly considered during the impact assessment stage. This, therefore, resulted in just-satisfactory ratings among the better performed reports, as it did not adequately inform the management of other waste streams.

4.2.2 RA2: Identification and Evaluation of Key Impacts

As previously indicated, the Okavango Delta region leads the entire country in environmental research. This is typically in terms of fish and wildlife, ornithology, environmental economics, nature-based tourism, CBNRM, climate, conservation, hydrology, and forest resources. In spite of this, evidence of research uptake in the EIA report was lacking (Review Sub-category 2.1.1). Uptake was usually pronounced where the author of the research was part of the consulting team. Importantly, where these data and reports had been inserted, the non-technical summary of some analyses was insufficient. In one of the reports, the consultant actually appended an entire journal article to the report and left it to the reader to make sense of the implications to the proposed project.

The Participatory Principle is an integral part of the EIA process. Performance in this Category (2.3.3) was, however, highly variable. In some cases, the consultants dedicated themselves well to ensuring that this aspect was well performed. On the other hand, in some reports, one particular

consultant commonly claimed that I&AP consultation was unnecessary given that the EMP was addressing pre-existing facilities. The presumption that consultants can make decisions of behalf of other entities is undesirable and frequently resulted in an F-rating of the said Sub-category. If anything, ongoing facilities could use more insight from I&APs as these entities have lived and relatable experiences, rather than imagined challenges from desktop work. This should, hence, be seen as an opportunity to enhance the environmental compliance of the facility. Instead, what emerged in these cases was a deliberate attempt to circumvent regulations as there is no legal provision for neglecting the EAP's responsibility. Regulations require that stakeholders whose mandate is affected by a proposed project be consulted during this stage. While this was regularly undertaken, the tools used to solicit relevant information were themselves frequently not fit for purpose.

By comparison, consultation was extensively undertaken in some EIAs. This involved meetings at the *kgotla* (traditional open-air gathering place for official community meetings), one-on-one interviews with stakeholders, neighbour consultations, or self-administered questionnaires. Criteria for selection of I&APs was never indicated, rather, the results of this selection were. It was thus difficult to determine who were included and excluded and what other entities could have qualified for inclusion. Inclusion criteria would include, for example, all parties who resided within a specific distance from a proposed site, or those whose mandate covered a particular list. Unfortunately, this was left to interpretation. Where community consultation had been undertaken in line with paragraph g, only the *kgotla* was explored. Alternative means of consulting other than a *kgotla* would be desirable given that the majority of the community do not use this owing to lifestyle preferences. While this lack of initiative did not result in any reduced scores, it would have been desirable to append as a demonstration of means of reaching out to potential I&APs.

While literature is a good data source, and occasionally used, it is surprising that monitoring data were barely used (Review Sub-category 2.4.1). Where used, they were generally pasted in without being discussed in the main text. As previously mentioned, given the long-standing operation of most of the lodges, it is surprising that the value of this data source was discounted. Environmental assessment studies provide an opportunity to further refine pre-existing broad studies to certain localities, while assessing impact at a project scale. This, however, was not undertaken, and identification of key impacts (where attempted) almost exclusively confined itself to site visits rather than systematic monitoring.

As previously mentioned, there are standing requirements for licensed lodges to periodically submit their environmental monitoring records to the DWNP, to submit tourism returns to the DoT, while periodic monitoring is required by the DEA. There is therefore, in theory, an abundance of first-hand information that the consultants should have been able to draw from. This works in two ways; one being that consultants should have access to this information from authorities during

stakeholder consultations, and secondly, that the proponents should have this information available to inform the consultants' impact prediction exercise. While energy and water use information were evident in studies by one EAP, this was rare and far in between. As reflected in section 3.6.5.3 of the Botswana EIA Guidelines, monitoring provides an opportunity to verify predicted impact and assess the effectiveness of proposed mitigation. With this understanding, the absence of evidence in this regard contributed to the subpar ratings scores obtained in this category. Use of data to estimate magnitude of main impacts can thus in no way said to be standard practice within the reports that were reviewed during the study.

More importantly, the link between research and impact assessment was found to be low. While some reports might have indicated important information during the baseline description, this did not translate into transparent informing of impact assessment (Review Sub-category 2.4.2). Impact assessment (specifically, severity and magnitude estimations) never made reference to these data. One example was a report which had earlier indicated that there had been a flood and fire in the area that had resulted in extensive damage to a lodge, prompting fresh construction work. While this was an apparent risk with high-impact severity, it was surprising to encounter neither fire nor flood as potential impacts in the EMP, let alone be rated.

All the reports indicated that they used the RIAM (Pastakia and Jensen, 1998) to determine impact (Review Sub-category 2.4.2). While the limitations of the impact assessment method are a well-discussed topic, in the present studies the consultants did not perform the method to completion. One area of concern being how ratings are derived. Under the selected method, impact rating is generally a product of probability and severity. However, the derivation of these indicators was not apparent to the reader. Generally, probability is a function of historical data, i.e. number of occurrences over a monitoring period, while severity on the other hand is determined from, e.g. the economic cost in the event that an impact does occur. The latter is determined from the indicated thresholds as elaborated in the impact rating criteria. These data are generally derived from past monitoring events, simulated events, or literature findings. This is indicated under Reg 5, Schedule 2, Form B, Paragraph h -bullets 8 -11. As such each of these require extensive analysis and attention. In the present reports, however, the consultants seemed to either have divine knowledge or sorcery. So, while the rating method selected is in itself admissible, it is the execution of the impact rating that left much to be desired.

