

A Critical review of EIA report quality in Lesotho

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ABSTRACT

Environmental Impact Assessment appears across the world as a vital tool that ensures environmentally sound and sustainable developments. Considering the advantages and the benefits of EIA, it is important to ensure that it is effective. There are various aspects of EIA effectiveness, one of which is the assessment of the quality of EIA reports. Poor EIA report quality can negatively influence decision-making as well as sustainable development in any country. Hence the importance of ensuring that EIA reports are of good quality.

Lesotho has been facing various environmental problems for several years. To address these problems, government undertook numerous strategies of which Environmental Impact Assessment (EIA) is the most used.

EIA has been carried out in Lesotho since 1980s. Since then, its effectiveness has been questioned. To evaluate the effectiveness of EIA in Lesotho, it is essential to review the EIA report quality. The most recent research on the quality of EIA reports in Lesotho, carried out in May 2011, revealed a very poor quality of EIA reports.

Therefore the objectives of this research were to assess the quality of EIA reports written since 2011 in Lesotho, compare the results with the previous findings and international studies, and investigate the opinions of practitioners on the findings.

Fifteen EIA reports written between October 2011 to 2018 were reviewed using the Lee and Colley criteria. The findings were compared with the previous results for the EIA report quality in the country and international studies. The opinion of the EIA practitioners regarding the findings was also investigated through administration of questionnaires.

The findings show that 13 (87%) of the reports achieved a satisfactory grade (A-C) with Review Area 2 more satisfactorily addressed than Review Areas 1, 3 and 4. The study identified more areas of weakness than strength in the sample of the EIA reports reviewed. The weakest areas include the physical appearance of the development, number of workers and/or visitors entering the site, their access and transport, clear records of the commitment of the developer to mitigations measures, chapter summaries and external sources acknowledge. The strengths include the purpose of the development, the description of the environment expected to be affected, the description of the effect of the project, and the coherence of information in the report.

A comparison with previous results shows improvements in the overall quality of EIA reports over time, although some critical areas still need attention. No improvement was noted over time in Review Area 1 whereas, a significant improvement was observed in Review Areas 2, 3, and 4.

A comparison of the quality of EIA reports in Lesotho and that of reports in other countries reveals that the quality of EIA report in Lesotho is slightly lower. The main difference observed is the poor performance of Review Area 1 in Lesotho reports.

The majority of the EIA practitioners have agreed with the areas of strength and weakness identified in the study. Ten (91%) of practitioners agree that the demarcation of land used by the project and the description of the impacts are often well detailed in the EIA reports, also ten (91%) of practitioners agreed that the chapter summaries are often overlooked and 8 (73%) are in the same opinion that there is also a lack of attention in the physical appearance of the project, the expected rate of production, and the nature and quantities of raw materials.

From a survey of practitioners' personal opinions on the areas of weakness and strength in the EIA practice in Lesotho, it emerges that the description of the size of the project, the identification and assessment of impacts are main areas of strength, while consideration of alternatives, commitment to mitigation measures and monitoring of impacts still need more attention. The majority of strengths and weaknesses indicated are similar to those identified in the analysis of reports.

Recommendations were made to improve the quality of EIA reports in Lesotho, and areas for future studies were further proposed.

Keywords: Environmental Impact Assessment, Quality of EIA reports, EIA reports, Lesotho

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	i
ABSTRACT	ii
LIST OF TABLES	vii
LIST OF FIGURES	viii
LIST OF ACRONYMS AND ABBREVIATIONS	ix
CHAPTER 1: INTRODUCTION	1
1.1 Background.....	1
1.2 Problem statement and rationale for the study	2
1.3 Research objectives.....	3
1.4 Structure and outline of the dissertation.....	4
CHAPTER 2: RESEARCH METHODS	5
2.1 Introduction.....	5
2.2 Research design.....	5
2.3 Methodology for Objective 1	6
2.3.1 Reports gathering and sample size.....	6
2.3.2 Report quality assessment and analysis.....	7
2.4 Methodology for Objective 2	9
2.4.1 Online data gathering	9
2.4.2 Documentation review and simple statistical analysis.....	10
2.5 Methodology for Objective 3	10
2.5.1 Questionnaire survey and sample size	10
2.5.2 Questionnaire analysis.....	12
2.6 Ethical considerations	13
2.7 Limitations of the study	13
2.8 Conclusion.....	13
CHAPTER 3 – LITERATURE REVIEW	14
3.1 EIA concept.....	14
3.1.1 Brief history and definition of EIA internationally.....	14
3.1.2 Purpose and principles	15
3.1.3 The benefits of EIA.....	16

3.1.4 Challenges for EIA	18
3.2 Effectiveness of EIA	18
3.3 EIA report	20
3.4 Review of EIA report quality.....	20
3.5 Quality of EIA reports	21
3.6 Review criteria package.....	22
3.6.1 European Commission Guidelines	22
3.6.2 Lee and Colley review package.....	23
3.7 EIA report quality internationally.....	25
3.7.1 EIA report quality in African countries	25
3.7.2 EIA report quality in Asian countries	26
3.7.3 EIA report quality in European countries	28
3.7.4 EIA report quality in South America countries	29
3.7.5 EIA report quality for projects funded by the Japan International Cooperation agency (JICA)	30
3.8 Environmental Impact Assessment in Lesotho	31
3.8.1 Evolution of EIA in Lesotho.....	31
3.8.2 Administrative framework for EIA in Lesotho	32
3.8.3 Legal Provisions of EIA in Lesotho.....	33
3.8.4 Quality of EIA reports in Lesotho.....	36
3.9 Conclusion	36
CHAPTER 4. RESULTS: EIA REPORT QUALITY AND LONGITUDINAL COMPARISONS.....	38
4.1 EIA report quality results.....	38
4.1.1 Overall quality of the EIA reports reviewed	38
4.1.2 Quality of Review Areas.....	39
4.1.3 Key findings related to the quality of EIA Reports reviewed-Areas of strength and weakness.....	47
4.1.4 Discussion of findings	49
4.2 Longitudinal comparison of the present study and Talime's (2011) research.....	53
4.2.1 Comparison of the overall quality of EIA reports	54
4.2.2 Comparison of the quality of different Review Areas	56
4.2.3 Strengths and weaknesses of both studies-Review Areas	65
4.2.4 Conclusion of strengths and weaknesses	72

4.2.5 Discussion of temporal change.....	73
4.3 Discussion of the comparison of the findings with EIA reports internationally	77
4.4 Conclusion	78
CHAPTER 5: INVESTIGATION ON EIA PRACTITIONERS’ OPINION ON THE STUDY FINDINGS.....	79
5.1. Section 1: Demographic analysis.....	79
5.2. Section 2: Involvement of the practitioner in the field.....	79
5.3. Section 3: Practitioners' understanding of EIA.....	82
5.4 Section 4: Opinion of practitioners on the findings of the study, the strengths and weaknesses of EIA practice, and suggestions for improvement.....	83
5.5 Conclusion	90
CHAPTER 6: CONCLUSION AND RECOMMENDATIONS.....	92
6.1 Background of the study	92
6.2 Findings of the study	92
6.2.1 Findings for objective 1 – Assessment of the quality of a sample of EIA reports	93
6.2.2 Findings for objective 2 – Comparison with the Talime (2011) study and international reports	93
6.2.3 Findings for Objective 3 - Practitioners’ opinions on the study	94
6.3 Conclusion	94
6.4. Recommendations and perspectives	95
6.4.1 Recommendations.....	95
6.4.2 Perspectives.....	95
REFERENCES	97
APPENDIX	108
Appendix A: Questionnaire to respondents.....	108
Appendix B: List of respondents.....	113

LIST OF TABLES

TABLE 2. 1: RESEARCH DESIGN	5
TABLE 2. 2: LIST OF ENVIRONMENTAL IMPACT ASSESSMENT REPORTS REVIEWED	6
TABLE 2. 3: LEE AND COLLEY REVIEW PACKAGE (LEE ET AL., 1999)	8
TABLE 2. 4: MAIN ASPECTS COVERED IN THE QUESTIONNAIRE	11
TABLE 3. 1: THE BENEFITS OF EIA (MORRISON-SAUNDERS <i>ET AL.</i> , 2015).....	17
TABLE 3. 2: GUIDING PRINCIPLES FOR EIA REPORT PREPARATION (SOURCE: SADLER, 1996)	20
TABLE 3. 3: LIST OF ASSESSMENT SYMBOLS (ENVIRONMENTAL STATEMENTS) (EC, 2001:14).....	23
TABLE 3. 4: LIST OF ASSESSMENT SYMBOLS (LEE <i>ET AL.</i> , 1999)	24
TABLE 4. 1: QUALITY OF CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 1.....	41
TABLE 4. 2: QUALITY OF CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 2.....	43
TABLE 4. 3: QUALITY OF CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 3	45
TABLE 4. 4: QUALITY OF THE CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 4	46
TABLE 4. 5: AREAS OF STRENGTH AND WEAKNESS AT THE CATEGORY AND SUB-CATEGORY LEVEL FOR THE SAMPLE OF EIA REPORTS REVIEWED	48
TABLE 4. 6: LIST OF THE EIA REPORTS REVIEWED IN THE TALIME (2011) STUDY	54
TABLE 4. 7: QUALITY OF REVIEW AREAS IN 2011 (TALIME, 2011).....	56
TABLE 4. 8: QUALITY OF REVIEW AREAS IN THE PRESENT STUDY.....	56
TABLE 4. 9: COMPARISON OF THE QUALITY OF CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 1	58
TABLE 4. 10: COMPARISON OF THE CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 2	60
TABLE 4. 11: COMPARISON OF THE CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 2	62
TABLE 4. 12: COMPARISON OF THE CATEGORIES AND SUB-CATEGORIES OF REVIEW AREA 4.....	64
TABLE 4. 13: STRENGTHS AND WEAKNESSES IN THE EIA REPORTS OF EACH STUDY IN REVIEW AREA 1.....	66
TABLE 4. 14: STRENGTHS AND WEAKNESSES IN EIA REPORTS IN REVIEW AREA 2 IN BOTH STUDIES	68
TABLE 4. 15: STRENGTHS AND WEAKNESSES IN REVIEW AREA 3 IN BOTH STUDIES.....	70
TABLE 4. 16: STRENGTHS AND WEAKNESSES IN REVIEW AREA 4 IN BOTH STUDIES.....	71
TABLE 4. 17: DECREASE AND IMPROVEMENT IN QUALITY AT CATEGORY AND SUB-CATEGORY LEVEL ACROSS BOTH STUDIES.....	76
TABLE 5. 1: EXPERIENCE OF EIA PRACTITIONERS.....	80
TABLE 5. 2: STAGE OF EIA INVOLVMENT BY PRACTITIONERS	80
TABLE 5. 3: SECTOR OF EIA.....	81
TABLE 5. 4: ENVIRONMENTAL COMPONENTS WHERE RESPONDENTS ARE MORE INVOLVED	82
TABLE 5. 5: PURPOSE AND ADVANTAGE OF UNDERTAKING EIA; PRACTITIONERS OPINIONS	82
TABLE 5. 6: PRACTITIONER’S OPINIONS ON THE EFFECTIVENESS OF EIA IN LESOTHO.....	83

TABLE 5. 7: PRACTITIONER’S OPINIONS ON THE STRENGTHS AREAS OF EIA REPORTS ANALYSED IN THE PRESENT STUDY.....	84
TABLE 5. 8: PRACTITIONER’S OPINIONS ON THE WEAKNESS AREAS OF EIA REPORTS ANALYSED IN THE PRESENT STUDY.....	85
TABLE 5. 9: STRENGTHS AND WEAKNESS OF EIA IN LESOTHO: OPINIONS OF PRACTITIONERS	87
TABLE 5. 10: PRACTITIONER’S OPINIONS ON HOW TO IMPROVE EIA PRACTICE IN LESOTHO.....	89

LIST OF FIGURES

FIGURE 2. 1: ASSESSMENT PYRAMID USED IN THE METHODOLOGY (LEE <i>ET AL.</i> , 1999)	9
FIGURE 3. 1: ASSESSMENT PYRAMID OF THE LEE AND COLLEY REVIEW PACKAGE (LEE <i>ET AL.</i> , 1999)	23
FIGURE 3. 2: LEGAL PROCEDURE OF UNDERTAKING EIA IN LESOTHO (USAID, 2012).....	35
FIGURE 4. 1: OVERALL QUALITY OF THE SAMPLE OF 15 EIA REPORTS REVIEWED	39
FIGURE 4. 2: QUALITY OF EACH REVIEW AREA	39
FIGURE 4. 3: COMPARISON OF THE OVERALL QUALITY OF EIA REPORTS ACROSS BOTH STUDIES	55
FIGURE 4. 4: COMPARISON OF THE QUALITY OF CATEGORIES IN REVIEW AREA 1 ACROSS BOTH STUDIES.	57

LIST OF ACRONYMS AND ABBREVIATIONS

DEAT	Department of Environmental Affairs and Tourism
DoE	Department of Environment
EA	Environmental Act
EAP	Environmental Assessment Practitioners
EAPAL	Environmental Impact Assessment Practitioners in Lesotho
EC	European Commission
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
ESIA	Environmental and Social Impact Assessment
EU	European Union
EUs	Environmental Units
IAIA	International Association for Impact Assessment
IAP	Interested and Affected Parties
JICA	Japan International Cooperation Agency
MEP	Ministry of Environmental Protection
NA	Non Applicable
NAP	National Action Plan to implement Agenda 21
NEAP	National Environmental Action Plan
NEPA	National Environmental Protection Act
NES	National Environment Secretariat
NWU	North - West University
PB	Project Brief
RoD	Record of Decision
SDGs	Sustainable Development Goals
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development

CHAPTER 1: INTRODUCTION

1.1 Background

Nowadays, protecting the environment is a real concern for many countries. To ensure better protection of the environment, EIA is one the most widely used tool (Campion & Essel, 2013). Most nations have put in place environmental legislation which required the conducting of Environmental Impact Assessments for projects that may have important detrimental impacts on the environment.

EIA is well recognized around the world and has become accepted as an essential part of sound decision-making (Morgan, 2012). Most countries rely on this tool for better development planning (Morgan, 2012). Whether for developed or developing countries, EIA is one of the best instruments of governance (Joseph, 2018). However, the implementation and experience with the tool in developed countries are often different from those in developing countries (Kolhoff *et al.*, 2018). According to Mounir (2015), EIA is of great importance in a country economically, as it influences the environment and the social economy. Its purpose is to consider the environmental impacts before undertaking a project. The International Association of Impact Assessment (2015) describes EIA as “*a process of identifying, assessing and mitigating the possible effects of a development project on the environment, taking into account the beneficial and harmful impacts on human health, socio-economic and cultural aspects*” (IAIA, 2015).

EIA is an environmental management tool which aims at integrating environmental concerns before the implementation of a project (Bond *et al.*, 2018). The process supports a scientific and technical understanding of projects and helps to design projects to be environmentally sustainable, socially equitable and economically viable. The process includes an analysis of alternatives in the design, process and location of projects, resulting in the selection of improved technology. EIA helps at improving a project overall, saving capital and reducing costs (Morrison-Saunders *et al.*, 2015). Onuora *et al.* (2017) regard it as one of the best strategies to reconcile the protection of the environment with populations and the developments.

EIA is an open process which integrates the concerns of different actors. This makes the tool especially essential for sound governance. The contribution of EIA to sustainable development has been extensively discussed (Onuora *et al.*, 2017). Morgan (2012), however, suggested that there is a need to regularly think about how to improve the performance of EIA so that it always contributes to sustainable development. Despite the broadening advantage and benefits of EIA (Morrison-Saunders *et al.*, 2015; Cilliers *et al.*, 2020), critics claim that the EIA process takes too much time (Kidd *et al.*, 2018), and does not always achieve its goal to contribute to sustainable development (Mounir, 2015; Onuora *et al.*, 2017). Various researchers and EIA practitioners have also argued

that EIA does not always meet the needs of informed decision-making (Mounir, 2015; Rocha *et al.*, 2019). This questions the effectiveness of EIA and therefore leads to the consideration of one valuable approach to assessing the effectiveness of EIA, which is the review of EIA report quality (Wylie *et al.*, 2018). Bond *et al.* (2018) have shown that there is a relationship between the concept of quality in impact assessment and effectiveness. EIA report quality review has been well researched (Sandham & Pretorius, 2008; Jalava *et al.*, 2010; Kabir & Momtaz, 2012; Sandham *et al.*, 2013b; Thorpe, 2014; Kamijo & Huang, 2016; Mounir, 2015; Wylie *et al.*, 2018; Sandham *et al.*, 2020) but it is evident that EIA report quality in developing countries needs more investigation.