With the exception of the mandatory AIA, there were no specialist reports encountered in the study sample. People with no apparent ecological background wrote ecological sections, this means that practitioners undermine the system. This is surprising given the importance of hydrological, health, ethnographic, social and labour issues, as well as ecological impact. While the absence of these did not particularly result in the low scoring of the Sub-category, it did stand out as a peculiarity and area of concern.

Predictions of impact in measurable quantities (Review Sub-category 2.4.3) were in effect the poorest-performed area. Ideally, this was the key area informing the decision-making process. However, impact prediction commonly restricted itself to statements such as “there will be noise pollution”. It does not take an EAP or an EIA to know that there will be noise pollution; what is important is how much noise pollution there will be and how it rates from which receptor to inform the impact’s acceptability. This would be tied to legal thresholds or social tolerance standards. An alternate socioeconomic indicator would be the disaggregated degree to which the proposed project would be anticipated to affect the local unemployment rate. This sets a directly measurable gauge which can inform the accuracy of prediction and overall project impact.

In the absence of this, impact assessment is not only in vain, but also a waste of time and money to the project proponent. In addition, in the absence of this information, decision-making by the authorities is thumb-suck and can in no way be said to be based on EIA information. To illustrate, one needs to be able to differentiate between “noise pollution” from a luxury lodge and a power station. However, if the reports confined itself to “there will be noise pollution” then in no way can it be said that the EIA report informed the determination of the proposed project’s acceptability. Such vague statements were thus the reason why this area was consistently rated as unsatisfactory as they did not contribute any useful information.

In addition to fieldwork and a survey of literature, impact identification should be informed by the scoping exercise. This involved the request for data from stakeholders, and soliciting perceived and realised issues from administrators and I&APs (Review Sub-category 2.3.3). However, this aspect was not streamlined to inform this part of the exercise. Impact identification and analysis remained generic. Scoping was treated as a box-ticking exercise, rather than an integral part of impact identification.

4.2.3 RA3: Alternatives and Impact Mitigation

In spite of extensive requirements under paragraph i of Form B (Reg 5, schedule 2), the purpose of an analysis of alternatives was seemingly unapparent to the consultants. Alternatives analysis was underperformed, if at all (Review Sub-category 3.1.1). In effect, all the consultants did was to defend the initial proposal. One example is the repetitive statement that there were no alternative sites to consider; to state that there were no siting alternatives for a 2,500sqm facility in a 6,500 km² concession does not reflect application of mind in this regard. This similarly applies to the description of alternative processes, designs, and operating conditions (Review Sub-category 3.1.2). In the absence of descriptions of feasible alternatives of realising the intended project, it was difficult to assign any decent score to the rest of this section. In the latter years, the consideration and systematic comparison of Sewage Treatment Plants became evident.

However, this was applied to brands rather than process. It would be ideal if this was given more attention, and extended to all other feasible alternatives considerations.

In a study on mining EIAs in South Africa, poor consideration of alternatives in the sector was found to be a result of the legislation's failure to prescribe appropriate means of considering alternatives (Sandham, Hoffmann & Retief, 2008). While this study did not assess the reasons for poor performance, it is possible that this explanation would apply to the current regulations in Botswana given their room for interpretation.

In relation to effectiveness of mitigation measures (Review Sub-category 3.2.2), the summary recommendation was to always "go ahead". Recommendations made from the EIA were always vague, for example "consider environmental law". This begs the question that if default proposals for lodge facilities always made environmental sense, then what purpose is it to require them to undergo EIA in the first place?

4.2.4 RA4: Communication of Results

Maps and charts were generally included to communicate the results in various reports (Review Sub-category 4.1.3). Although performance in this review category this was highly variable, there were indeed instances where this was performed exceptionally well. This, however, generally followed EAP patterns, and reports by particular practitioners could be readily discernible from the template used. The regulations do not state explicit standards for presentational aspect of EIAs, it was thus not possible to determine legal minimum standard in this regard.

In some instances, however, reports merely presented satellite images, leaving it to the reader to interpret the images. While this might seem trivial to more-sophisticated audiences, it generally creates a limitation to some non-technical readers. In rare incidents, maps on flood risk, fire history, land cover, access route, site plans were included, attracting the highest rating score in this Sub-category (4.2.1).

One point for improvement was the lack of emphasis on potentially severe impacts (Review Sub-category 4.3.1). Instead, reports resorted to inventorying impacts, leaving it to the reader to determine the important ones. One way in which this could be done is by a summary matrix at the end of the chapter, which was rarely done in the study sample. Importantly, this was not performed in the Executive Summary (Review Sub-category 4.4.1), requiring the reader to then go through entire chapters just to identify the key information.

Recording of minutes of meetings by EIA with I&APs and response of EIA to comments and issues raised were typically recorded (Review Sub-category 4.3.4). Although stakeholder consultation tools were usually unsatisfactory. This was in part due to poor awareness of the EA

process by stakeholders. Respondents would typically rush to discussing aspects that were not within their mandate, or would select generalist (template) responses rather than focusing on the proposed project.

4.3 Additional observations

In spite of there being numerous lodges in the Okavango Delta, these lodges are operated by only a handful of companies. These few companies have only 3 EAPs that they work with, presumably under a retainer, hence EIA reports were consistently drafted by these individuals. For the 5-star lodges, one EAP performed over 90% of the EIAs, hence would have resulted in autocorrelation. By the tenth report, it had thus become apparent that the consultants used their own templates, which they transferred from one lodge to the next. While inherently not wrong, the only difference observed was in Review Area 1 (Project Description) and the rest of the sections remained exactly the same. This therefore meant that with subsequent reviews, the number of new findings had plateaued.