Criticisms about the quality of the EIA report include the quantification and management of waste, the consideration and prediction of cumulative impacts, the prediction and significance of impacts, the consideration of alternatives, and the inadequate description of mitigation measures (Barker & Jones, 2013; Wylie *et al.*, 2018; Duarte & Sánchez, 2020; Sandham *et al.*, 2020). Little research has been done to explore the opinions of EIA practitioners on the quality of EIA reports. For some studies, practitioners agreed on the poor quality of the EIA report (Jalava *et al.*, 2010; Talime, 2011; Duarte *et al.*, 2017). Numerous factors that constrain the performance of the EIA report have been identified. These include insufficient time and finances allocated for the EIA, the lack of enforcement from the competent authorities, the political influence of the leaders, and the type of the project (Jalava *et al.*, 2010; Talime, 2011; Mounir, 2015; Wylie *et al.*, 2018). In general, it has been observed that even if the overall quality of reports is assessed as satisfactory, there are still areas of weakness (Singh *et al.*, 2020; Sandham *et al.*, 2020).

1.2 Problem statement and rationale for the study

Lesotho is a developing country located in Southern Africa and entirely surrounded by South Africa (UNDP, 2017). The kingdom is endowed with several natural resources and is characterized by growing industrialization. The country is urbanizing at a rapid rate. This is not without effect on the environment. Concerning the environment, Lesotho has shown its commitment to a safe environment with the establishment of a National Environmental Action Plan in 1989. The country was the first in Africa to establish a National Environmental Action Plan with the aid of the World Bank (Mokhehle & Diab, 2001). In 1993, the kingdom integrated in its constitution, the protection of the environment into the management choices and orientations of its territory. To achieve the objective regarding the protection of the environment, Lesotho in 1996 established a National Environmental Policy in order to encourage sustainable development in the country. The National Action Plan (NAP) proposes an environmental impact assessment as an important tool for the protection of the environment in the country. The legal requirements of EIA were prescribed in 2008 (Rantlo, 2015), although EIA has been carried out voluntarily since the 1980s (Kakonge,

1997). Despite the efforts made to ensure that the environment is not harmed, the country seems to be failing in the pursuit of a sound and safe environment (UNDP, 2017). Although EIA was introduced much earlier than in many other African countries, Lesotho is one of those countries that has witnessed very limited research on the quality of Environmental Impact Assessment Reports. In addition to the need for research, Lesotho was chosen for this study because the researcher had ready access to a suitable number of EIA reports. Since EIA has been performed in Lesotho, some studies have revealed a poor quality of EIA reports (Mokhehle & Diab, 2001; Bowen et al., 2009; Talime, 2011). In many countries, the consequences of poor environmental impact assessment studies have been identified by experts and affected communities. A study by Moja and Mnguni (2014) in South Africa has shown the important negative consequences of a waste water treatment plant project on the quality of life and well-being of the population due to a poor environmental impact assessment. Additionally, a study carried out in Lesotho on the Letseng Diamond Mine which is currently in operation, has shown that although the project has been subject to an EIA, the negative impacts of mining remain considerable (Matandare *et al.*, 2019). An analysis of the EIA reports from 1980 to 1999 in Lesotho, showed several weaknesses in EIA practice, but noted some improvements since 1988 in certain aspects ((Mokhehle & Diab, 2001). In 2011, a study by Talime (2011) however, found that the quality of EIA reports in Lesotho is largely unsatisfactory. Talime (2011) moreover interviewed EIA role players to investigate the reason of the poor quality of EIA reports. The EIA role players revealed some weaknesses in the EIA process and proposed strategies to improve it (Talime, 2011). Since Lesotho is a small developing country, this research, building on previous research by Mokhehle & Diab (2001) and Talime (2011), will hopefully provide lessons for EIA report quality research in other developing countries.

This study aims to assess the quality of recent EIA reports in order to study changes over time, and to investigate the views of practitioners on the results obtained.

1.3 Research objectives

The main aim is to evaluate the quality of EIA reports in Lesotho and assess the views of EIA practitioners on the quality findings obtained. The following three specific objectives were formulated to achieve this aim.

1. Assess the quality of a sample of EIA reports in Lesotho making use of the Lee and Colley review package.
2. Identify and analyse areas of strengths and weaknesses in EIA reports and compare to previous findings in Lesotho and internationally.
3. Investigate the views of practitioners on the EIA report quality findings.

1.4 Structure and outline of the dissertation

The present study covers six chapters.

In Chapter 1, the background of the study, the problematic and research objectives are provided.

The review of relevant literature on the research is covered in Chapter 2, which includes the understanding of the concept of EIA, the effectiveness of EIA, the review of EIA report quality, the review packages, and EIA in Lesotho. It also provides an overview of EIA report quality internationally.

Chapter 3 deals with the methodology, and details the approach used to achieve each research objective.

Chapter 4 presents and discusses the quality of the sample of EIA reports reviewed and also includes the comparison with Talime's (2011) results and international studies carried out on EIA report quality.

Chapter 5 analyses and discusses EIA practitioners' views on the EIA report quality findings in Lesotho.

Chapter 6 concludes the study with lessons that can be learnt. It also provides recommendations and areas for future research based on the results of EIA report quality and the opinions of EIA practitioners.

CHAPTER 2: RESEARCH METHODS

2.1 Introduction

In this chapter, the research design is presented first, followed by the methodologies used to achieve each objective i.e. Objective 1: Assessing the quality of the sample of EIA reports, Objective 2: Comparing the results with Talime (2011) findings and the quality of EIA reports in other countries, and Objective 3: Investigating the opinions of practitioners on the findings of the study.

2.2 Research design

The research used a mixed method. According to Almalki, (2016) this method often ensures a more complete analysis and understanding of a research problem. The following table summarises the methodology used to achieve each objective.

Table 2.1: Research design

Research objectives	Methodology used
Objective 1: Assess the quality of the sample of EIA reports	Document analysis using the Lee and Colley review criteria Simple statistical analysis
Objective 2: Compare the results with the Talime (2011) findings and the quality of EIA reports in other countries	Documentation review Simple statistical analysis
Objective 3: Investigate the opinions of practitioners on the findings of the study.	Questionnaire, content analysis and simple statistical analysis

As presented in the table above, the methodology used for each objective is detailed as follows.

2.3 Methodology for Objective 1

This section details the method of data collection and analysis undertaken to achieve Objective 1, i.e evaluate the quality of a sample of EIA reports.

2.3.1 Reports gathering and sample size

15 Environmental Impact Assessment reports from different projects were analysed of which 13 were obtained from the Department of the Environment and Tourism in Lesotho and the remaining two through online data gathering. The EIA reports were selected according to their availability, from October 2011 to 2019, to allow for comparison with the work of Talime (2011) for the period after 2011. They are presented in the following table;

Table 2. 2: List of environmental impact assessment reports reviewed

Project name, as copied from the report		Date compiled
1	EIS ¹ Mothae Diamond Mine, Lesotho	October 2011
2	EIS for Letseng Wind Farm	December 2011
3	ESIA Lqhobong Diamond Mine extension project	May 2012
4	EIA for the design-construction-supervision and related studies of urban and peri-urban water supply (WASCO)	June 2012
5	EIS 1200 MW Kobong Pumped storage scheme on the Katse dam Reservoir	August 2012
6	ESIA /Thetsane mall development	November 2013
7	EIA Project for prospecting Diamonds at Malibamatso Kimberlite Pipe#200, Ha Mahlekefane, Butha-Buthe District	October 2015
8	EIA/Proposed Tsoeneng landfill and waste transfer station	February 2016
9	EIA Report For the proposed Tri- tower Office complex at CNR of Constitution and linear roads, Maseru	May 2016
10	EIA for the electrification in Maseru, Botha Bothe, Thaba – Tseka, Quthing, and Mohale's Hoek district.	June 2016
11	Environmental and Social Impact Assessment (ESIA) for the Ancillary buildings for Agriculture Headquarters Government of the Kingdom of Lesotho	July 2016
12	EIA-Project brief for an affordable housing project at Linakotseng, Maseru Lesotho	August 2016
13	ESIA and resettlement action plan for the Lesotho lowlands bulk water supply scheme zones 6 and 7	March 2018
14	ESIA & RAP for Zones 2 and 3 of the Lesotho Lowlands Bulk Water Supply Scheme	October 2018
15	ESIA for road and powerline, from Ha Lejone to Matsoku substation; (Lesotho Highland Water Project Phase II (LHWP II))	March 2019

¹ EIA reports are also referred to EIS in Lesotho

The number of reports assessed was similar to that of other studies conducted on EIA report quality internationally, Talime (2011) in Lesotho, and Mounir (2015) in Niger who reviewed 15 EIA reports; Sutton-Pryce (2015) in South Africa reviewed 18 EIA reports, Anifowose *et al.* (2016) in Nigeria assessed 19 EIA reports, Yacoob *et al.*, (2019) in Bahrain investigated the quality of eight EIA reports and Ceronio (2019) in South Africa reviewed 9 EIA reports. Therefore, this sample can be regarded as adequate to provide a valid impression of EIA report quality in Lesotho.

2.3.2 Report quality assessment and analysis

The assessment of the quality of the EIA reports was done using the Lee and Colley (Lee *et al.*, 1999) review criteria. The Lee and Colley review package is an internationally recognized tool, made up of sub-categories grouped into categories and Review Areas. Each sub-category represents a detailed task that must be undertaken. The sub-category is the lowest level of the assessment. The review process commences from the lowest level to the highest level. Each category summarizes a number of detailed sub-categories. Each review area summarizes the categories. Table 2.1 below is an abbreviated version of the review package.

Table 2. 3: Lee and Colley review package (Lee *et al.*, 1999)

Review Area 1: Description of the development and the environment	Review Area 2: Impacts identification and assessment
1.1 Description of the project and the environment	2.1 Description of impacts
1.1.1 Purpose and objective of the project	2.1.1 Effect of the development on the environment
1.1.2 Design and size	
1.1.3 Physical appearance of the project	2.1.2 Interaction of effect on the environment
1.1.4 Production processes and rate of production	2.1.3 Impact activities from non-standard operations
	2.1.4 Impact determined as a deviation from baseline
1.1.5 Nature and quantities of raw materials	2.2 Identification of Impacts
1.2 Site description	2.2.1 Impact identified using a systematic methodology
1.2.1 Project site clearly presented in a map	
1.2.2 Land used areas demarcated	2.2.2 Description and rational of impact identification methods
1.2.3 Estimated period of each phase of the project	2.3 Scoping
1.2.4 Number of persons entering the site, their access and means of transport	2.3.1 Allowance for the participation of Interested and Affected Parties (IAP)
1.2.5 Transport of raw materials	2.3.2 Preparations made to collect the views and concerns of the IAP
1.3 Waste management	
1.3.1 Characterisation of wastes and rate of production	2.3.3 Focus placed on key impacts
1.3.2 Measures methods to treat wastes	2.4 Prediction of impacts
1.3.3 Methods of obtaining residual wastes	2.4.1 Data to assess the significance of the impacts should be sufficient
1.4 Environment description	2.4.2 Approaches used to predict the significance of impact should be presented
1.4.1 Environment affected	2.4.3 When necessary, prediction of impact should be quantifiable
1.5 Baseline conditions	2.5 Evaluation of impacts
1.5.1 All the important components of the affected environment should be identified and described	2.5.1 Impact to the affected public should be evaluated
1.5.2 Existing data sources searched	2.5.2 Appropriate national and international standards should be considered when assessing the impacts
1.5.3 Plan and policies should be consulted	2.5.3 Justification of standards, assumptions used
Review Area 3: Alternative and mitigations	Review Area 4 Communication of results
3.1 Alternatives	4.1 Layout
3.1.1 Alternative sites considered	4.1.1 Introduction
3.1.2 Consideration of alternatives in processes, design and operating conditions	4.1.2 Coherent organization of information
3.1.3 Reassessment of the alternatives rejected in the planning phase	4.1.3 Each chapter should include a summary
	4.1.4 External sources should be recognized
3.2 Scope and effectiveness	4.2 Presentation
3.2.1 All alternatives should be considered in the mitigations measures	4.2.1 Information comprehensive to the public
3.2.2 Unmitigated impacts discussed and reasons given	4.2.2 Definition of technical terms and acronyms
3.2.3 Mitigations including modification of the project and provision of alternative facilities	4.2.3 Report presented as an integrated whole
3.2.4 Indication of the extent of the effectiveness of mitigations measures	4.3 Emphasis
	4.3.1 Focus should be on potential significant negative impacts
3.3 Commitment to mitigation	4.3.2 The report should be unbiased
3.3.1 Clear records of the commitment of the developer to mitigations measures	4.4 Non-technical summary
3.3.2 Monitoring arrangement	4.4.1 Non-technical summary should include the key results
	4.4.2 Summary should covered main questions addressed in the report

The following figure presents the assessment pyramid.

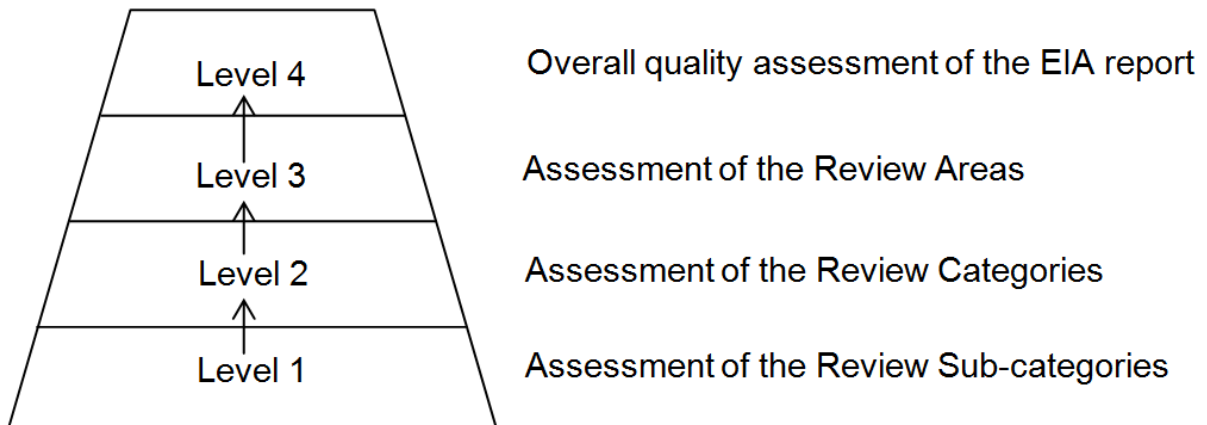


Figure 2. 1: Assessment pyramid used in the methodology (Lee *et al.*, 1999)

The evaluation of the reports started with a comparative analysis of three reports evaluated independently by two consultants with experience in environmental impact studies. After a consensus was reached on the results of these three reports, the researcher continued to evaluate the remainder of the reports.

The assessment is rated from grade A to F according to the performance of EIA report for each task. Letters ranging from A to F are assigned to activities rated as satisfactory and E to F for activities considered unsatisfactory. The overall rating for a category and Review Area are determined based on the results of the individual grades.

Simple statistical analysis using Microsoft Excel was applied (percentage analysis, tables, histograms, and graphs) to present and analyse the results regarding the EIA report quality.

2.4 Methodology for Objective 2

This section outlines the approaches used to gather and analyse the data needed to achieve Objective 2 (Comparison of the results with Talime's (2011) findings).

2.4.1 Online data gathering

Data on the quality of EIA reports conducted in Lesotho in 2011 (Talime, 2011) as well as data on the EIA Report Quality in other countries were collected from published research to make a comparison with the quality of EIA reports in Lesotho observed in this study.

2.4.2 Documentation review and simple statistical analysis

The document on the EIA report quality carried out in 2011 (Talime, 2011) was analysed and data included were compared with the results of the present study. The comparison was done through simple statistical analysis making use of table and figures.

Data from the document of EIA reports quality in other countries were analyzed through documentation review and data were compared with the findings obtained in the present study.

2.5 Methodology for Objective 3

The methodology used to achieve Objective 3 i.e to investigate the opinion of practitioners of the findings, is explained as follows.

2.5.1 Questionnaire survey and sample size

To achieve Objective 3 regarding practitioners' opinions on the quality of the EIA reports in Lesotho, data were collected through questionnaires emailed to 25 environmental practitioners working in Lesotho. The contact details of 22 registered EIA practitioners were obtained from the Lesotho Environmental Practitioners Board's website actualised in 2018. Other contact details were obtained online from registered enterprises in environmental studies in Lesotho. The study had planned face to face interviews to maximize the number of responses. However, given the critical health situation that the world is facing in 2020-2021, this was not possible. The questionnaire was emailed to the practitioners on the 1st July 2020. Ten days were given to the practitioners to complete the questionnaire. However, given the limited number of answers obtained, two months (until September 2020) were added. During this period, the practitioners were constantly reminded to complete the questionnaire. A total of eleven practitioners answered the questionnaire, of the 25 contacted.

The design of the questionnaire is outlined below.

2.5.1.1 Questionnaire design

A questionnaire was developed to investigate the opinions of EIA practitioners in Lesotho. The questionnaire starts with an introduction stating the research aims, asking for collaboration while assuring each participant's confidentiality. The full questionnaire is in Appendix A. The main aspects of the questionnaire are listed in Table 2.4.

The questionnaire contains 12 questions, grouped into closed, and open-ended questions covering various aspects and issues, summarised in four sections.

Table 2. 4: Main aspects covered in the questionnaire

Section 1 Demographic information	Question 1: What gender are you?
	Question 2: What is your age?
	Question 3: What are your training level and your academic background?
Section 2 respondent's involvement with EIA	Question 4: What is your experience as an environmental impact assessment practitioner in Lesotho?
	Question 5: At which stage (s) of EIA are you mostly involved?
	Question 6: In which sector(s) of EIA are you more experienced/ mostly involved?
	Question 7: When undertaking an EIA, in which environmental and human components are you more involved?
Section 3 Practitioners' understanding of EIA	Question 8: In your opinion, what are the purpose and advantage of undertaking EIA?
	Question 9: Do you think that EIA in Lesotho contributes to? (multiple choices was presented for this question)
Section 4 Opinions of practitioners on the study's findings and the areas of strength and weakness of EIA practice.	Question 10: It emerges from the present study that the EIA reports in Lesotho are mostly just satisfactory. The reports present certain areas of strength and some areas of improvement. Please give your opinion on the following findings?
	Question 11: In your opinion, what are the strengths and shortcomings areas in current EIA practice in Lesotho? (Explain or give the reason (s) of your statement if possible)
	Question 12: How can the EIA practice and effectiveness in Lesotho be improved?

The closed questions include multiple-choice questions and one Likert scale question. The advantage of closed questions is to facilitate the expression of the answer by the interviewee. This type of question helps to make the questionnaire shorter for the respondent, and limits the effort involved. Moreover, collecting responses is simple and reliable. In the multiple choice questions, respondents were allowed to choose one or many responses from a list of preselected options. Opportunity was given after each question to add comments.

The open-ended questions allow respondents to come up with their own responses.

The questionnaire contains four main sections that were related to the following key aspects: (1) the demographic profile, (2) the respondent's involvement with EIA, (3) their understanding of the EIA, and (4) their opinions regarding the finding of the study, the strength and weakness of EIA practice in Lesotho and on how to enhance the quality of EIA in the country.

The four sections are outlined below:

- The first section (with three questions) required the respondents to state their age, gender, academic background, and education level. These were collected because besides forming essential characteristics of the respondents, they paint a clear picture of the background from which they make their choices and give their opinions.

- The second part (with three questions) required the practitioners to indicate their years of experience as EIA practitioners, the stages and sectors of EIA mostly involved. These data were collected to indicate the knowledge and expertise of the practitioners. This is relevant for this study because the practitioner's opinion on the quality of the reports analysed in the present study is influenced by their knowledge, their expertise and experience in the field.
- The third section (with three questions) focused on the practitioners' understanding of the purpose and advantage of EIA and their opinion on the effectiveness of EIA practice in Lesotho.
- The fourth section has three items; (a) to investigate practitioners' opinions on the study's findings, (b) their personal opinion of strengths and weaknesses of EIA practice in Lesotho, and (c) how to improve its quality.

2.5.1.2 Pilot study

A pilot study is an essential phase in a research project. It helps to refine the questionnaire and eliminate any bias by testing its adequacy (Ismail *et al.*, 2018).

Before administering the questionnaire, a pilot study was conducted with three EIA practitioners. The EIA practitioners were invited to complete the questionnaire and give their remarks about the clarity of the questions. The questionnaire was revised by implementing their comments.

2.5.2 Questionnaire analysis

The EIA practitioners' opinions were elicited through a questionnaire administered, analysed, and interpreted through simple statistical analyses.

Both quantitative and qualitative analyses were used to analyse the questionnaires. The quantitative analysis first consisted of a descriptive statistical analysis of the number of responses allocated to each closed question.

Content analysis was used to analyse the open questions and the comments made in closed questions. Only arguments relevant to the study were retained from the comments. Content analysis is a qualitative research tool which allows systematic analysis of qualitative data so that general and comprehensive conclusions can be drawn (Bahadori *et al.*, 2015).

2.6 Ethical considerations

For all research, it is a moral obligation to respect human dignity. This study required the intervention of adult humans. No children were involved in the data collection for this research project. The methodology used in this research did not pose any physical, psychological, social, legal or economic harm to the respondents. The information collected for this research was managed with anonymity and confidentiality. The proposal of this research was approved by the Research Ethics Committee of the North West University given the minor ethical risks.

2.7 Limitations of the study

The first problem encountered during the study was to obtain the EIA reports. In Lesotho, not all reports are published online, only some of those funded by large agencies, such as the World Bank. Only 13 EIA reports were available at the Department of Environment and Tourism during report collection.

The second problem encountered was to collect the opinions of the experts regarding the quality of EIA reports. A small number of EIA practitioners was willing to respond. However, compared to other studies (Talime, 2011; Sciberras, 2013), these samples can still be expected to give a valid impression of practitioner opinions of the quality of EIA reports in Lesotho.

2.8 Conclusion

This chapter detailed the methodology used to accomplish the objectives of the study. Data needed for the study were collected at the Department of Environment and Tourism in Lesotho and online. Questionnaires were also issued to EIA practitioners working in the area. Content analysis and simple statistical analyses were used in the data analysis. The following chapter discusses the literature related to the research objectives.

CHAPTER 3 – LITERATURE REVIEW

In this chapter, a review of related studies on the topic is provided. The concept of Environmental Impact Assessment, the effectiveness of EIA, EIA report quality and the review of EIA report quality are explained. The chapter further presents the legal and procedural aspects of EIA in Lesotho, and the findings on EIA report quality internationally.

3.1 EIA concept

3.1.1 Brief history and definition of EIA internationally

Nowadays it cannot be ignored that the environment and the development are complementary and interdependent. It is well known that uncontrolled developments often caused damage to the environment. To avoid and limit negative effects of activities on the environment, many countries rely on EIA. Indeed, EIA (Environment Impact Assessment) emerges from the increasing appreciation of what humans should do instead of lamenting over the state of the environment (Kidd *et al.*, 2018).

The first EIA studies began in the United States of America, with the implementation of the National Environmental Protection Act (NEPA) in 1969 (Kidd *et al.*, 2018). In 1972, the United Nations Conference on the Environment held in Stockholm emphasized the consideration of environmental issues and encouraged international and national action to more effective management of the environment (UN, 1992). In 1987, the publication of the Brundtland report also raised the issue of environmental impact assessment. With a concern to strengthen the consideration of development and environmental issues at an international level, the World Conference (Earth Summit) on Environment and Development (WCED) held in 1992 reflected two major concerns that have emerged since the Stockholm Conference: the deterioration of the environment and the growing interdependence between long-term economic progress and need for environmental protection (Gaharwar *et al.*, 2016).

During the conference, the concept of sustainable development was emphasized and twenty-seven principles relating to the development and the environment were established. Seventeen principles established during the Earth Summit conference are related to the concept of Environmental Impact Assessment. It emerges from this conference the need for countries to legally integrate the EIA into the management of their environment (Yang, 2019). Therefore, the definition of EIA may vary from one legal system from one country to another. However, the International Association for Impact Assessment (IAIA) (IAIA, 1999) presents it as a tool to anticipate and avoid environmental problems. A process that identifies and assesses the effects of

proposed developments, proposes measures to mitigate significant adverse impacts, and enhances the positive impacts.

Onuora *et al.* (2017) considered it one of the best approaches to planning for development projects, which also enhances its economic sustainability. It is one of the best tools to ensure conciliation between development and its environment (Gaharwar *et al.* 2016). Mounir (2015) argued that the tool is of great importance in the economy of a country.

In fact, EIA examined various possible alternatives of a project, and attempts to balance the environmental effect with the economic cost and benefits of the project. The tool provides both public and private enterprises with enough information on the project, alternatives considered and possible environmental consequences associated with each alternative's project activities, allowing for a more informed decision (Tilakram, 2018).

Wood and Jones (1997) argued that EIA often does not satisfy all consent decisions because of diverging expectations. This might be the reason why Morgan (2012) categorised two visions of EIA; firstly, the rationalist model, and secondly, the political model. Whatever the reasons that underpinned Morgan's point of view, the international vision and definition of the EIA is rooted in environmental protection.

Today, over 100 countries use EIAs as a tool for environmental management (Morgan, 2012). In fact, although the processes may differ from country to country, the goal is the same.

Section 3.8 of this chapter describes the environmental impact assessment legislation and process in Lesotho.

3.1.2 Purpose and principles

Initially perceived by some developers as a constraint to development (Chanthy & Grünbühel, 2015), this perception of the EIA is progressively disappearing (Onuora *et al.*, 2017). EIA aims not to avoid the development taking place, but to assist in shaping the development process (Kidd *et al.*, 2018; Sarah & Fischer, 2020). According to Sadler (1996), EIA aims to ensure the consideration of environmental impacts before executing any project.

The process of EIA should be undertaken under the principles of sustainable development (UNEP, 2002). According to the IAIA (1999), the EIA process must be based on the following fundamental principles:

- efficient; the process must be economically viable and must impose the least cost burden on developers.

Indeed, an EIA is not just a means for developers to spend money unnecessarily;

- purposive; the process should meet its aim and objectives;

- focused; more attention should be given to significant impacts;
- adaptive; the tool should respond to realities;
- transparency, which entails the participation of the public throughout the whole process. The process should be clear, and easily understood;
- participative; the process should include adequate participation of all stakeholders.
- rigorous; the process must employ the best practice methodology.

The best practices enable the practitioners to produce better EIA. Best practices are not focused only on selecting a specific methodology but rather by observing a wide range of potential practices that can be suitable to a given situation, before selecting the best one (Koivurova *et al.*, 2016). Veseley (2011) argued that by using best practices in the EIA process, the management of long-term impacts whose significance is often different from short-term impacts is properly considered. Best practices tend to be adopted without being time-proven. They cannot remain the best forever. With constantly changing technology, environment, and economical situations, it should always be updated to meet the challenges of the time (Koivurova *et al.*, 2016).

- credible; the tool must be based on scientific process and must be undertaken with impartiality; As observed in many countries, political or economic factors should not influence the process and objective of environmental impact assessments (Chanthy & Grünbühel, 2015; Zuhair & Kurian, 2016). EIA has been in use for years and its benefits have been widely discussed, and proven in many countries.

3.1.3 The benefits of EIA

According to Sadler (1996), the long-term benefit of EIA is to ensure a sustainable project. Cashmore (2004) has described a sustainable project as a project that would be economically and environmentally viable, a project that will economically last for long without compromising the health and well-being of the surrounding population and without damaging the natural environment. Several researchers have generally agreed with this opinion (Sadler, 1996; Morrison-Saunders *et al.*, 2015; Mounir, 2015; Roos *et al.*, 2020; Sara & Fischer, 2020). Whether it is for developers, regulators, affected populations and the natural environment, the benefits are diverse. It depends on the context within which the evaluation occurs (Roos *et al.*, 2020). The benefits are perceived in all phases starting from the early phase to the site closure (Gaharwar *et al.*, 2016). Morrison-Saunders *et al.* (2015) classified the benefits of EIA for developers into four categories (see table 3.1).

Table 3. 1: The benefits of EIA (Morrison-Saunders *et al.*, 2015)

Benefits of EIA	
Operational	This includes minimizing long-term project costs, improving the customers and products and professional credibility enhancement.
Managerial	EIA helps to use the resources and inputs efficiently. It contributes to better resource management and improves the performance of the organization.
Strategic	The tool supports business growth; builds business innovation, cost leadership and external linkage.
Organizational	The tool facilitates business learning, empowerment and builds common visions.

Roos *et al.* (2020) suggested that the benefits of EIA can be categorized into two approaches, i.e. managerial approaches that encompass all the approaches suggested by Morrison *et al.* (2015), and legislative approaches that include consistency and fairness, public involvement and financial savings. Indeed EIA helps avoid the unnecessary costs of unanticipated impacts, which can be intensified if environmental problems have not been considered at the beginning of the project (Kidd *et al.*, 2018). It is well known that changes which are made late in the project cycle seem to be the most expensive.

Waliyu (2015) believed that EIA process strengthens a dialogue between administrative and traditional authorities, local communities, associations, institutional partners and the developers. This is a benefit for developers. A good dialogue between developers and the public is also crucial, whether for developed or developing countries. The process also facilitates the legal and administrative procedures and limits the risk of conflicts between developers and people. Often, the quality of life affected people is preserved and improved (Onuora *et al.*, 2017). EIA also contributes to improving the public's knowledge of environmental issues.

Some potential benefits of EIA have been realized to a certain extent. According to the regulator's opinions (Cilliers *et al.*, 2020), the potential benefits of EIA include:

- Protecting and conserving biological diversity and sensitive areas;
- The socio-political and economic benefits;
- The governance and sustainable development benefits.

The realized benefits are related to:

- The involvement of the public;
- The natural resource management;
- The improvement of knowledge;
- The reduction of environmental impacts; and
- The compliance with legal requirements.

3.1.4 Challenges for EIA

The challenges and problems encountered during the EIA process are varied. According to Kamijo and Huang (2016), challenges faced by EIA practitioners when undertaking an EIA, often differ from country to country. According to Mounir (2015), this is often due to social and cultural conditions in developing countries. In Lesotho, Talime (2011) mentioned the lack of sufficient financial resources and the experience of the Environmental Assessment Practitioners (EAP) as a problem that faces the current practice of EIA. This is supported by Mounir (2015) in Niger. The competence of the Environmental Assessment Practitioners (EAP) may indeed impact the EIA report (Chanthy & Grünbühel, 2015). For some projects, the collection and management of information included in EIA reports are real problems (Tilakram, 2018).

The main problems for EIAs in Nigeria were poor public participation, inadequate screening, project monitoring, the incompetence of EIA practitioners and proponents² who are more concerned about their financial interest (Agbazue & Ehiemobi, 2016). Many EIA practitioners and authorities in developing countries come across those problems. In India, Arun (2013) noted the control of EIAs by project proponents and poor monitoring management.

3.2 Effectiveness of EIA

According to Sadler (1996), the term *effectiveness* refers to the degree to which something successfully produces a desired result or outcome. Cashmore *et al.* (2004) agreed with this description and highlighted that the term effectiveness cannot be simplified only on a one-dimensional view, related to the purpose and outcomes, because its meaning varies among individuals. When referring to the EIA, this view also corroborates that of Arts *et al.* (2013), that the effectiveness of EIA depends on the context; meaning it is also related to the project level and the system level.

In fact, since the emergence of Environmental Impact Assessment, the question of the effectiveness of EIA has been a dominant theme of EIA research (Sadler, 1996; Bond *et al.*, 2018; Sandham *et al.*, 2020). The effectiveness of EIA refers to the extent to which the tool assists in better decisions regarding environmental issues (Sandham & Pretorius, 2008). It can be determined by various factors related to how EIA is applied in practice (Talime, 2011).

Recent literature investigates the effectiveness of EIA in terms of its value, including: **procedural** (which involves the compliance with the institutional and procedural requirement), **transactive**

² Proponent also refer to developer

(meaning to what extent does EIA influence the decision making, or contribute to the protection of the environment), **substantive** (meaning the achievement of the outcomes of EIA) and **normative** (EIA should meet the need of interested parties) value (Bond *et al.*, 2018).

Over time, the procedural aspect has been studied more than the substantive aspect, which implies more difficult questions (Morgan, 2012).

Several factors can influence the effectiveness of EIA. According to Runhaar and Driessen (2007) the effectiveness of EIA can be largely influenced by the actors involved, and the consideration given to the protection of the environment. Lyne *et al.* (2017) supported this idea when they stated that if more extensive role is ascribed to the competent authority, the effectiveness of EIA would be higher when this aligns with their interests.

According to Abdul-Sattar (2007), the EIA system of developing countries is not efficient in its application due to the cultural contexts of some countries. Kolhoff *et al.*, (2018) share the same opinion. The authors believe that EIA is generally more effective in developed countries and limited in effectiveness in developing countries.

In many countries, the political context influences the effectiveness of EIA (Chanthy & Grünbühel, 2015). To consider EIA as an effective environmental management tool, three primary goals for which the tool is intended must be achieved; this includes:

- to assist in decision making;
- to help the developer; and
- to contribute to sustainable development (Glasson *et al.*, 2012).

According to Arts *et al.* (2013), the effectiveness of EIA can only be improved if all the actors involved in the decision making of projects, i.e. developers and authorities put a high value on the environment.