This observation means that EIAs in the Okavango Delta are in effect using a template report. If this template report is fit for purpose, then there is no point is repeatedly requiring specific EIA rather than developing a generic EIA for lodges. However, as the generic report was found not to be sufficient, focus should be made on enhancing the results, especially considering the cumulative impact arising from the development of tourism infrastructure in this globally important wetland.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

This chapter explicitly demonstrates that the research aim and sub objectives have been achieved. The overall aim of the research was to evaluate the quality of EIA reports for lodge development in Botswana's Okavango Delta approved between 2013 and 2021. The research results are discussed in relation to the aim of the research as well as the specific objectives, which were;

1. To identify the pattern in overall quality of environmental assessment reports for lodges in Botswana's Okavango Delta,
2. To compare the relative quality of review areas in the reviewed reports,
3. To perform a longitudinal assessment on the overall quality of the reviewed reports over an eight-year period (2013 to 2021).

Section 5.1 discusses possible causative factors as well as implications of the findings by placing the outcomes of the research in a wider context of EIA effectiveness. Section 5.2 highlights the key takeaways from the research and ends by making recommendations as informed by the current research's findings.

5.1 Discussion

The performance of EIA is a constant balance between profit maximisation for the consultant, cost (time and financial) minimisation for the client, and effectiveness maximisation for the public/reviewer. As a result, it is less likely that a pool of EIA reports would consistently achieve an outstanding rating during quality review. Performance will more likely be along a continuum that seeks to balance between these conflicting and limiting considerations. This research thus sought to determine where exactly along this spectrum the EIAs being conducted for luxury lodges in the Okavango Delta fall. Findings revealed that the quality could generally be rated as borderline-unsatisfactory, suggesting that EAPs generally targeted the legal minimum requirements. Reports fared well in the easy-to-attain aspects, being the descriptive areas, while performance in the more analytical areas suggested the application of minimal effort on this aspect.

5.1.1 Possible explanation of Findings

This study was empirical, hence could not offer causations of the findings. Notwithstanding that, possible reasons will be advanced based on insights from the literature review.

The descriptive areas were likely well-performed on account of simplicity of obtaining the information. For Review Area 1 (project description), this likely stemmed from pre-existing

documents where EAPs could extract the required description. In the Okavango Delta region, the successful acquisition of operating rights for tourism facilities in concessions is often linked to tendering processes. In these tender bids, bidders have to articulate their proposed projects, indicating the proposed buildings and general business operations. The availability of these tender bid documents likely informed this area of the EIA, hence contributing to the good performance observed in the reports. For Review Area 4 (communication of results), a standard template would address most categories of the review area (e.g. introduction, acronyms, logical arrangement of information, map inclusion, reference, record of minutes of meetings with I&APs, summary etc.) which can in general be transferred between reports.

One noted insufficiency was a consistent inadequacy in the description of the legal setting (Review Sub-category 1.1.12). This was likely result of consultants attempting to perform this analysis themselves, rather than engaging individuals with some specialised legal training for the aspect. Specialist input is required in various sections of an EIA report, this includes the selected Sub-category. In this section of the EIA reports, the consistent trend was that the numerous environmental laws of relevance were simply listed, without explicitly how specific provisions applied to the proposed development. Given that there were numerous such laws, strong competence in the undertaking of the task required a good grasp of the legal setting.

In terms of longitudinal assessment (Objective 3), the improvement in the quality of reports was likely an artefact of familiarity with the EA regulations. This applies to both consultants and reviewers. In addition, the stark similarity between reports, and the regularly-noted reference to wrong projects within some reports suggests that consultants use reports that have been previously approved for other projects as a benchmark, hence a general cumulative improvement in the quality in terms of structure and format.

In terms of relative performance by Review Area, this study found significant difference between performance in analytical Review Areas compared to descriptive Review Areas. At 22.6%, results of this tourism-focused study differed from those in similar research in South Africa. In the South African review, tourism-related EIA reports were found to be 92% satisfactory, with a higher frequency of A and B grades (Huysamen, 2019). In the present research, however, performance in analytical areas indicated only 25% to be satisfactory, compared to 61% in descriptive areas. This thus showed a trend opposite to the Huysamen study. There, data availability was identified as a possible explainer of the satisfactory performance in the study sample. In the Okavango Delta, extensive research output is available, thus the issue was not data-paucity, but rather the inadequate uptake thereof (Morrison, 2021).

Consistent with the observations of the South African research on solar plant EIAs, this research observed the communication aspect of the reviewed reports to be performed poorly (sub-category

4.2.1). The argument that this undermines the technical findings within the reports is similarly found to be persuasive (Boshoff, 2019a). As observed the Limpopo Province review, the social baseline in the EIAs was found to be inadequate, with emphasis regularly placed on physico-chemical and biological aspects (Sandham, Siphugu, and Tshivhandekano, 2005).

This research found less than a quarter of reports to be satisfactorily performed. This was in contrast to research in the North West Province of South Africa, where over four-fifths of the reports were satisfactory (Sandham & Pretorius, 2008). Consistencies, however, lay in the inadequacy of important information in some parts or sampled reports in both studies.

Given the qualification of a majority of practitioners (including reviewers) in Botswana, it is perhaps not surprising that the descriptive components are better performed; the EAPs are mostly humanities graduates (English majors) (Environmental Assessment Practitioners Board, 2022). Unlike for AIA, there is no legal requirement to involve specialists, so these less-qualified individuals seemingly circumvent the involvement of specialists in areas that require analytical thinking. This equally applies to the review process, as there is no obligation to involve technical departments in the review of EIAs other than at scoping -which means that the determination of technical aspects of reports is left to generalist reviewers. An alternative interpretation of this result is the inability of more-technical EAPs in translating domain-specific information into impact assessment, even with the best intentions -requiring conversion courses to make their knowledge relevant to the practice. Generally, consultant attributes such as qualifications, experience might help explain this pattern; however, anecdotal evidence suggests that this would be misleading in the North West as some consultants hire out their certificates, thus specialists might be responsible for the overall report without the purported lead consultant having even looked at the report. Individuals who have been excluded from the practice by EAPB have apparently resorted to this approach as a means of bypassing regulations.

As indicated elsewhere in this report, it was anticipated that the quality of scientific data provided in the current area would be high given the existing environmental research pool. However, this was found not to be the case. The pattern observed in the SANParks EIA study (Sandham et al., 2020) was, however, was an outlier. Generally, EIA quality reviews reveal descriptive areas to be better-performed than analytical areas. In a study on the technical rigor of tourism EIAs in Australia, the quality of scientific data in EIA documents was found to be unsatisfactory (Warnken and Buckley, 1998). This is consistent with observations of the current research. Research on the quality of biodiversity inputs in South Africa found weaknesses relating to alternatives consideration, impact prediction, mitigation and monitoring, among others (Hallatt, Retief & Sandham, 2015). Inadequate understanding by biodiversity specialists on the role of ecologists in EIA was suggested as a possible explanation for this role. This is a believable argument, given that formalised EIA training is rare within Botswana. Currently, on-the-job training of candidate

EAPs relies on a royalty system which might have its limitations, such as bearing traits of an old boys' club rather than a merit-based system. In this case, substantive effectiveness of EIA in the study area would therefore be compromised by the procedural ineffectiveness which compromises the normative arrangements.

The findings of this research were also consistent with those by other studies on tourism (Wylie, Bhattacharjee & Rampedi, 2018), who similarly reported adequacy in descriptive parts rather than the analytical tasks. In spite this similarity, the current study concluded that the tourism EIA reports in the Okavango Delta were generally non-compliant, contrasting those for tourism-related infrastructure in South Africa which were generally compliant.

Findings of the current research also paralleled those of Sandham *et al's* review on wetland-based EIA in South Africa (2008) in finding descriptive and presentational parts of reports to be performed better than the more analytical components. This reflected general sufficiency in description and communication. Furthermore, the consideration of wetland-specific issues as provided for by the ODMP, Wetlands Policy and Strategy, and Wetlands Inventory were systematically neglected in the sample pool. Moreover, overall scores ranged closely, while variation at category and sub-category level ranged widely.

The findings of the longitudinal analysis agreed with those of the Sandham *et al* review (2020). This comparison between these research projects should, however, be treated with caution as Sandham *et al's* review compared performance between EIA regimes while the current review focused on yearly change within a single regime. In comparison to Lesotho (Tchakounteu, 2021) which revealed overall quality improvement in the reports over time, the present research was similar, as previously discussed.

Quality reviews in other countries have found that baselines are normally overly reliant on qualitative descriptions for what should be quantitative baselines. This reduces the amount of work that consultants have to undertake during fresh projects. Although this might reduce costs for the proponent, it does not do justice to the role of the EAP as the environmental custodian. As noted by Saidi, consultants are usually more interested in the business case (2010). If the report remains vague in its description and not project, this normally makes it easier for authors to copy text from one report to another. This was observed in most reports in the sample, where the description of the project area would not provide detail more specific than the entire geographical extent of the delta, or the concession, as opposed to the specific setting where the lodge would be located. However, so far, no project has delta-wide impact, hence making the baseline description contained in the sampled reports largely irrelevant. Consistent with findings of another research by Wylie, Bhattacharjee and Rampedi (2018), the absence of baseline environmental data resulted in mass production of EIAs of poor quality and little value. This arouses questions

on whether it was worth it to invest in the procedure. Vague and inadequate articulations of the starting baseline result in misguided and compromised impact assessment procedures (Wylie, Bhattacharjee & Rampedi, 2018).

In the event that EAPs do not apply their minds to the environmental assessment task, the effectiveness of in the Okavango Delta remains unconvincing. Inadequate monitoring methods mean that it is not possible to track impacts. This carries further beyond specific projects, as producing EIA reports which do not offer any new impact information limits their utility in informing cumulative impact (IAIA, 1999).

In the few reports that better-performed Identification and Evaluation of Key Impacts (Review Area 2), scoping was identified as an area of strength in the EIA system. Rather than concentrating on conventional consultation tools, one EAP employed household interviews (rather than the usual *kgotla* meeting) in the nearest settlement, which was a commendable initiative. The procedural effectiveness of this aspect should be encouraged to realise the Participatory Principle under EIA. While the scoping still fell short of genuine attempt to appreciate environmental issues and discuss them, this presents an area to be enhanced through various interventions.

From a normative efficiency standpoint, it is likely that EIA in Botswana holds up to regional standards. Through the listings/thresholds approach, proposed projects are subjected to the EIA process as a requisite to obtaining clearance. For the research sample, the reports produced during this process were found to be of borderline quality. It is important to note that the substantive EIA in the sampled reports is not dismal. While generally not strongly meeting the legal minimum, and not up to best practice, it presents an opportunity for improvement rather than a desperate state of affairs. As normative EIA has been in place for at least 17 years, the time is ripe for the practice to truly provide value to both the public and the clients. Importantly, descriptive aspects are already comparable to international standards, hence focus should be placed on the analytical aspects.