In general, with regard to recent studies (Anifowose *et al.*, 2016; Arts *et al.*, 2016; Rocha *et al.*, 2019; Yaqoob *et al.*, 2019; Duarte & Sánchez, 2020; Singh *et al.*, 2020; Sandham *et al.*, 2020), there is a consensus on Sadler's (1996) opinion that the effectiveness of EIA can be based on these four fundamental aspects:

- the efficiency of prediction and management of the impacts;
- the effect of the tool on decision making;
- the quality of the EIA reports; and
- monitoring and post decision auditing.

One factor of particular importance is the quality of EIA reports (Talime, 2011, Mounir, 2015; Bond *et al.*, 2018; Sandham *et al.*, 2020). The quality of the information in the EIA report influences the decision-making process (Mounir, 2015). Although several studies have pointed out the benefits of EIA, weaknesses in the EIA practice have been noticed in the EIA reports; this includes poor consideration of alternatives, inadequate prediction and assessment of impacts, inadequate

description of mitigation measures and poor monitoring arrangements (Talime, 2011, Mounir, 2015; Singh *et al.*, 2020; Sandham *et al.*, 2020). In a general view, the main objective of the study of the effectiveness of EIA is to solve problems, not only to find the weakness (Glasson *et al.*, 2012). In this vision, enhancing the effectiveness of EIA also depends on improving the quality of EIA report. Reviewing the quality of EIA reports is a method commonly employed for this purpose.

3.3 EIA report

A key stage in an EIA process is the preparation of an EIA report. Also refer as Environmental Impact Statement (EIS) (Talime, 2011), the EIA report is the most relevant and concrete product to come from an EIA study (Mounir, 2015). It is a valuable framework for discussing the acceptability of a proposal (Fisher & Nadeem, 2013). Therefore it must provide detailed information for better decision-making. The information must be accurate, substantial and credible (Kabiz & Montaz, 2012; Duarte & Sánchez, 2020). It should be clearly written to enable individuals, interested and affected parties to understand the content (Fisher & Nadeem, 2013; Mounir, 2015; Wylie *et al.*, 2018). According to Sadler (1996), the following principles (see Table 3.2) should guide an EIA report's preparation.

Table 3. 2: Guiding principles for EIA report preparation (Source: Sadler, 1996)

Principles	The content of the report should reflects the outcomes of the scoping stage
	The focus should be on information relevant for EIA
	The quality and relevance of information should be more important than its quantity
	The prediction of impacts needs to be reliable, based on scientific principles that can be understandable

An EIA report can be a single document, or can be made of numerous documents containing specific studies produced by experts. According to Singh *et al.* (2020), the length of the report is not linked with its quality.

3.4 Review of EIA report quality

Today, most countries with regulatory mechanisms for EIA have systems in place to evaluate the content of the EIA report. The review of the quality of reports is usually done by the decision making authorities. However, it can also be done by an independent or internal specialist, external reviewers, other stakeholder authorities, funders, agencies, or the developers (UNEP, 2004; Talime, 2011; Kamijo & Huang, 2016).

Reviewing EIA report quality consists of verifying the adequacy of the information in the report (DEAT, 2004). The information in the report should be sufficient and clearly presented to facilitate

and contribute to fair decision making (Wylie *et al.*, 2018). Indeed insufficient and incorrect information could misinform decision-makers and lead to the proposal being rejected (Pinho *et al.*, 2007).

According to the UNEP (2004), the review process consists of checking whether EIA reports are in accordance with the legal requirements and requirements covered in the terms of reference, not on the ideal practice. By contrast, the review criteria developed by Lee and Colley (1999), assesses the EIA reports against best practice. This means that the process should be carried out with reference to EIA good practice and in accordance with the legal conformity (depending on the country, or the organization donor).

According to Lee *et al.* (1999), in order to promote objectivity in the review process, any review should be undertaken by at least two or more reviewers, qualified in the field and familiar with the regulations applied in the project.

Aspects or information mostly required for decision making are:

- The description of the project (including all activities);
- The description of the baseline environmental conditions;
- The identification and evaluation of impacts;
- The identification and evaluation of different possibilities of alternatives;
- The establishment of mitigation measures;
- The non-technical summary (UNEP, 2002);
- The quality of the presentation of the EIA report (EC, 2001).

Identifying strengths and weaknesses in EIA reports with a view to improving reports is one of the common outcomes of the review process (UNEP, 2002).

3.5 Quality of EIA reports

The term quality can be referred to as the standard by which something is evaluated as compared to other similar things. Understanding the term quality varies according to its application (Bond *et al.*, 2018).

The quality of the EIA report has a significant impact on the decision-making process. The quality of the reports may vary depending on the types of projects and countries. EIA report quality is often connected to the national and other legislative frameworks, the experience and knowledge of EIA practitioners and the funding allocated to the project (Talime, 2011; Mounir, 2015; Wylie *et al.*, 2018).

In many developing countries, the quality of the information in the EIA report needs to be improved (Mounir, 2015, Roos *et al.*, 2020). For various projects, studies have shown areas of satisfactory performance as well as deficiencies in the EIA reports. The description of the project, the

presentation and communication of the findings were found to be the areas more satisfactorily dealt with in the EIA reports (Kabir & Momtaz, 2012 ; Mounir, 2015; Kamijo & Huang, 2016; Sandham *et al.*, 2020) while the consideration of alternatives, identification and analysis of impacts were the areas of weakness (Gwimbi & Nhamo, 2016; Kamijo & Huang, 2016; Sandham *et al.*, 2020). Poor quality of EIA reports can negatively affect decisions made for developments as well as sustainable development in any country (Ceronio, 2019). It is therefore important to regularly review the EIA report quality to ensure the effectiveness of the EIA. For this reason, since the early 1990s, various review criteria were set to assess the quality of EIA reports (Kidd *et al.*, 2018).

Although, there are no fixed standards to assess something's quality or identify how the quality should be achieved, most criteria developed require that the IAIA principles of the EIA best practice be considered in the EIA process and be well-integrated in the report. The following section details some criteria discussed in the literature.

3.6 Review criteria package

There are various review methods established for evaluating the EIA reports. These include review packages such as the European Commission Guidelines and the Lee and Colley review package.

3.6.1 European Commission Guidelines

These guidelines assist in the assessment of EIA report quality across the European Union. They include 143 questions or subsections grouped into seven sections or Review Areas. Each question is a criterion, an activity evaluated in the EIA report. Letter from A to E are used as a symbol to assess each activity. Table 3.3 outlines the meaning of each letter.

The guidelines also permit the assessor to answer the questions with "yes" or "no."

Table 3. 3: List of assessment symbols (environmental statements) (EC, 2001:14)

Symbol	Explanation
A	Full provision of information with no gaps or weaknesses
B	Good provision of information with only very minor weaknesses which are not of importance to the decision
C	Adequate provision of information with any gaps or weaknesses in information not being vital to the decision process.
D	Weak provision of information with gaps and weaknesses which will hinder the decision process but require only minor work to complete
E	Very poor provision of information with major gaps or weaknesses which would prevent the decision process proceeding and require major work to complete

3.6.2 Lee and Colley review package

The Lee and Colley review package is comprised of a set of criteria used to evaluate EIA report quality (Glasson *et al.*, 2012). The package contains criteria summarised into four Review Areas and subdivided into categories and sub-categories. They are organised in a pyramidal structure as illustrated in Figure 3.1. The Review Areas (RA) cover the following aspects:

- The description of the development, the initial environment and baseline conditions (Review Area 1);
- The identification and assessment of keys impacts (Review Area 2);
- The consideration and description of alternatives and mitigation measures (Review Area 3); and
- The communication of results (Review Area 4)

The sub-categories outline each task that must be achieved in the EIA process. The sub-category defines the lowest level of the pyramid and the Review Area, the highest level. The review process starts at the lowest level, the base of the pyramid, and then continues until the highest level (see Figure 3.1) (Lee *et al.*, 1999).

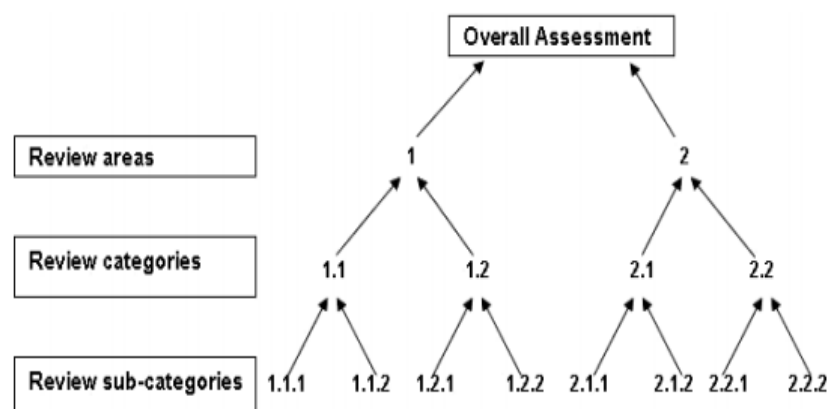


Figure 3. 1: Assessment pyramid of the Lee and Colley review package (Lee *et al.*, 1999)

Letters from A to F are assigned to assess the quality of each task. The letters were chosen instead of numbers to avoid an evaluation based on mathematical addition (Lee *et al.*, 1999).

The symbols from A - C characterise tasks that are considered satisfactory, and D – F, tasks generally unsatisfactory (Table 3.4).

Table 3. 4: List of assessment symbols (Lee *et al.*, 1999)

<u>Symbol</u>	<u>Explanation</u>
A	Relevant tasks well performed, no important tasks left incomplete.
B	Generally satisfactory and complete, only minor omissions and inadequacies.
C	Can be considered just satisfactory despite omissions and/or inadequacies.
D	Parts are well attempted but must, as a whole, be considered just unsatisfactory because of omissions or inadequacies.
E	Not satisfactory, significant omissions or inadequacies.
F	Very unsatisfactory, important tasks are poorly done or not attempted.
NA	Not applicable. The review topic is not applicable, or it is irrelevant in the context of this statement.

The Lee and Colley review package, initially developed in the UK, has been employed for reviewing EIA report quality in developed and developing countries (Glasson *et al.*, 2012; Kabir & Momtaz, 2012; Mounir, 2015; Kamijo & Huang, 2016; Anifowose *et al.*, 2016; Laven, 2017; Wylie *et al.*, 2018; Ceronio, 2019; Sandham *et al.*, 2020). In certain studies, the package has been developed and adapted to be appropriate to environmental impact assessment legislation of a specific country or type of projects (Glasson *et al.*, 2012; Sandham *et al.*, 2013a; Kamijo & Huang, 2016; Boshoff, 2019).

In Southern Africa, many studies have used these criteria as a basis for evaluating EIA reports. These include Talime (2011) in Lesotho, Gwimbi and Nhamo (2016) in Zimbabwe, and Sebetlele (2018), Ceronio (2019), Wylie *et al.* (2018), Scheepers (2019), Boshoff (2019), and Sandham *et al.* (2020) in South Africa.

The general findings of those studies revealed that the quality of most reports is satisfactory. However, some areas need to be improved. Generally, the results showed a better satisfaction of the reports concerning the descriptive tasks (Wylie *et al.*, 2018, Sandham *et al.*, 2020). On the other hand, analytical tasks are less satisfactory.

Section 3.7 presents a brief description of the quality of EIA reports internationally. Although methods other than the Lee and Colley were used, many aspects included in the assessment were similar.

3.7 EIA report quality internationally

Much research on the quality of EIA reports was conducted internationally. The Lee and Colley review package in its original form or adapted form, has been widely used.

3.7.1 EIA report quality in African countries

South Africa

The quality of EIA reports in South Africa has been extensively studied. Although most recent studies have agreed that the overall quality of EIA reports is satisfactory, according to the regulator's opinions, the quality of the information included in the reports needs to be improved (Roos *et al.*, 2020).

Sandham *et al.* (2020) reviewed the quality of 24 EIA reports of SANParks development projects. The reports were prepared between 1997 to 2019. 92% of the reports were considered as satisfactory. The description of the development and presentation of the results were of better quality than the identification and evaluation of impacts, the alternatives, and mitigation measures. More EIA reports achieved A and B grades than any other symbol.

Sutton-Pryce (2015) evaluated the quality of 18 EIA reports in the Mpumalanga Province. The EIA reports were produced between 2010 and 2013. The results showed that 67% were of satisfactory quality. The major areas of weakness concerned waste issues; the prediction of impact magnitude; and the consideration of alternatives. The best performance was the description of the development.

Nigeria

Anifowose *et al.* (2016) evaluated the quality of 19 EIA reports on oil and gas projects in Nigeria using the Lee and Colley package. The reports were produced from 1998 to 2008 — the findings showed that only 53% of the EIA reports were satisfactory. The description of the project and the communication of results performed better while the prediction of impacts and decommissioning phase need to be improved. The study also revealed that there is no statistical significance of improvement in the quality of EIA reports over time.

Niger

In Niger, a study carried out by Mounir (2015) on the quality of EIA reports showed a slight achievement of EIA reports. The study reviewed the quality of 15 reports undertaken between 2008 and 2012 in the water and industry sectors. The assessment was done using the Lee and

Colley criteria (Lee et al., 1999). The results indicated that only 60% of the reports were satisfactory, whereas the remaining 40% were rated as unsatisfactory. It was revealed that the description of the development and site and the communication of results have performed well than the identification and evaluation of impacts and the consideration of alternatives.

Zimbabwe

Gwimbi and Nhamo (2016) assessed the quality of 22 EIA reports from mining projects carried out between 2003 and 2010. The study evaluated the reports quality in terms of the identification and evaluation of environmental impact and proposed mitigation measures. The results showed that 68% of the reports were assessed as satisfactory in terms of identifying and evaluating the impacts. The identification and description of mitigation measures were also well attempted (77% of EIA reports rated as satisfactory).

Tanzania

Guilangpour and Sheate (1997) assessed the quality of 18 EIA reports prepared before 1997, using a modified procedure from the UK Institute of Environmental Assessment Guidelines. The findings showed that the worst area was the prediction of impacts, followed by the public involvement, then the description of the residuals and the description of the development. The description of the development remains an area of weakness in Africa.

Ghana

Barimah's study in 2014 on the quality of EIA reports in Ghana revealed 93% of reports assessed as satisfactory (Barimah, 2014). The study used the Lee and Colley review package to assess the quality of 30 reports prepared in the period of 2008 to 2014. The Lee and Dancey rating system (Lee & Dancey, 1993) was used. The rating system is described as it follows; "Good" = A or B, "Borderline" = C or D "Poor" = E or F. The findings revealed that 50% of the reports were rated "good" (rated B), and the remaining 50% were rated "borderline" (C-D). No reports were rated as poor (i.e E or F).

3.7.2 EIA report quality in Asian countries

Bangladesh

In Bangladesh, 30 EIA reports selected randomly from various projects, produced between 1994 and 2008 were reviewed by Kabir and Momtaz (2012). The Lee and Colley review criteria (Lee & Colley, 1992) were used as basis for the assessment. Only 66% of the reports were found to be satisfactory. The description of the development and the baseline environment was the best performed and the consideration of alternatives and mitigation measures the worst.

Cambodia

The quality of 39 EIA reports (2007-2011) were reviewed by Chanthy and Grünbühel (2015). Four review methods which include the Lee and Colley review package (Lee & Colley, 1999) were used. The study revealed that 69% of the reports were satisfactory. The study identified insufficiencies in the executive summaries (67% of reports was incomplete).

China

Aung *et al.* (2018) reviewed the quality of 10 EIA reports on the natural resources sector. The reports were produced by Chinese enterprises in Myanmar between 2010 and 2017. In the analysis, the authors used the grading letters A and B to describe the reports which were satisfactory; C and D were considered borderline; E and F were for reports which were unsatisfactory. Only 33% of the reports were of satisfactory quality, 27% were borderline to poor performance, and 40% were unsatisfactory.

The majority of the reports (88%) were rated as satisfactory for the description of the development although the description of the environment, the baseline condition and waste management, still need improvement (40% of the reports rated as unsatisfactory).

Xu *et al.* (2015) also analysed the EIA reports in China. The authors analysed all EIA reports submitted in 2014 to the Ministry of Environmental Protection (MEP). The content analysis was used to analyse the EIA reports. In the reports, the authors identified inadequacies regarding the description of the baseline environment, the identification and assessment of impacts and the consideration of alternatives. The consideration of alternatives was the area that performed the worst. The assessment of impacts was more focused on the ecological components, water, air, and noise. There was a little focus on waste management. The authors identified 80% of EIA reports from national projects that did not propose an alternative plan, 14% of EIA reports which present only one alternative, and only 3% of the reports which propose two alternative ideas.