From a conservation management standpoint, if the EIA reports being used to guide development are not technically sound, this then leaves uncertainty in the management of the Okavango wetland resource. The consequence of this is the vulnerability to tourism-related impact (Wylie, Bhattacharjee & Rampedi, 2018), which in turn risks the erosion of the very resource that drives the tourism in the area. It is possible that borderline-unsatisfactory practice dominates in the Okavango Delta, emanating from borderline-unsatisfactory EIA reports. If this is found to be true, then the maintenance of environmental impact below tipping points would be attributable to current assimilation capacity of the wetland, rather than proactive environmental management - an undesirable and uncertain state of affairs. While natural resources should benefit the local

communities, it should not be in a manner that is potentially detrimental to the areas' environmental integrity.

If the observations made in this study also hold true for the rest of the sector in the district, it can then be concluded that EIA is not serving its purpose, at least in North West District. Considering that the current sector attracts high levels of scrutiny, not only from the public but also stakeholders, the availability of a delta-focused research institute, and other similar sectors, EIAs within this sector/area possibly present the best standard in the country. There is therefore a high chance of poorer performance in other sectors or geographic areas.

Analytical areas, which normally require specific focus and application of mind were not as well-performed. The marginal value of these is not acknowledged, especially where the audience is not sensitive to these. This thus results in a glossy looking report which conceals the substantive inadequacy of the content. In the absence of actionable baseline description, transparent impact prediction, feasible alternative analysis, and genuine I&AP consultation, it is not possible to state that substantive effectiveness is being attained. This dilemma can be well articulated in the phrasing of Claasen J in the *BP Southern Africa (Pty) Ltd v MEC for Agriculture, Conservation, Environment and Land Affairs judgment (RSA)*; absent the assessment of environmental impact, what is then left of "EIA" report?

As previously indicated, one limitation of the Lee and Colley review package in the equal weighing of review areas, which conceals unsatisfactory performance in difficult-to-attain areas by skewing from descriptive aspects. In the absence of substance, however, good presentation provides no value. While this might appear an overly-critical statement, it stems from the question whether conditions of authorisation would be any different if the lodges did not undergo EIA process, or whether the lodges would run any differently in the absence of the environmental assessment. While EIA might present a standard for proponents to keep performing due care (normative), there is nothing to suggest that the actual documents provide any new information for decision-makers or project proponents to guide the means in which they carry out their operations. This thus makes EIA a more celebratory tool than an actual hands-on asset. Consistent with sentiments of Huysamen (2017), one would argue that the process is flawed, resulting in competent authority receiving barely any information adequate for informing decisions.

Given the time and cost incurred by project proponents, the situation speaks to Ifflander and Soneryd's (2014) observation that EIA is seen as a means of generating income to the consultants and authorities, rather than a service to be provided. In this regard, EIA is just another tax that the payer does not care too much about. It is an obligation rather than a service, especially given the cost, only to be given an off-the-shelf product. As noted by Saidi (2010), it supports a business case to forego the involvement of specialists.

The legal minimum in terms of content is vague and leaves room for interpretation. This thus leaves it to the reviewer to determine the details to improve the adequacy/quality of the report. As observed by Peterson (2010), reviewer scrutiny plays an important role in the ultimate quality of EIA reports and thereby the quality of the broader system. This thus requires the reviewer to be knowledgeable enough about the specific sector, the location, the law, and the environmental issues surrounding the proposed project. Unlike in neighbouring South Africa, most national standards in Botswana (by the Botswana Bureau of Standards) are not explicitly referenced in law, so where these are enforced, it is usually a result of EAP willingness or reviewer insistence -rather than a legally-backed requirement. That being said, overreliance on legal approach would likely drive practitioners to striving to just meet the minimum requirements. This, however, might be seen as a hinderance in Botswana's "unfettered pursuit of development" (Madebwe, 2019). As noted by other authors, governments have become disenchanted with EIA, under pressure to deliver on employment and socioeconomic upliftment (Wylie, Bhattacharjee & Rampedi, 2018), and are unlikely to make EA legislation any more stringent.

The longitudinal improvement of report quality implies that the report quality requires constant interaction between consultants, the public and the reviewers. With a target in mind this can be worked towards.

5.1.2 General Performance

Similar to regional experience (Sandham *et al*, 2020), owing to the stricter thresholds when implementing EIA, the Botswana competent authority has likely become overloaded and strained with many applications related to insignificant activities. According to a study commissioned by the World Bank, Botswana had 3000 applications per year (c. 2014) (Olabarri, 2014), compared to 70 in the Netherlands and 3600 in South Africa (Retief, Welman and Sandham, 2011). This thus suggests that the consultants and competent authority might be overwhelmed by the applications, hence limited in ensuring quality.

5.2 Conclusion

This 31-report quality-review used an adapted Lee and Colley review package to determine whether the quality of EIA reports used to inform decision-making in the Okavango Delta complemented the legislation in place to support sustainable tourism. As a key wetland and the country's only Ramsar site, a World Heritage Site, part of the KAZA-TFCA, a Protected Area and biodiversity-rich region, the Okavango Delta deserves careful consideration in ensuring that EIA increases activity efficiency and improves environmental sustainability.

Prior to this research, it stood to be determined whether EIA realised its intentions in the country, and whether EIA output in the area justified its generally-accepted challenges. Hence, the

research generated empirical evidence on the quality of EIA reports approved between 2013 and 2021 for lodge development, the predominant activity in the Okavango Delta.