Bahrain, Arabian Gulf

Yacoob *et al.* (2019) investigated the quality of eight EIA reports for energy conservation and gas emissions. Three methods which include the Lee and Colley review (Lee *et al.*, 1999) were employed to review the reports. The reports were carried out between 2009 and 2019. Most of the reports performed satisfactorily regarding air quality and emissions reduction management, the description of the project, consideration of alternative, and identification and description of the impacts. The nature and quantity of gaseous emissions were adequately described in 75% of the reports.

Sri Lanka

Samarakoon and Rowan (2008) reviewed the quality of 130 EIA reports in Sri Lanka with a particular focus on ecology. The analysis has indicated that the impacts prediction and evaluation need more attention.

3.7.3 EIA report quality in European countries

Greece

Cashmore *et al.* (2002) reviewed the quality of 72 EIA reports from different project types produced in Thessaloniki between 1990 and 1999. Only 47% of the reports were considered to be satisfactory. For all review areas, the percentage of reports rated as unsatisfactory was high.

Spain

Peris-Mora and Velasco (2015) assessed the quality of 40 EIA reports prepared from 1990 to 2002 using the European Commission Guidelines. Similarly, Canelas *et al.* (2005) reviewed the quality of 46 EIA reports written in Portugal and Spain between 1998 and 2003. The consideration of alternatives was found to be one of the main areas of weakness.

The United Kingdom

Lee and Colley (1992) evaluated the quality of 12 EIA reports for the United Kingdom. It was found that, a significant number of reports were just satisfactory. The best performed task was the description of the environment, while the consideration of alternatives was the worst.

Barker and Jones (2013) more recently assessed the quality of 35 EIA reports from the offshore oil and gas sector using the Lee and Colley package. The reports were produced in the United Kingdom from 2002 to 2005. The results indicated that only 51% of the reports achieved a satisfactory grade (A-C). No report was rated as very unsatisfactory (F).

Ireland

The quality of 40 EIA reports prepared between 1988 and 1992 was evaluated in Ireland (Lee & Dancey, 1993). The findings revealed that 60% of the reports did not obtain a satisfactory grade with Review Areas 1 and 2 having being the least satisfactory. Review Area 3 also was of low quality.

Scotland

In Scotland, the quality of 16 EIA reports from the forest domain, written from 1988 to 1996 was evaluated by Gray and Jones (1999). The authors used the Lee and Colley (1989) review criteria

as the basis for evaluating the reports. The overall quality of the EIA reports was found to be low. Poor performance was identified in all the review areas. The authors emphasized that the description of the project and its alternatives, the baseline conditions, the identification and evaluation of impacts and the public involvement were very poorly performed. The description of the local environment, however, was satisfactory.

Finland

In Finland, Jalava *et al.* (2010) reviewed a sample of 15 EIA reports based on the European Commission's review criteria. The reports were for waste incineration projects. They were prepared between 2001 and 2005. 12 reports were assessed as satisfactory, and only three reports were unsatisfactory. The analysis of Finnish EIA reports specifically indicates that the description of the environment and the communication of results performed the best. In contrast, the description of the project and its alternatives and the mitigation measures were the areas with more insufficiencies.

Portugal

Pinho *et al.* (2007) evaluated the quality of a Portuguese hydropower project. The results indicated that the type and quantity of wastes and the method of waste treatment were not well detailed. The consideration of alternatives and the description of mitigation measures were also poor.

Rocha *et al.* (2019) also analysed the quality of six EIA reports carried out in 2018 in Portugal using an adapted checklist to guide the analysis of the content of the reports. The criteria used emphasized particular issues similar to what is included in the Lee and Colley package. The grading scores were indicated by the answer "yes", "meaning that the topics are clearly presented in the EIA reports and are explicit" and "no", meaning the opposite. The results showed that 85% of reports were more explicit, disclosing more information on the criteria study. The description of the project, the description of the affected area and mitigation measures were well explained in the majority of the reports.

3.7.4 EIA report quality in South America countries

Brazil

Landim and Sanchez (2012) reviewed the quality of nine EIA reports written from 1987 to 2010 using a content analysis method. The findings revealed that the quality of the report in the country has improved over time. The authors emphasized that the description of the environment and impact analysis that were the main shortcomings, have improved.

Rocha *et al.* (2019) more recently assessed the quality of six EIA reports written in 2018. The findings revealed that 47% of the reports were of satisfactory quality.

America

Singh *et al.* (2020) assessed the shortcomings in EIA reports internationally. The study analysed the EIA reports from the British Council in Canada, California (USA), Vera Cruz (Mexico), Queensland (Australia), Brazil, New Zealand, England and Wales. The authors analysed ten most recent EIA reports from each jurisdiction, with two exceptions: seven EIAs from New Zealand and 11 EIA reports for Queensland (Australia). The method used was the documented analysis. The major weaknesses that emerge from the analysis in all the reports were the consideration of cumulative impacts, the description of the mitigation measures, public participation and the prediction and analysis of significant impacts.

3.7.5 EIA report quality for projects funded by the Japan International Cooperation agency (JICA)

Kamijo and Huang (2016) evaluated the quality of 120 EIA reports from different countries. The reports were taken from projects sponsored by the Japan International Cooperation Agency (JICA). The reports were undertaken between 2001 and 2012. The results showed that only 35% of the reports were rated as satisfactory (A-C), 17% rated "B", and 15% of the reports were poorly attempted (D-F).

Moreover, a report written by Kamijo and Huang (2019), where 160 EIA reports were assessed using the Lee and Colley review package, indicated the poor quality of reports funded by the JICA. The reports were obtained from different continents of the world and prepared between 2001 and 2016. The findings revealed that the quality of EIA reports in the Pacific is more satisfactory than those of other continents. Africa is the continent where there are the fewest satisfactory reports.

The quality of EIA reports in all countries showed shortcomings in the consideration of alternative and public participation. The description of the environment is almost in all countries the task best performed.

3.8 Environmental Impact Assessment in Lesotho

EIA in Lesotho is mandated by the Environmental Act of 2008 and the 2009 EIA Guidelines.

3.8.1 Evolution of EIA in Lesotho

Lesotho first learned about EIAs during an environmental conference organized by the World Bank in the country (Mokhehle & Diab, 2001). The country was the first in Africa to introduce a national environmental strategy for protecting the environment with the aid of the World Bank (Mokhehle & Diab, 2001). The introduction of EIA in Lesotho dates from 1988 (Mokhehle & Diab, 2001). Since 1988 Environmental Impact Assessment studies were voluntarily carried out even when there was no regulation to enforce the process. In 1989, Lesotho established a National Environmental Action Plan (NEAP) which aimed to contribute to natural resource conservation and increase awareness of environmental issues in the country. The plan also defines a National Environmental Policy (NEP), which acknowledged EIA as essential for the effective implementation of the policy. Subsequently to the NEAP, Lesotho has revised its constitution and in 1993 included the protection of the environment as a fundamental principle on which the country must be governed. Section 36 of the constitution requires the government to establish strategies to protect the environment and to ensure a safe environment and adequate health and well-being to present and future citizens (Lesotho Government, 1993).

Following the Rio de Janeiro Earth Summit and to implement the objectives of the Agenda 21, Lesotho in 1994 established a new National Action Plan (NAP) based on the NEAP recommendations. The NAP replaced the NEAP.

The objective of the NAP was to improve natural resource management and promote sustainable development. The country further endorses and adheres to various international environmental conventions such as the convention on biodiversity, climate change and the fight against desertification (USAID, 2012). These agreements have brought about the gradual build-up of environmental awareness in the country. The NAP's overall aim was to improve the NEAP foundation and establish new national plans by integrating these into the national legislation, sectorial priorities and other international conventions ratified (Rantlo, 2015). The National Secretariat for the Environment (NES) was later created in accordance with the requirements of the NEAP. The NES is the leading institution coordinating environmental matters. It also assesses EIA studies. The National Environmental Policy (NEP) established in 1996 set out EIA principles and procedures (Lesotho Government, 1998). The main goal of the NEP was to promote the principles of sustainable development.

The environmental policy required developers to undertake an Environmental Impact Assessment. However, there was weak enforcement of the legislation (Talime, 2011).

In 1999 the first draft of EIA guidelines was produced, and in 2001, the Environment Act (EA) No. 15 of 2001 was drafted.

The Lesotho Environmental Authority (LEA) responsible for implementing the national environmental policy was established in terms of the Act (Rantlo, 2015).

In 2002 the guidelines for EIA in Lesotho were drafted by the Ministry of Tourism, Environment and Culture (MTEC) and published in 2009. The guidelines defined the steps that must be followed when conducting an EIA. In 2003, the NES was detached from the Prime Minister's Office and placed as a department within the Ministry of Tourism, Environment and Culture (MTEC). The Environment Act No. 15 of 2001 was never passed into law, though the environmental practitioners and all the national institutions carried out the EIA in accordance with the provision of this Act (Talime, 2011). The Environment Act No. 15 of 2001 was reviewed in 2006 and 2008, and enacted in June 2009 (Rantlo, 2015). Under the new Act, the NES is recognized as the Department of Environment (DoE).

The Environmental Act No 10 of 2008 was the second (after the 2001 Act attempt) and final attempt to make EIA practice mandatory in Lesotho.

Section 25(1) of the Act specifies that certain projects shall not be undertaken without an Environmental Impact assessment license issued by the Director of Environment.

The institutional framework for EIA and legal provisions of EIA in Lesotho are presented in the following sections.

3.8.2 Administrative framework for EIA in Lesotho

The Department of Environment (DoE) plays a regulatory and advisory role in environmental protection, including setting standards and guidelines, monitoring compliance, disseminating environmental information and creating awareness (Talime, 2011). To achieve environmental integration across sectors, the Environment Act (2008) calls for the establishment of Environmental Units (EUs) in each Ministry. These environmental units are in charge of enforcing the Act. They are also working in coordination with the DoE on all environmental issues (Rantlo, 2015). The Act requires the establishment of several environmental institutions:

- The National Environmental Council (NEC) responsible for drafting and harmonizing the environmental policies, plans, and activities.

- An Environmental Co-coordinating Committee (ECC) responsible for ensuring good collaboration amongst ministries and other organizations concerning environmental matters.
- A district Environmental Officer in charge of managing and report environmental issues in the district, and
- An Environmental Tribunal to regulate claims or disputes (Talime, 2011).

3.8.3 Legal Provisions of EIA in Lesotho

The first law applicable to the protection of the environment in Lesotho is the Constitution established in 1993. Section 36 of the Constitution states that: *‘Lesotho shall adopt policies aimed at protecting and improving the natural and cultural environment for the benefit of the present and future generation, and shall ensure for all citizens a healthy and adequate environment’* (Lesotho, 1993). Under this commitment, the Environmental Act No 10 of 2008 was established.

Part V of the Act details the requirements of EIA practice in the country. This section includes the type of projects that require an EIA, the process and requirements for the submission of a Project Brief, an EIA report and the issuing of an EIA license. The EIA review process, environmental audit and monitoring, and transfer of an EIA license are also detailed.

Indeed, the Act prohibits any person from carrying out any activity identified in the first schedule before obtaining an EIA license from the Director of the DoE. Section 19(1) identifies the activities, types of projects, policies, programs that require an EIA.

The Environmental Act 2008 provides for the legal procedure for conducting an EIA. The procedure is described as follows;

➤ Submission of a project brief and Screening

Section 20 prescribes that all projects listed as requiring an EIA study before commencement are obliged to prepare a Project Brief report and submit fifteen (15) copies of it to the Department of Environment and other collaborating partners and institutions for review. A project brief must content:

- The purpose, location, nature and scope of the project;
- The project activities during all phases of the project;
- The legal and administrative requirements and policy;
- The area of influence of the project; condition and sensitivity of the affected area;
- Public and authority consultation;
- Identification of the potential effects of the project and evaluation of key issues;
- The alternatives site and process of the project;
- The opportunities and constraints; and

- The mitigation measures and an environmental management plan (Lesotho Government, 2002).

After reviewing the Project Brief, three decisions may be reached.

- The DoE can decide that no formal assessment is required and issue a license;
 - It may require additional information, which involves a preliminary environmental assessment;
 - Or, alternatively, a full EIA is required: After considering the Project Brief, where the Director of the DoE thinks that the project may significantly impact the environment, he/she may, in consultation with the Line Ministries, require the conduction of an EIA and the submission of an EIA reports.
- Submission of an Environmental Impact Assessment report and EMP (environmental management plan):

Once a Project Brief has been accepted, as prescribed in section 21(1) of the Act, the proponent may be requested to undertake an EIA. The EIA should be carried out by specialists approved by the Department of Environment (DoE) (Talime, 2011). According to section 21(5), an EIA report must comprise the following elements.

- A detailed description of the project
 - A description of the potentially affected environment
 - A description of the technology used in the project
 - An alternative site, and technology of the project and reasons for the choice made
 - The identification and description of all direct, indirect, cumulative, short term and long term, social, economic and cultural effects of the project
 - An indication of trans boundary effects of the project
 - An evaluation of the impacts
 - Identification of gaps in knowledge and uncertainties encountered during the study
 - A comprehensive mitigation plan (Talime, 2011)
- Review of EIA report and Decision making

As indicated in section 22 of the Environmental Act No 10 2008, after receiving the EIA report, the Director of the Environment reviews the report in consultation with the ministries related to the project. If he finds it satisfactory, he will progress it to a public hearing. The Department will invite all people who may be impacted by the project to give their remarks/inputs to the project.

Section 25(2,3) of the Environmental Act No 10 2008 states that if the Director is satisfied with the study, he/she may approve the project and issue an EIA license or refuse to grant a license under certain conditions. An unfavorable decision means the prohibition of the implementation of the project.

- Appeal and Record of Decision

Section 25(5) states that anyone dissatisfied with the decision made by the DoE may, within 30 days of being informed of that decision, demand in writing the reasons for the decision and request that the DoE reconsiders its decision. Within 30 days of receipt of a request for reconsideration, the Director of the DoE must issue a Record of Decision affirming, modifying or reversing its earlier decision.

➤ Environmental monitoring

The Director of the DoE in consultation with the Line Ministries is responsible for monitoring the activities of the projects and ensuring that the mitigation and improvement measures included in the EIA report are being effectively implemented.

➤ Environmental audit

As stated in Section 24 of the Act, the Director of DoE, in consultation with the relevant Line Ministries, is responsible to undertake an environmental audit.

➤ Sanction

Non-compliance to the Act may result in a fine not less than M 5,000 (Lesotho Loti) (equal to 311.53 American Dollars in 2021); imprisonment of no less than two years; or both. The following figure summarizes the legal procedure for undertaking an EIA in Lesotho.



Figure 3. 2: Legal procedure of undertaking EIA in Lesotho (USAID, 2012)

3.8.4 Quality of EIA reports in Lesotho

The quality of EIA reports has been criticized in countries in Africa. Mokhehle and Diab, (2001) argue that the reason of the poor quality of EIA reports in some countries in Africa is the late introduction of EIA regulation.

Since 1988 studies have shown weaknesses in EIA reports in Lesotho. The study of Mokhehle and Diab (2001) based in part on evaluating the quality of reports written in Lesotho from 1980 to 1999 revealed a very poor quality of the reports. Bowen *et al.* (2009), after reviewing the quality of an EIA report from a landfill project in Maseru, noted a failure of the tool in the decision making due to the inadequate project briefing by the client. Although other methods, other than the Lee and Colley review package, were used in the previous studies to assess the EIA report quality, the analysis was based on several similar aspects used in the Lee and Colley review package.

The more recent study on the quality of EIA report in Lesotho carried out by Talime (2011) also revealed that the overall quality of the EIA reports in the area is still very unsatisfactory. The major areas of weakness include the description of the project; the identification and evaluation of the impact; the consideration of alternatives, and public participation (Bowen *et al.*, 2009; Talime, 2011); These limitations are observed in many countries and more so in developing countries (Kabiz & Montaz , 2012; Mounir, 2015; Kamijo & Huang, 2016).

So far, all studies on the quality of EIA reports in Lesotho show more insufficiencies than strength areas. The EIA reports are of poor quality. According to Rantlo (2015), this might also be due to the insufficiencies he identified in the legislation and regulations that underpin the EIA in the country.

3.9 Conclusion

Considered as an important tool for environmental management, EIAs has been conducted for many years in several countries. Although its implementation and effectiveness present challenges, its huge and diverse benefits are well worth it.

Several approaches have been developed by researchers to assess the quality of EIA reports. In many countries, the quality of EIA reports at the international level showed areas of strength as well as shortcomings.

Lesotho established a national environmental plan in 2001, which calls for the practice of EIA for any project that may influence the environment. However, the effectiveness of EIA remains a question. Studies on the quality of EIA reports in the country revealed that the overall quality of EIA reports in Lesotho is unsatisfactory. This research will therefore, in part, assess a sample of EIA

reports and compare it to the previous study on the EIA report quality undertaken in the area to determine if there is an improvement and to investigate the areas of strength and areas of weakness. The results of the study are presented in the next chapter.