5.2.1 The pattern in overall quality of environmental assessment reports for lodges in Botswana's Okavango Delta

The overall quality was found to be borderline-unsatisfactory, with less than one-quarter of the reports being satisfactory, notably lower than performance reported for similar systematic research on EIA substantive effectiveness in Southern Africa.

5.2.2 The relative quality of review areas in the reviewed reports

Importantly, performance in descriptive areas constantly outweighed performance in analytical report aspects. This therefore means that the representation of a report's overall quality was usually skewed by the low-hanging report aspects, concealing the unsatisfactory performance in difficult-to-attain areas. Inadequate prediction of impact magnitude, consideration of feasible alternatives, as well as insufficient mitigation and monitoring arrangements thus undermined the provision of information necessary to inform decisions.

5.2.3 To perform a longitudinal assessment on the overall quality of the reviewed reports over an eight-year period (2013 to 2021)

General improvement in report quality was, however, found to have occurred over the study period, likely as a consequence of development of familiarity with EIA content requirements by both reviewers and consultants.

In light of the above, results suggest that EIA remains a compliance-driven activity in the Okavango Delta, supporting the sentiment that EIA approvals have simply become a red-tape exercise to secure development permits -rather than a meaningful process to inform decision-making. It is thus concluded that lodge development in the Okavango Delta meets the needs of the present but possibly risks compromising the ability of future generations to meet their own needs.

Thus, in spite of commendable presentation, the content of EIA reports used to inform decision-making in the Okavango Delta was found not to complement the legislation in place to support sustainable tourism. Notwithstanding that quality does not imply EIA effectiveness, but merely one means of contributing to the quality of decision-making, this leads to the conclusion that the information provided in the EIAs was marginally insufficient to inform decisions.

5.2.4 Recommendations

In the absence of firm explanatory factors of the observed patterns, these recommendations are made with the caveat that the presumed explanatory factors are valid; Key areas of weakness were; Baseline Description (Review Category 1.6), Identification of Impacts (2.1), Prediction of Impact Magnitude (2.4), assessment of Impact Magnitude (2.5), Alternatives and Mitigation (Review Area 3). In light of this, the following recommendations are made;

- To realise the improved consideration of analytical aspects of EIA (RA2 and RA3), a tool for transparently indicating all issues that should be considered in an EIA report should be developed. Current practice suggests that a web-based Environmental Screening tool as a decision-support assists this role. This can also mainstream monitoring and auditing which should provide a feedback loop for better-informed EIAs.
- To ensure quality of EIA in the area/sector, the training of reviewers should be embarked upon. This includes stakeholders, who routinely provide input either through technical review or as I&APs (RC2.3). This equally enables the standardisation of practice and enhancement of familiarity with legal standards as well as best practice through introductory and refresher courses. Consistency among reports, officers, and districts can be realised through standardised practice introduced via capacity building. This would serve to control the large discrepancy between outputs by reviewers of the same office.
- To enhance meaningful participation in RC2.3, EIA-specific environmental awareness to the public should be embarked upon, facilitated by the National Environmental Fund, led by environmental NGOs and activists. Similarly, alternative and meaningful consultation should be encouraged of EAPs to enhance performance of the scoping aspect, this is because some stakeholders and the public are not given a genuine opportunity to be heard, while others are consultation-exhausted.
- To reduce the workload of consultants and reviewers, regularise the template approach to conducting EIA currently being employed by consultants, akin to the generic Environmental Management Programme (EMPr), contemplated in Regulations 19(4), 23(4) and Appendix 4 to the South African Environmental Impact Assessment Regulations, 2014. This speaks to improving overall performance, which currently stands at 22.5%.
- From an incentive aspect, industry awards for well-conducted EIAs should be considered by the EAPB. Improvement would most likely be realised by enhancing performance in RAs 2 and 3.

5.2.5 Future research

To take the research forward and build on what has been done here, the following areas for future research are recommended, which would further inform and strengthen the EIA system in Botswana:

- To add a more qualitative dimension to the present research, conduct a social survey/ opinion poll on current practice as had been done in the (Swanepoel *et al.*, 2019) research;
- Determine the procedural effectiveness of EIA in the tourism industry in the Okavango Delta through an evaluation of adherence to post-decision implementation and monitoring;
- Conduct a comparative review on the substantive effectiveness in the extractive industry as the second-most EA-subjected sector in North West District, and widely considered the most-impactful; and
- From a normative effectiveness standpoint, investigate the legislative shortcomings of current regulation. Current substantive effectiveness was found lacking in spite of current provisions. It would thus be ideal to identify where deficiencies that ultimately contribute to substantive inefficiency lie.

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ANNEXURE A

Sub-categories for rating scores

Sub-category	Required standard	Requirement	Regulations
1.1.1	Proponent identification	Project proponent, nature in law, nature of business	Reg 5 Schedule 2, Form B, paragraphs a
1.1.2	Purpose and objectives	Purpose of proposed project	Reg 5, Schedule 2, Form B, paragraphs c and e
1.1.3	Time and space boundaries	Project lifespan and spatial footprint, including catchment area and ancillary components by phase	Reg 5, Schedule 2, Form B, paragraph e
1.1.4	Design and size -coordinates, whether an activity is linear (description of route and activity), or point based	Process, whether by chart or otherwise	Reg 5, Schedule 2, Form B, paragraph e
1.1.5	Presence and appearance of completed development	Clear illustration of anticipated finished product	Reg 5, Schedule 2, Form B, paragraph e

Sub-category	Required standard	Requirement	Regulations
1.1.6	Nature of production process	Process flow, including construction, operation and decommissioning	Reg 5, Schedule 2, Form B, paragraph c
1.1.7	Nature and quality of raw materials	Phase wise illustration of project inputs	Reg 5, Schedule 2, Form B, paragraph e
1.1.8	Identification of application	Components and their respective placement and magnitude (to inform accountability as well as capacity to implement EIA recommendations)	Reg 5, Schedule 2, Form B, paragraph a
1.1.9	Details of EAP	Name, contacts and registration number on first page. Background (profile)	Reg 5, Schedule 2, Form B, paragraphs a and c
1.1.10	Identification of all legislation and guidelines considered	Prominent requirements under each law and explicit sections requirements thereof to indicate whether these are in line with proposed activity	Reg 5, Schedule 2, Form B, Paragraph d

Sub-category	Required standard	Requirement	Regulations
		<p>Explicit identification of required thresholds (tolerance levels)</p> <p>List of required authorisations</p>	
1.2.1	The need and desirability specified	Current gap and the anticipated suitability of the proposal	Reg 5, Schedule 2, Form B, Paragraph c
1.2.2	Area of development site (%)	Project boundaries indicated on map, including catchment area	Reg 5, Schedule 2, Form B, Paragraph e
1.2.3	Demarcation of land use area	Project boundaries, including neighbouring land uses (for sensitive receptor types)	Reg 5, Schedule 2, Form B, Paragraph e and f
1.2.4	Duration of phases	Textual indication or tabular presentation (e.g., Gantt chart)	Reg 5, Schedule 2, Form B, paragraph e –bullet 5

Sub-category	Required standard	Requirement	Regulations
1.3.1	Means of transporting raw materials	Indication of how various raw materials would be transported (phase wise; hence this includes operation and decommissioning)	Reg 5, Schedule 2, Form B, paragraph e –bullet 6
1.3.5	Types and quantities of wastes	Identification of waste streams (phase wise) and transparent prediction of quantities; includes solid, sewage, hydrocarbon, and sanitary	Reg 5, Schedule 2, Form B, paragraph e –bullet 9
1.4.1	Treatment, disposal and disposal routes	Waste handling (by phase, and by stream	Reg 5, Schedule 2, Form B, Paragraph e -bullet 9
1.4.2	Area to be affected by development: geographical, physical, biological, social, economic and cultural aspects	Catchment area, downstream rivers, downwind land uses, communities (social and labour indicators)	Reg 5, Schedule 2, Form B, paragraph f

Sub-category	Required standard	Requirement	Regulations
1.5.1	Effects occurring away from immediate affected environment	Downstream (physical and social) and/or downwind impact	Reg 5, Schedule 2, Form B, Paragraph h -bullet 2
1.5.2	Important components of the affected environment	Sensitive areas in term of hydrology, poverty, crime, ecology, heritage, archaeology etc	Reg 5, Schedule 2, Form B, Paragraph f
1.5.3	Existing data sources	Research uptake, mainstreaming of monitoring data (if project existing, else from monitoring of similar projects)	Reg 5, Schedule 2, Form B, Paragraph n and o
1.5.4	Local land use plans, policies consulted, and other data collected	Identification of Administrative instruments and data therein	Reg 5, Schedule 2, Form B, Paragraph f (last sentence), but also d, n and o
2.1.1	All possible effects on environment, cumulative, short, medium and long term, permanent and temporary, positive and negative	Inventorizing of impacts, application of mind to specific project and awareness of monitoring results of similar	Reg 5, Schedule 2, Form B, paragraph h

Sub-category	Required standard	Requirement	Regulations
		projects (by nature or location) uptake of information from	
2.1.2	Interaction of effects on human beings, flora and fauna, soil, air, water, climate, landscape, material assets and cultural heritage	Landscape/ecosystem assessment	Reg 5, Schedule 2, Form B, paragraph f
2.1.3	Impacts from nonstandard operation conditions -accidents etc	Impacts when construction/operation/ decommissioning occurs in a rare but possible manner	Reg 5, Schedule 2, Form B, Paragraph g
2.1.4	Impacts from deviation from baseline conditions	Rate against identified tolerance levels	Reg 5, Schedule 2, Form B, Paragraph g
2.2.1	Impact identification methodology -project specific checklists, matrices, panels of experts, consultations, etc	ERA, RIAM, etc	Reg 5, Schedule 2, Form B, paragraph f
2.2.2	Brief description of impact identification methods used	Transparency and reproducibility	Reg 5, Schedule 2, Form B, paragraph g

Sub-category	Required standard	Requirement	Regulations
2.3.1	Contact general public and special interest groups	Criteria for selection of I&APs and proof of genuine attempt to meaningfully contact them	Reg 5, Schedule 2, Form B, paragraph g
2.3.2	Proof of advertising and noticeboards etc to notify I&APs	Use of context relevant advertising means. Alternative means of advertising are an advantage	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)
2.3.3	Collect opinions and concerns of I&APs (%) notify I&APs	Community meeting, virtual platform, questionnaire, strategic community centres, house to house, street interviews, FGDs. Genuine attempt to obtain opinions.	Reg 5, Schedule 2, Form B, paragraph f
2.3.4	List of all persons identified as I&APs	Should speak to map and stakeholder analysis matrix.	Reg 5, Schedule 2, Form B, paragraph o
2.3.5	Summary of issues raised by I&APs	Summary of issues raised by I&APs	Reg 5, Schedule 2, Form B, Paragraph g