CHAPTER 4. RESULTS: EIA REPORT QUALITY AND LONGITUDINAL COMPARISONS

This chapter attempts to achieve Objective 1 and 2. The chapter is subdivided into 3 sections.

The first section presents the assessment of the quality of the sample of 15 EIA reports, the second section compares the results with the previous findings on report quality carried out in Lesotho (Talime, 2011), and the third section discusses the quality of EIA reports reviewed with international studies.

For the assessment of the quality of EIA reports, the grading symbols ranging from A - F were used instead of a number to assess the report. Letters from A to C reflect satisfactory performance and letters from D to F reflect unsatisfactory performance. Assessment grade A means task well performed, B, task generally satisfactory and C, just satisfactory. D refers to just unsatisfactory, while E and F respectively refer to unsatisfactory and very unsatisfactory.

4.1 EIA report quality results

This section deals with the presentation, and discussion of the results. It details the overall quality of the reports, the quality of Review Areas, categories and sub-categories and highlights the areas of weakness and strength. The number of reports, with percentages in brackets will be used in the presentation and analysis of results.

4.1.1 Overall quality of the EIA reports reviewed

The assessment of the overall quality of the 15 EIA reports reviewed indicates that 13 (87%) reports were of satisfactory quality (A-C). Four reports (27%) were assessed as generally satisfactory (B) and nine (60%) were just satisfactory (C). Only two reports (13%) were found to be just unsatisfactory (D). There were no reports classified as very unsatisfactory (E-F). This suggests that in Lesotho, the information contained in the EIA reports is mostly adequate to inform decision making.

Figure 4.1 shows the overall grade for the sample of EIA reports reviewed.

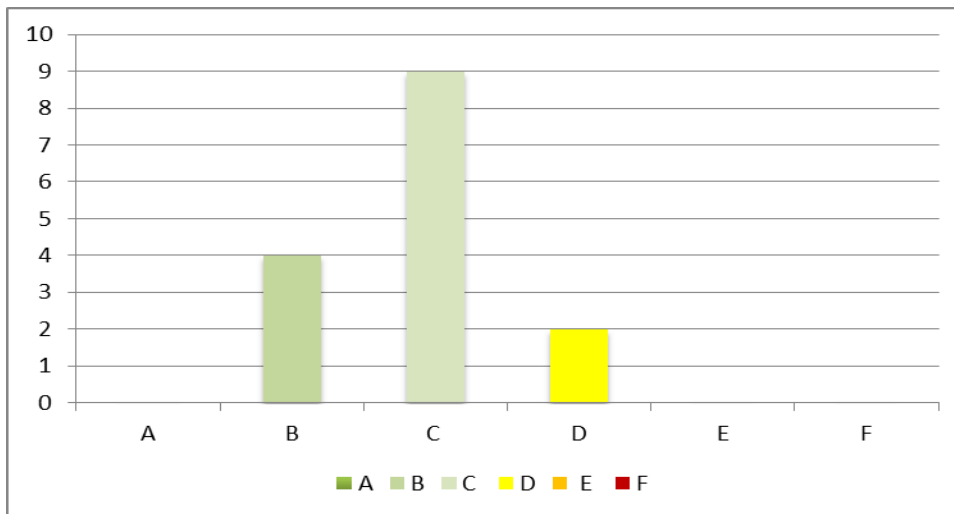


Figure 4. 1: Overall quality of the sample of 15 EIA reports reviewed

The following section describes the quality of review areas.

4.1.2 Quality of Review Areas

The Lee and Colley package involves four Review Areas: Review Area 1, focused on the description of the development; Review Area 2, which addresses the identification and evaluation of key impacts; Review Area 3, which presents the alternatives and mitigation measures; and Review Area 4 which is focused on communication of results.

The performance of each review area is indicated in the figure below.

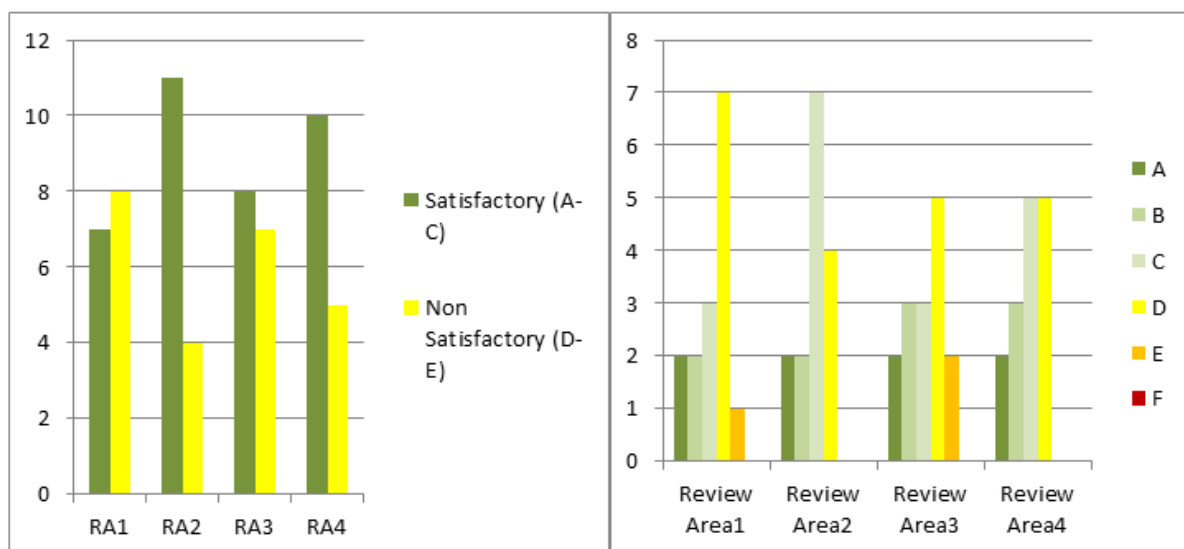


Figure 4. 2: Quality of each Review Area

The analysis of the Review Areas shows that Review Area 2 (identification and evaluation of impacts) achieved the best performance with 11 (73%) of the reports assessed as satisfactory (A-C), followed by Review Area 4 (communication of results) with ten (67%) of the reports evaluated as satisfactory, then Review Area 3 (alternatives and mitigation measures) with eight (53%) of the reports satisfactory. Review Area 1 (description of the development), which is of ultimate importance for the continuation of the Environmental Impact Assessment process, presents more weaknesses with only seven (47%) of the reports assessed as satisfactory and eight (53%) reports of the EIA sample assessed as unsatisfactory.

Indeed, the description of the development should be well described because it is the root on which the identification of potential impacts is based. Four (27%) of the reports were rated "A, B" in Review Area 1, and only one report were assessed as very unsatisfactory for this review.

Both RA 2 and RA 4 show a high percentage of satisfactory grades; however, Review Area 4 shows more reports graded A-B. While for Review Area 3, the analysis shown that only eight (53%) of the reports were assessed as satisfactory. A poor consideration of alternatives is noticed in two reports. Those reports were rated "E".

The analyses of categories and sub-categories in each Review Area are followed.

4.1.2.1 Quality of categories and sub-categories in Review Area 1 (RA 1)

Review Area 1 involves issues relating to the project and its surrounding environment. This review area covered the analysis of the following categories: the description of the project (1.1); the site description (1.2); waste management (1.3); the description of the environment (1.4); and baseline conditions (1.5). The table below details the grades allocated to categories and sub-categories in this review area.

Table 4. 1: Quality of categories and sub-categories of Review Area 1

Summary of all categories and sub-categories		A-B (%)	A-C (%)	D-F (%)	E-F (%)
1.1	Description of the development	3 (20)	7 (47)	8 (53)	2 (13)
1.1.1	Purpose and objective of the development	13 (87)	15 (100)	0	0
1.1.2	Design and size of the development	5 (33)	9 (60)	6 (40)	1 (7)
1.1.3	Physical appearance of the development	0	3 (20)	12 (80)	4 (27)
1.1.4	Production processes and expected rate of production	3 (20)	8 (53)	7 (47)	0
1.1.5	Nature and quantities of raw materials	3 (20)	7 (47)	8 (53)	1(7)
1.2	Site description	5 (33)	10 (67)	5 (33)	1(7)
1.2.1	Land area taken up by the development site clearly shown on a map	7 (47)	11 (73)	4 (27)	0
1.2.2	Land use areas demarcated	8 (53)	13 (87)	2 (13)	0
1.2.3	Duration of the various phases of the project	3 (20)	5 (33)	10 (67)	3(20)
1.2.4	Number of workers and/or visitors entering the site, their access and transport	2 (13)	6 (40)	9 (60)	4 (27)
1.2.5	Means of transporting raw materials	2 (13)	8 (53)	7 (47)	2 (13)
1.3	Waste management	3 (20)	7 (47)	8 (53)	2 (13)
1.3.1	Types and quantities of waste and rate of production	2 (13)	6 (40)	9 (60)	1 (7)
1.3.2	Measures methods to handle and/or treat wastes	4 (27)	10 (67)	5 (33)	1 (7)
1.3.3	Methods by which quantities of residual and waste were obtained	1 (7)	8 (53)	7 (47)	2 (13)
1.4	Environment description	5(33)	10(67)	5(33)	2(13)
1.4.1	Environment expected to be affected	8 (53)	11(73)	4(27)	1(7)
1.4.2	Effects taking place away from immediate construction site	5 (33)	10(67)	5 (33)	1(7)
1.5	Baseline conditions	5(33)	10(67)	5(33)	1(7)
1.5.1	Identification and description of important components of the affected environment	6 (40)	11(73)	4 (27)	1(7)
1.5.2	Existing data sources searched	6 (40)	10(67)	5 (33)	2(13)
1.5.3	Local land uses plan and policies consulted	4 (27)	11(73)	4 (27)	1(7)

The results indicates that, ten (67%) of the reports were graded as satisfactory (A-C) for categories 1.2 (site description), 1.4 (environment description), and 1.5 (description of the baseline conditions), while only seven (47%) were assessed as satisfactory for categories 1.1 (description of the development) and 1.3 (waste management). The description of the development and waste management were the worst performed with eight (53%) of the reports assessed as unsatisfactory. The sub-categories dealing with the description of the development (1.1) which was the most unsatisfactory was the physical presence and appearance of the development (1.1.3) (with 12 (80%) reports assessed as unsatisfactory), followed by the nature and quantities of raw materials

(1.1.5) (eight (53%) reports rated as unsatisfactory), the nature and rate of production (1.1.4) (with only eight (53%) rated as satisfactory), and the design and size of the development (1.1.2) (only nine (60%) rated as satisfactory).

The purpose and objective of the development (1.1.1) were the best performed (87%).

Although the description of the site (1.2) was satisfactory in the majority of the reports (ten (67%) assessed as satisfactory), certain limits were observed, particularly concerning the estimated duration of the phases of the projects (1.2.3) (only five (33%) of the reports were classified as satisfactory); the number of workers and visitors entering the site of the development (1.2.4) (six (40%) reports rated as satisfactory); and the means of transporting raw materials, only eight (53%) reports rated as satisfactory.

In category 1.3 (waste management), sub-category 1.3.1 (types and quantities of wastes generated and rate of production) were the worst performed with only six (40%) reports rated as satisfactory. Sub-category 1.3.3, which addresses the methods of obtaining the residual waste, was also not well performed. In this sub-category, only eight (53%) of the reports achieved a satisfactory level (A-C).

The majority of the reports (11 (73%)) satisfactorily define the area to be affected by the environment (1.4.1). While only ten (67%) reports adequately describe the effects taking place away from the immediate affected environment (1.4.2).

In category 1.5 (Baseline conditions), 11 (73%) reports satisfactorily describe the important components of the affected environment (1.5.1) and the local land use plans and policies consulted (1.5.3). However, only ten (67%) reports obtained a satisfactory grade (A-C) for the existing data sources (1.5.2). For this sub-category, two (13%) reports were graded as very unsatisfactory (E-F) regarding the access to data of the environment (1.5.2).

4.1.2.2 Quality of categories and sub-categories of Review Area 2 (RA 2)

This Review Area is focused on how well the Environmental Assessment Practitioners defined and assessed the effects of the project. It also covers the assessment of the public participation process. The grades achieved in Review Area 2 are summarized in Table 4.2.

Table 4. 2: Quality of categories and sub-categories of Review Area 2

Summary of all categories and sub-categories in review area 2		A-B (%)	A-C (%)	D-F (%)	E-F (%)
2.1	Description of impacts	7 (47)	12 (80)	3 (20)	0
2.1.1	Description of the effect of the project on the environment	8 (53)	12 (80)	3 (20)	0
2.1.2	Interaction of effect on the environment	5 (33)	11 (73)	4 (27)	0
2.1.3	Impact activities from non-standard operations	6 (40)	12 (80)	3 (20)	0
2.1.4	Impact determined as deviation from baseline	7 (47)	13 (87)	2 (13)	0
2.2	Identification of Impacts	5 (33)	11 (73)	4 (27)	0
2.2.1	Impact identified using a systematic methodology	5 (33)	11 (73)	4 (33)	2 (13)
2.2.2	Description and rational of impact identification methods	4 (27)	9 (60)	6 (40)	2 (13)
2.3	Scoping	7 (47)	13 (87)	2 (13)	0
2.3.1	Allowance for the participation of interested and affected parties(IAP)	5 (33)	10 (67)	4 (33)	1 (7)
2.3.2	Preparations should be made to collect the views and concerns of the IAP	7 (47)	13 (87)	2 (20)	0
2.3.3	Impacts selected for more intense investigation	7 (47)	11 (73)	4 (27)	0
2.4	Prediction of impacts	5 (33)	10 (67)	5 (33)	2 (13)
2.4.1	Sufficient data to evaluate the significance of impacts	3 (27)	9 (60)	6 (40)	2 (13)
2.4.2	Description of approaches used to predict impact magnitude	6 (40)	10 (67)	4 (27)	1 (7)
2.4.3	When necessary, prediction of impact should be quantifiable	5 (33)	11 (73)	4 (27)	2 (13)
2.5	Assessment of impacts	7 (47)	11 (73)	4 (27)	1 (7)
2.5.1	Description of significance to the affected community and society	6 (40)	12 (80)	3 (20)	1 (7)
2.5.2	Appropriate national and international standards considered when assessing the impacts	7 (47)	12 (80)	3 (20)	0
2.5.3	Justification of standards, assumptions and value systems used	7 (47)	11 (73)	4 (20)	1 (7)

The analysis shows that 12 (80%) of the reports were assessed as satisfactory (A-C) for category 2.1 (description of impacts). 12 (80%) reports were rated as satisfactory for sub-category 2.1.1 (description of the effect on the environment), and 2.1.3 (Impact activities from non-standard operations) while 11 (73%) reports were graded as satisfactory for sub-category 2.1.2 (Description of interaction of effect on the environment). Sub-category 2.1.4 (Impact determined as deviation from baseline) was the best performed in this category (13 (87% A-C)).

Category 2.2 (identification of impacts) were assessed as satisfactory in 11 (73%) reports. 11 (73%) of the reports satisfactorily identified the impacts using a systematic methodology (sub-category 2.1.1) while only nine (60%) reports satisfactorily (A-C) described the methods used for the identification of the impacts (2.1.2).

The scoping process (2.3) was the best in this review area (with 13 (87%) of the reports rated as satisfactory). In this category, sub-category 2.3.1 (Allowance for the participation of interested and

affected parties (IAP) was rated as satisfactory in ten (67%) reports. 13 (87%) reports were graded as satisfactory for sub-category 2.3.2 (Allowance for the participation of interested and affected parties (IAP)), and 11 (73%) reports were assessed as satisfactory for sub-category 2.3.3 (Key impacts selected for more intense investigation).

Only ten (67%) reports were rated as satisfactory for category 2.4 (prediction of impacts). Nine (60%) reports obtained A-C for sub-category 2.4.1 (Sufficient data to estimate magnitude of main impacts). Sub-category 2.4.2 (Description of approaches to predict the intensity of the impact) was rated as satisfactory in ten (67%) reports, and 11 (73%) reports were assessed as satisfactory for sub-category 2.4.3 (When necessary, prediction of impacts should be quantifiable).

11 (73%) reports were rated as satisfactory for category 2.5 (Assessment of impacts). Sub-category 2.5.1 (Description of significance to the affected community and society) and 2.5.2 (Assessment of impact taking into account appropriate national and international standards) were graded as satisfactory in 12 (80%) reports, while sub-category 2.5.3 (Justification of standards, assumptions and value systems used) was rated as satisfactory in 11 (73%) reports.

The following section presents how well the EAP performs in consideration of alternatives and mitigation measures.