Sub-category	Required standard	Requirement	Regulations
2.4.1	Data to estimate magnitude of main impacts	Source (literature, previous monitoring, project specific baseline, specialist studies etc)	Reg 5, Schedule 2, Form B, paragraph o
2.4.2	Methods used to predict impact magnitude	Use of named impact prediction methods; By sector; Hydrology, ecology, economics, geohydrology, archaeology	Reg 5, Schedule 2, Form B, paragraph h
2.4.3	Predictions of impact in measurable quantities	Before actual impact rating, rather than just inventorying it	Reg 5, Schedule 2, Form B, Paragraph h
2.5.1	Significance of impacts on affected community and society in general	As compared to tolerance levels and nontrivial stayed acceptance levels, by phase, and by sensitive receptor	Reg 5, Schedule 2, Form B, paragraph h

Sub-category	Required standard	Requirement	Regulations
2.5.2	Significance of impacts in terms of national and international quality standards	e.g., Botswana Standards (BOS), sectoral guidelines,	Reg 5, Schedule 2, Form B, Paragraph h
2.5.3	Justification of proposed method of assessing significance -assumptions and uncertainties	Demonstration of transparency in significance assessment,	Reg 5, Schedule 2, Form B, Paragraph h -bullets 8 -11
3.1.1	Description of alternatives	Instead of just theory, whether it is layout alternatives	Reg 5, Schedule 2, Form B, paragraph i
3.1.2	Description of alternative processes, designs, and operating conditions	This repeats SCs 2.4.3 – 2.5.3	Reg 5, Schedule 2, Form B, paragraph i
3.1.3	Reasonableness of identified alternatives	Identified alternatives should not be box-ticking options -but rather alternatives worth considering	Reg 5, Schedule 2, Form B, paragraph i
3.1.4	For severe adverse impacts, rejected alternatives identified	Clear elimination of alternatives that are either not environmentally sound or operationally feasible	Reg 5, Schedule 2, Form B, paragraph i

Sub-category	Required standard	Requirement	Regulations
3.1.5	Comparative assessment of all alternatives identified	Systematic comparison of environmental options using the method identified	Reg 5, Schedule 2, Form B, paragraph i
3.1.6	Identification of best feasible available environmental option	In conclusion, as justified by impact rating	Reg 5, Schedule 2, Form B, paragraph i
3.2.1	Consider mitigation of all significant adverse impacts	Identification of mitigation per identified adverse impact	Reg 5, Schedule 2, Form B, paragraph j
3.2.2	Mitigation measures	Valid mitigation measures	Reg 5, Schedule 2, Form B, paragraph j
3.2.3	Extent of effectiveness of mitigation when implemented	Systematic comparison of impact rating with and without mitigation	Reg 5, Schedule 2, Form B, paragraph j
3.3.1	Record of commitment to mitigation measures	Demonstration of understanding of required and feasibility of recommended mitigation, and statement demonstrating commitment to this mitigation	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)

Sub-category	Required standard	Requirement	Regulations
3.3.2	Monitoring arrangements	This should meet M&E standards	Reg 5, Schedule 2, Form B, paragraph l
4.1.1	Introduction	Indication of project, nature, magnitude, proponent and timing	Reg 5, Schedule 2, Form B, paragraph c
4.1.2	Information logically arranged	Report sections feed into subsequent sections, no new aspects appear out of the blue or out of order.	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)
4.1.3	Maps and charts	Standards (e.g., use of actual maps rather than satellite images, in addition map component such as north arrow, grid, legend, inset, scale clearly inserted; intuitive charts used)	Reg 5, Schedule 2, Form B, paragraph e

Sub-category	Required standard	Requirement	Regulations
4.1.4	Chapter summaries for very long chapters	e.g. list of required authorisations for Chapter 4, impact matrix for Chapter 8	Reg 5, Schedule 2, Form B, Paragraph m and best practice
4.1.5	External sources acknowledged	In-text citation and references. Reconciliation between citations and references.	Reg 5, Schedule 2, Form B, Paragraph n and o (bullet 1 and 2)
4.2.1	Presentation of information	Overall use of textual and visual data presentation should enable transfer of information.	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)
4.2.2	Technical terms, acronyms, initials defined	Definition of terms and acronyms on first use.	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)

Sub-category	Required standard	Requirement	Regulations
4.2.3	Statement presented as an integrated whole	Cohesion between report aspects	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)
4.3.1	Emphasis to potentially severe impacts	Potentially severe impacts emphasised.	Reg 5, Schedule 2, Form B, paragraph m
4.3.2	Statement must be unbiased	Objectivity in recommendation.	Best practice: (Ramsar Secretariat Convention, 1997; The World Bank, 1997, 2002; Sandham, Moloto & Retief, 2008; Hallatt, Retief & Sandham, 2015; Wylie, Bhattacharjee & Rampedi, 2018; Sandham et al., 2020)
4.3.3	Opinion as to whether activity should/ shouldn't be authorised	Clear EAP recommendation on whether activity should proceed.	Reg 5, Schedule 2, Form B, paragraph m

Sub-category	Required standard	Requirement	Regulations
4.3.4	Record of minutes of meetings by EAP with I&APs and response of EAP to comments and issues raised	Legible and authenticated minutes. Validity of content in minutes for EIA purposes (rather than a generic meeting)	Reg 5, Schedule 2, Form B, paragraph o
4.4.1	Non-technical summary of main findings and conclusions	Non-technical summary of main findings and conclusions	Reg 5, Schedule 2, Form B, paragraph b
4.4.2	Summary must cover all main issues	Concise summary of reports Detailing project, location, applicant, practitioner, methodology, expected impacts, mitigation, recommendations and conclusions	Reg 5, Schedule 2, Form B, paragraph b