4.1.2.3 Quality of categories and sub-categories of Review Area 3 (RA 3)

Review Area 3 indicates how well the consideration of alternatives and the description of mitigations measures were achieved. Table 4.3 shows the grading symbol and percentages assigned to each category and sub-category.

Table 4. 3: Quality of categories and sub-categories of Review Area 3

Summary of categories and sub-categories in Review Area 3		A-B (%)	A-C (%)	D-F (%)	E-F (%)
3.1	Alternatives	4 (27)	7 (47)	8 (53)	3 (20)
3.1.1	Alternative sites considered	4 (27)	9 (60)	6 (40)	2 (13)
3.1.2	Alternative processes, design and operating conditions considered	4 (27)	7 (47)	8 (53)	3 (20)
3.1.3	Alternatives rejected in the early planning phase reappraised	3 (20)	7 (47)	8 (53)	2 (13)
3.2	Scope and effectiveness	5(33)	9 (60)	6 (40)	1 (7)
3.2.1	Mitigation of all adverse impact considered and clearly described	5 (33)	10 (67)	5 (33)	1 (7)
3.2.2	Unmitigated impacts discussed and reasons given	5 (33)	9 (60)	6 (40)	1 (7)
3.2.3	Mitigations should include modification of the project and provision of alternative facilities	5 (33)	9 (60)	6 (40)	2 (13)
3.2.4	Indication of the extent of the effectiveness of mitigations measures	5 (33)	11 (73)	4 (27)	1 (7)
3.3	Commitment to mitigation	5 (33)	9 (60)	6 (40)	3 (27)
3.3.2	Clear records of the commitment of the developer to mitigations measures	3 (20)	5 (33)	10 (67)	9 (60)
3.3.3	Monitoring arrangement	5 (33)	10 (67)	5 (33)	2 (13)

The analysis of the reports shows that only seven (47%) of the reports were rated as satisfactory for category 3.1 (Alternatives). Sub-category 3.1.1 was rated as satisfactory in nine (60%) reports, while only seven (47%) reports achieved A-C for sub-categories 3.1.2 (Alternative processes, design and operating conditions considered) and 3.1.3 (Alternatives rejected in the early planning phase reappraised).

Nine (60%) reports performed satisfactorily concerning the scope and effectiveness (3.2). Sub-category 3.2.1 (Mitigations of all adverse impacts considered and clearly described) was rated as satisfactory in ten (67%) reports. Nine (60%) reports were evaluated as satisfactory for sub-category 3.2.2 (Unmitigated impacts discussed and reasons given) and sub-category 3.2.3 (Mitigations including modification of the project and provision of alternative facilities).

Only nine (60%) of the reports were graded as satisfactory for category 3.3 (Commitment to mitigation). In this category, sub-category 3.3.1 (Clear records of the commitment of the developer to mitigations measures) performed the worst (only five (33%) reports assessed as satisfactory). Sub-category 3.3.2 (Monitoring arrangement) however was rated as satisfactory in ten (67%) reports.

4.1.2.4 Quality of categories and sub-categories of Review Area 4

Evaluating the EIA report quality also involves how well the information are presented and conveyed in the EIA report. In this review area, most of the categories were rated as satisfactory in more than eight (53%) reports. The grades allocated to categories and sub-categories in this review area are presented next (Table 4.4).

Table 4. 4: Quality of the categories and sub-categories of Review Area 4

Summary of categories and sub-categories in Review Area 4		A-B (%)	A-C (%)	D-F (%)	E-F (%)
4.1	Layout	6 (40)	9 (60)	6 (40)	0
4.1.1	Introduction	10 (67)	14 (93)	1 (7)	1 (7%)
4.1.2	Coherent organization of information	9 (60)	12 (80)	3 (20)	1 (7%)
4.1.3	Chapter summaries	2 (13)	5 (33)	10 (67)	5 (33%)
4.1.4	External sources acknowledged	4 (27)	7 (47)	8 (53)	6 (40)
4.2	Presentation	7 (47)	12 (80)	3 (20)	0
4.2.1	comprehensive Information to the non-specialist	6 (40)	13 (87)	2 (13)	1 (7)
4.2.2	Definition of technical term, acronym and initials	7 (47)	12 (80)	3 (20)	0
4.2.3	Report presented as an integrated whole	6 (40)	11 (73)	4 (27)	0
4.3	Emphasis	6 (40)	13 (87)	2 (13)	0
4.3.1	Emphasis given to potential severe adverse impacts	6 (40)	13 (87)	2 (20)	1 (7)
4.3.2	The report should be unbiased	6 (40)	11 (73)	4 (27)	1 (7)
4.4	Non-technical summary	5 (33)	9 (60)	6 (40)	3 (20)
4.4.1	Non-technical summary of the main findings and conclusions included	5 (33)	8 (53)	7 (47)	4 (27)
4.4.2	Summary cover main issues discussed in the report	5 (33)	9 (60)	6 (40)	4 (27)

Category 4.1 was rated as satisfactory (A-C) in nine (60%) reports. This category covers four sub-categories. Sub-category 4.1.1 (Introduction) performed the best in this category with 14 (93%) reports which obtained A-C. Sub-category 4.1.2 was assessed as satisfactory in 12 (80%) reports. Sub-category 4.1.3 (Chapter summaries) however was found satisfactory in only five (33%) reports, and only seven (47%) of the reports were rated as satisfactory for sub-category 4.1.4 (External sources acknowledged).

12 (80%) reports were rated as satisfactory for category 4.2 (Presentation of the results). Sub-category 4.2.1 (Information comprehensive to the non-specialist) was rated as satisfactory (A-C) in 13 (87%) reports and sub-category 4.2.2 (Definition of technical term, acronym and initials) was satisfactory in 12 (80%) reports. Only 11 (73%) reports obtained a satisfactory grade (A-C) for sub-category 4.2.3 (Report presented as an integrated whole).

13 (87%) of the reports were graded as satisfactory for the emphasis given to adverse impacts (4.3). Sub-category 4.3.1 (Emphasis given to potential severe adverse impacts) was satisfactory in 13 (87%) reports; while 11 (73%) of the reports were rated as satisfactory for sub-category 4.3.2 (report unbiased).

The non-technical summary (4.4) was satisfactory only in nine (60%) reports. Only eight (53%) satisfactorily presented the non-technical summary of main findings (4.4.1). Four (27%) reports however did not even include the non-technical summary. Regarding the reports which include the non- technical summary, only nine (60%) satisfactorily cover the main issues discussed in the EIA report (4.4.2).

4.1.3 Key findings related to the quality of EIA Reports reviewed-Areas of strength and weakness

The analysis of the sample of reports reveals several areas of weakness and strength. The identification of areas of strength and weakness was based on the percentage of reports graded A, B, E, and F at categories and sub-categories level. Since there were not many reports graded A - B in the sample studied, the categories and sub-categories that achieved a percentage of A-B grades above 53% were considered as strengths. Categories and sub-categories with a percentage of E and F grades between 13-20% were considered as moderately weak, and the percentage of E- F grades with and over 21% were considered as the weakest.

Several studies used similar criteria to identify the areas of strength and weakness in the EIA reports. Mbhele (2009) and Sandham et al. (2013a), classified as strengths categories and sub-categories with percentage of A-B more than 50%, and percentage of E-F of more than 50% as weaknesses. Sandham et al. (2020) classified categories and sub-categories with more than 80% A-B as areas of strength, and more than 5% E-F as areas of weakness. The percentage of E-F grades with 5-24% was considered as moderately weak and over 25% were considered as the weakest.

Table 4.5 summarises the areas of strength and weakness identified. The value in brackets represents the percentage (%) A-B for strength area or the percentage (%) E-F for weakness.

Table 4. 5: Areas of strength and weakness at the category and sub-category level for the sample of EIA reports reviewed

Strengths (% A-B > 53%)	Weaknesses	
	Moderately weak (% E-F = 13-20%)	Weakest (% E-F > 21%)
1.1.1 Purpose and objective of the development (87%)	1.1 Description of the development (13%)	1.1.3 Physical appearance of the development (27%)
1.2.2 Land use and different land use areas demarcated (53%)	1.2.3 Estimated duration of the various phases (20%) 1.2.5 Means of transporting raw materials (13%)	1.2.4 Number of workers and/or visitors entering the site, their access and transport (27%)
	1.3 Waste management (13%)	-
1.4.1 Environment expected to be affected (53%)	1.4 Environment description (13%)	-
2.1.1 Description of the effect of the project on the environment (53%)	-	-
-	2.2.1 Impact identified using a systematic methodology (13%) 2.2.2 Description and rational of impact identification methods (13%) 2.4 Prediction of impacts (13%) 2.4.1 Sufficient data to estimate intensity of main impacts (13%) 2.4.3 Prediction of impacts expressed in measurable quantities (13%) when necessary	-
-	3.1 Alternatives (20%) 3.1.1 Alternative sites considered (13%) 3.1.2 Alternative processes, design and operating conditions considered (20%) 3.1.3 Alternatives rejected in the early planning phase reappraised	-
-	3.2.3 Mitigations include modification of the project and provision of alternative facilities (13%)	
-	3.3 Commitment to mitigation (20%) 3.3.2 Monitoring arrangement (13%)	3.3.1 Clear records of the commitment of the developer to mitigations measures (60%)
4.1.2 Coherent organization of information (60%)	-	4.1.3 Chapter summaries (33%) 4.1.4 External sources acknowledged (40%)
-	4.4 Non-technical summary (20%) 4.4.1 Non-technical summary of the main findings and conclusions included (27%) 4.4.2 Summary covers main issues discussed in the report (27%)	-

It emerges from the analysis that the reports had more areas of weakness than strengths. As presented in Table 4.6 above, five strengths were identified against twenty-four areas of weakness of which five were identified as the weakest.

Review Area 1, even though is the review which performed the worst, also has several areas of strength. The majority (13 (87%)) of the reports obtained A-B grades for sub-category 1.1.1 (purpose and objective of the development). Land use areas demarcated (1.2.2), and the environment expected to be affected (1.4.1) were also considered as areas of strength. In this review area, sub-categories 1.1.3 (Physical presence and appearance of the development) and 1.2.4 (Number of workers and/or visitors entering the site, their access and transport) were the worst performed.

Although Review Area 2 performed the best, it hosts several areas of weakness. Two (13%) of the reports were rated as very unsatisfactory for sub-categories 2.2.1 (Impact identified using a systematic methodology), 2.2.2 (Description and rational of impact identification methods), and 2.4 (Prediction of impacts). These sub-categories were regarded as moderately weak.

Eight (53%) of the reports obtained A-B for sub-category 2.1.1 (Description of the effect of the project on the environment (53%)), making it the only area of strength in this review area.

There are no areas of strength in Review Area 3. Sub-category 3.3.1 (Clear records of the commitment of the developer to mitigations measures) was the worst performed. Category 3.1 (Alternatives) and all sub-categories covered in this category were poorly performed and considered as moderately weak areas. Sub-categories 3.2.4 (Mitigations include modification of the project and provision of alternative facilities), and 3.3.2 (Monitoring arrangement) were also regarded as moderately weak areas.

In Review Area 4, nine (60%) reports obtained A-B only for sub-category 4.1.2 (Coherent organization of information). Sub-categories 4.1.3 (Chapter summaries) and 4.1.4 (External sources acknowledged) performed the worst.

The discussion on the results obtained is found below.

4.1.4 Discussion of findings

The review of the quality of EIA reports shows that 13 (87%) of the reports performed satisfactorily (A-C) in terms of overall quality. Among those reports, four (27%) reports were assessed as generally satisfactory (B). Three (20%) of the reports rated B turned to be big projects financed by international agencies. These findings support the results of Momtaz (2012) in Bangladesh, Mounir

(2015) in Niger, and Gwimbi and Nhamo (2016) in Zimbabwe, that in developing countries, the financial support of agencies may contribute to increasing the quality of EIA reports. However, it turns out that the reports assessed as just unsatisfactory (D) were EIA reports from national or public projects financed only by the government, projects that have been already planned to be implemented. This supports the belief of Morgan (2012), Contazo and Sanchez (2019) that decision-making regarding the acceptability of projects in some countries is often based on political interests. However, it is important to note that most of the reports analysed were categorised as satisfactory. This means that meticulous impact analysis and suitable information are essential for better decision-making in Lesotho. In fact, decisions made for Environmental Impact Assessment of projects are not only based on political interests but also sound information provided in the reports and rigorous impact analysis (Duarte & Sánchez, 2020).

The analysis of Review Areas shows that Review Area 1 was the worst performed (47% A-C), followed by Review Area 3 (53% A-C), then Review Area 4 (67%). Review Area 2 was the best performed (73% A-C). These results differed in part from the findings of Wylie et al. (2018) where Review Areas 1 and 2 performed the best. The findings however differ from some studies carried out in South Africa where Review Area 1 was the best (Sandham et al., 2010; Sandham et al., 2020). According to Chang et al. (2013) and Wylie et al. (2018), the descriptive tasks appear to be better done than analytical tasks. This is not the case in the present study.

Review Area 1 is a particularly significant aspect in EIA practice given that baseline data and the description of the development form the basis for impact prediction and significance evaluation. Hence, the precision and credibility of the EIA report depend on this information. If the description of the development and the environment are ambiguous and inadequate, the impact assessment procedures might be inaccurate (Wylie et al. 2018; Chanthy & Grünbühel 2015).

In Review Area 1, the weakest areas were found in the description of the development (1.1); this was the physical presence and appearance of the development (1.1.3) (12 (80%) D-F). Sandham et al. (2013a) also identified this category (1.1) as a limitation with EIA reports in South Africa.

Other areas of EIA reports that required attention are:

- The design and size of the development (1.1.2) (only 9 (60%) of the reports rated as satisfactory); This result supports the findings of Bowen et al. (2009) who stated that a serious shortcoming of the EIA reports in Lesotho is that the reports do not provide technical designs with specifications.
- The nature of production and expected rate of production (1.1.4) (with only eight (53%) reports rated as satisfactory).
- The nature and quantities of raw materials (1.1.5) (eight (53%) of reports rated as unsatisfactory); this result corroborates with the findings presented by Talime (2011) in Lesotho and Sandham et al. (2020) in South Africa. Waste management remains a challenge in developments.

It has been argued that the lack of information on the project influences the quality of the EIA report (Kabir & Momtaz, 2012; Sandham *et al.* 2013b; Chanty & Grünbühel, 2015; Gwimbi & Nhamo, 2016).

In Review Area 2, the category where most inadequacies were found was the prediction of impacts (2.4). In some reports, the methods used for the prediction of impacts are not clearly described. The analysis indicates that in six reports (40%), the data used to estimate the main impacts magnitude (2.4.1) were not sufficient. In most reports, EAPs mentioned the lack of information and data as limitations of the study. This could influence the identification and assessment of impacts. In fact, the baseline conditions, the description of the project are essential information to support the identification and prediction of impacts. In most reports, important impacts were well addressed, however, in three reports; there were poor coherence and integration of impacts. This was observed in the reports where the specialist intervened. Duarte and Sánchez (2020) mentioned that it is a challenge often encountered when the EIA has involved numerous professionals who are working in multiple related tasks. According to Glasson *et al.* (2012), good impact investigation requires information on the current situation (and often the past condition) and the trend of change of the baseline. Those data are often difficult to obtain in some developing countries because of the lack of research done in a specific area, financial resource, political difficulty or interference to access the data (Mokhehle & Diab, 2001; Morgan, 2012; Kabir & Momtaz, 2013; Chanthu & Grünbühel, 2015).

This research also identifies a poor consideration and assessment of cumulative impact assessment. Although cumulative impact analysis was not stated as a particular task required in the review criteria, cumulative impacts are considered in the identification and assessment of impact.

Although public participation is not a big issue in the EIA process in Lesotho, it still needs to be improved. Certain insufficiencies were observed on the allowance for the participation of interested and affected parties (IAP) (only 10 (67%) of reports were rated as satisfactory). Similar findings were reported in the EIA reports in Brazil and Portugal (Rocha *et al.*, 2019). Bowen *et al.* (2009) and Talime (2011) also pinpointed these weaknesses. It has been argued that public participation in EIA report quality in developing countries is weak (Kahangirwe, 2011; Marara *et al.*, 2011; Aung *et al.*, 2018). According to Kamijo and Huang (2016), poor public participation can negatively influence the consideration of alternatives in the EIA process.

In Review Area 3, more inadequacies were found in sub-category 3.1.2, which covers the consideration of the alternatives, the processes, the design, and operating conditions (with only seven (47%) reports assessed satisfactorily). It was noted that there is a difference in quality

between certain reports, depending on the size of the project. Projects supported by sector agencies consider more alternative sites or routes than private and certain public sector initiatives. Kabir and Montaz (2012) argued that the consideration of alternatives is often low in developing countries due to government priorities. A similar observation was made in Brazil (Peri-Mora & Velasco, 2015). Also, three projects were site specific - the mining or mineral extraction projects where only one alternative site can be specified. Those developments can only occur where the mineral is located.

These are some reasons why the consideration of alternatives was well completed (four (27%) reports graded A - B) in some reports and very unsatisfactory (three (20%) graded E - F) in others. In most of the reports graded as very unsatisfactory, the alternative of not going ahead and going ahead with the project was the only scenario adopted.

In fact the consideration of alternatives, although being the heart of EIA (Gerber, 2009), is often poorly attempted in many EIA reports (Kabir & Momtaz 2012, Sandham, et al., 2013a; Kamijo & Huang, 2016). Kamijo & Huang (2016) think that it is often connected to poor public participation.

Although the scope and effectiveness of mitigation measures (3.2) were generally satisfactory, some inadequacies were found regarding the description of the mitigation measures. Five (33%) of the reports were assessed as unsatisfactory with one report (7%) assessed as very unsatisfactory). In some reports, the words used to describe the mitigation measures were imprecise. This raises the question of whether they can be feasible (Singh et al., 2020). This more concerned the mitigation measures for cumulative impacts for large scale projects. Hellveg and Mila (2014) argued that the reason could be that the mitigation measures for some cumulative impacts are often beyond the control of an individual developer. Lees et al. (2016) further link it to a poor level of commitment to mitigation measures (3.3). Even though, nine (60%) reports were rated as satisfactory for commitment to mitigation measures, the study indicates that nine (60%) of the reports were rated as unsatisfactory for subcategory 3.3.1 (clear records of the commitment to mitigation measures). For most of those reports, this task was not attempted.

These findings bear some similarities with the results of Kamijo and Huang (2016).

Review Area 4 was the second review area with more satisfactory performance. This task tends to be better performed in many EIA reports (Mounir, 2015; Kamijo & Huang, 2016; Sandham et al., 2020). In this review area, the following weaknesses were also identified in the literature.

- Chapter summaries (Mounir, 2015; Kamijo & Huang, 2016).
- Non-technical summary (4.4.) was not included in three (20%) reports (graded F). The present results are similar to the findings obtained by Kabir and Montaz (2012) in Bangladesh. Considered as one of the most consulted sections by affected and interested

parties, the non-technical should be included in the report, clearly written so that the scientific and non-scientific public can understand the project, its likely impacts and mitigation proposals (Wylie *et al.*, 2018).

4.2 Longitudinal comparison of the present study and Talime's (2011) research

This section addresses Objective 2, which is to compare the results obtained with those obtained by Talime in 2011³.

The present section details a comparison of the overall quality of EIA reports across both studies, the quality of review areas, categories and sub-categories. A comparison of strengths and weaknesses identified in both studies and areas of improvement are also discussed.

Both studies analysed a sample of fifteen EIA reports. Table 2.1 presented in Chapter 2, the list of EIA reports reviewed in this study. Table 4.6 below shows the EIA reports reviewed in the Talime's (2011) study.

³ From here the research will refer to that without referencing it every time.

Table 4. 6: List of the EIA reports reviewed in the Talime (2011) study

1. PB of Kolo-Ha-Petlane Diamond Mining Project
2. PB of Kimberlite Pipe No. 66 Mining Project
3. PB of Afri-Ski Project
4. PB of Star Lion Insurance Building
5. PB of Scrap Metal Dealer Shop
6. PB of Satellite Fire Station at Thetsane Industrial Area Proposal
7. PB of National Library and Archives Building
8. PB of Phomolong Re-Development Project
9. PB of Phase 1 of Molikaliko Flyfishing Lodge Proposal
10. PB of Ha-Tsolo Quarry Site proposal
11. PB of Industrial Estate Establishment in Butha-Buthe Proposal
12. PB of Tsehlanyane Eco-lodge Proposal
13. PB of LEC Utilities Sector Reform Project
14. EIS of Ha-Teko Clay Extraction Site Project
15. EIS of Alpine Slopes Snow, Golf and Mountain Estate Proposal

Talime (2011) reviewed 15 EIA reports selected randomly. The reports were written between 2001 and 2008. Of the 15 EIA reports reviewed in 2011, 13 were environmental Project Briefs and 2 EIAs. An environmental Project Brief is a basic assessment of the impacts of a project. The present study however reviewed 14 EIAs and 1 PB.

For both studies, the quality of EIA reports was evaluated based on the criteria developed by Lee and Colley. Talime (2011) used an adapted version which includes a question on the compliance with the terms of reference of each project. This task is not include in the package used in the present study, and therefore will not be considered in the comparison. Additionally, some tasks (sub-categories) considered in the review package used in this study are not in the package Talime (2011) used. They were also not considered in the comparison.

In order to analyse the changes across both studies, the study compares first the overall quality of each period, followed by the review areas, then the categories and sub-categories and lastly the strengths and weaknesses. A discussion on the findings and analysis showing improvement at all levels is also presented.

4.2.1 Comparison of the overall quality of EIA reports

In 2011, Talime (2011) results on the overall quality of EIA reports in Lesotho indicated that the majority of the reports were unsatisfactory. The present study however rated 13 (87%) of the

reports as satisfactory. The following figure enables the visual comparison of the overall quality of EIA reports across both studies.

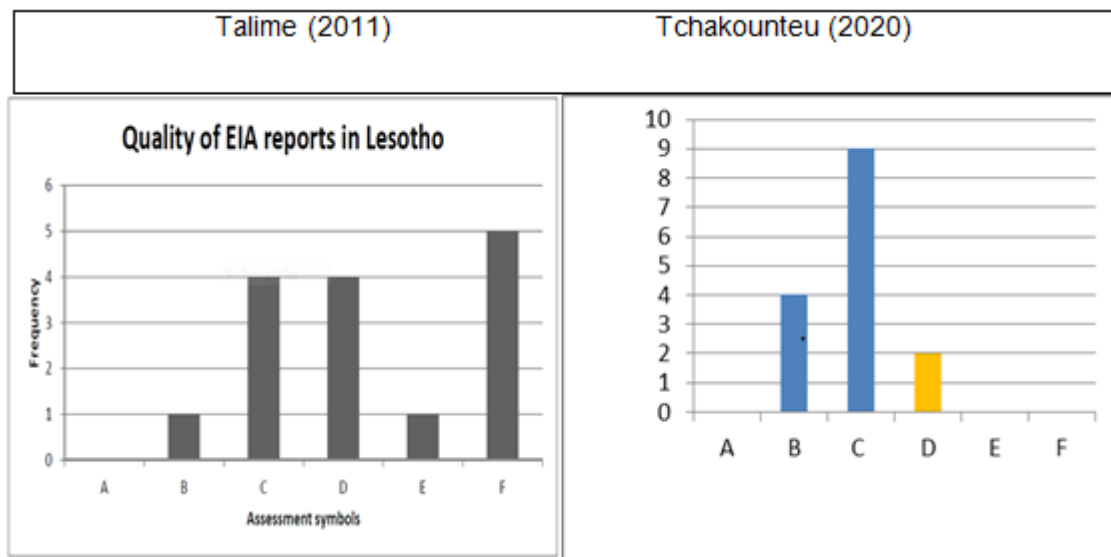


Figure 4. 3: Comparison of the overall quality of EIA reports across both studies

The Talime study

In Talime’s (2011) results, five (33%) of the reports were graded as satisfactory. Six (40%) reports were graded as very unsatisfactory (E, F) with five (33%) reports graded “F”. Only one (9%) report obtained B grade. No report obtained A grade.

Present study

In the present study, 13 (87%) of the reports were of satisfactory quality. No reports were rated as very unsatisfactory (E-F). Four (27%) reports were graded as “generally satisfactory” (B).

Longitudinal trend for the overall quality of EIA report in both studies

Compared to Talime’s (2011) results, the reports reviewed in the current study have had more satisfactory grades. This shows an improvement in the overall quality of Environmental Impact Assessment reports in Lesotho since 2011.

The comparison in review areas, categories and sub-categories is presented below.

4.2.2 Comparison of the quality of different Review Areas

The Talime study

In 2011, Talime's (2011) results revealed a poor achievement for all review areas. Review Area 2 had the worst performance, with only four (27%) of the reports rated as satisfactory, followed by Review Area 3 (33% assigned grade A-C), then Review Area 4 (47%) and Review Area 1 (47%). The tables below shows the performance of Review Areas in 2011

Table 4. 7: Quality of Review Areas in 2011 (Talime, 2011)

		Well performed	Satisfactory, minor omissions	Satisfactory, omissions and inadequacies	Unsatisfactory	Very unsatisfactory, poorly done	Very unsatisfactory, tasks not done	% s Satisfactory (A-C)
SUMMARY OF ALL REVIEW AREAS		A	B	C	D	E	F	
1	Description of the development, the local environment and the baseline conditions	0	2	5	5	2	1	47
2	Identification and evaluation of key impacts	0	0	4	1	5	5	27
3	Alternatives and mitigation	0	2	3	3	2	5	33
4	Communication of results	0	4	3	3	2	3	47
Final Grade Review for EIA Report		0	1	4	4	1	5	33

Present study

In the present study, only Review Area 1 obtained a percentage of reports rated as satisfactory lower than 50%. 7 (47%) reports were evaluated as satisfactory. Review Area 2 however performed the best (with 11 (73%) of the reports graded A-C) (See Table 4.8).

Table 4. 8: Quality of Review Areas in the present study

	SUMMARY OF ALL REVIEW AREAS	A	B	C	D	E	F	A-C
RA1	Description of the development, the environment and the baseline conditions	2	2	3	7	1	0	47%
RA2	Identification and evaluation of key impacts	2	2	7	4	0	0	73%
RA3	Alternative and mitigations	2	3	3	4	3	0	53%
RA4	Communication of results	2	3	5	5	0	0	67%

Longitudinal trend for Review Areas

The comparison across both studies shows an increase with time in the number of reports rated as satisfactory in Review Areas 2, 3, and 4 (RA 2, RA 3, and RA 4). This shows an improvement in the EIA practice in Lesotho. The percentage of reports rated as satisfactory for Review Area 1 is similar in both studies. This means that over time, there has been no improvement in the quality of the reports concerning this review area. However, it does not mean there are no improvements in categories and sub-categories in this review area. Additionally, Talime's (2011) findings also shown in all review areas, reports rated as very unsatisfactory (F), which is not the case in the present study.

4.2.2.1 Comparison of the quality of sub-categories and categories of Review Area 1

Although the percentage of EIA reports rated as satisfactory for Review Area 1 is the same in both studies, some differences were identified in grades assigned to categories and sub-categories (Figure 4.4 and Table 4.9).

The figure below is a visual comparison across categories in both studies. A slight change between categories is noticeable.

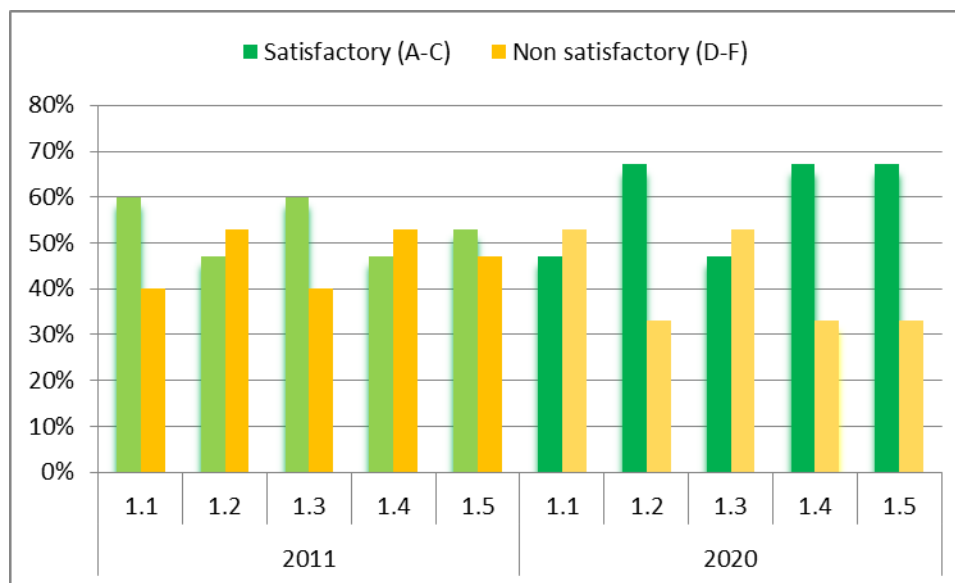


Figure 4. 4: Comparison of the quality of categories in Review Area 1 across both studies.

Table 4.9 shows the categories and sub-categories across both studies.

Table 4. 9: Comparison of the quality of categories and sub-categories of Review Area 1

		Tchakounteu results (2020)				Talime results (2011)			
Summary of all categories and sub-categories		A-B (%)	A-C (%)	D-F(%)	E-F(%)	A-B (%)	A-C (%)	D-F (%)	E-F (%)
1.1	Description of the development	3 (20)	7 (47)	8 (53)	2 (13)	4 (27)	9(60)	6(40)	3 (20)
1.1.1	Purpose and objective of the development	13 (87)	15 (100)	0	0	7 (47)	13 (87)	2 (13)	1 (7)
1.1.2	Design and size of the development	5 (33)	9 (60)	6 (40)	1 (7)	5 (33)	8 (53)	7 (47)	3 (20)
1.1.3	Physical presence and appearance of the development	0	3 (20)	12 (80)	4 (27)	3 (20)	7 (47)	8 (53)	6 (40)
1.1.4	Nature of production processes and rate of production	3 (20)	8 (53)	7 (47)	0	-	-	-	;
1.1.5	Nature and quantities of raw materials	3 (20)	7 (47)	8 (53)	1(7)	3 (20)	8 (53)	7 (47)	3 (20)
1.2	Site description	5 (33)	10 (67)	5 (33)	1(7)	1 (9)	7(47)	8 (53)	5 (33)
1.2.1	Land area taken up by the development site clearly shown on a map	8 (53)	10 (67)	4 (27)	1 (7)	4 (27)	8 (53)	7 (47)	4 (27)
1.2.2	Land use and different land use areas demarcated	8 (53)	13 (87)	2 (13)	0	1 (7%)	7 (47)	8 (53)	3 (20)
1.2.3	Duration of the various phases	3 (20)	5 (33)	10 (67)	4 (20)	4 (27)	11 (73)	4 (27)	1 (7)
1.2.4	Number of workers and/or visitors entering the site, their access and transport	2 (13)	6 (40)	9 (60)	4 (27)	3 (20)	7 (47)	8 (53)	3 (20)
1.2.5	Means of transporting raw materials	2 (13)	8 (53)	7 (47)	2 (13)	-	-	-	-
1.3	Waste management	3 (20)	7 (47)	8 (53)	2 (13)	1 (9)	9(60)	7(47)	2 (13)
1.3.1	Types and quantities of waste and rate of production	2 (13)	6 (40)	9 (60)	1 (7)	0	7 (47)	8 (53)	3 (20)
1.3.2	Measures methods to handle and/or treat wastes	4 (27)	10 (67)	5 (33)	1 (7)	3 (20)	11 (73)	4 (27)	2 (13)
1.3.3	Methods of obtaining waste and residual waste	1 (7)	8 (53)	7 (47)	2 (13)	3 (20)	11 (73)	4 (27)	2 (13)
1.4	Environment description	5(33)	10(67)	5(33)	2(13)	1 (9)	7(47)	8 (53)	3(20)
1.4.1	Environment expected to be affected	8 (53)	11(73)	4(27)	1(7)	3 (20)	9 (60)	6 (40)	3 (20)
1.4.2	Potentially significant effects arising away from immediate construction site	5 (33)	10 (67)	5 (33)	1(7)	0	7 (47)	8 (53)	3 (20)
1.5	Baseline conditions	5 (33)	10 (67)	5 (33)	1(7)	2 (13)	8(53%)	7 (47)	5 (33)
1.5.1	Identification and description of important components of the affected environment	6 (40)	11(73)	4 (27)	1(7)	3 (20)	10 (67)	5 (33)	1 (7)
1.5.2	Existing data sources searched	6 (40)	10(67)	5 (33)	2(13)	2 (13)	7 (47)	8 (53)	4 (27)
1.5.3	Local land uses plan and policies consulted	4 (27)	11(73)	4 (27)	1(7)	-	8(53)	7(47)	-

As seen in the table above, Talime (2011) rated 9 (60%) of the reports as satisfactory for category 1.1 (Description of the development), while only seven (47%) reports were evaluated as satisfactory in this study for that category. More reports were rated as satisfactory (47%) in 2011 for sub-category 1.1.3 (Physical presence and appearance of the development) than in the present study (20%).

Seven (47%) of the reports were classified as satisfactory for categories 1.2 (The description of the project site) and 1.4 (description of the environment) against 10 (67%) reports rated as satisfactory in the present study, for each category. Only seven (47%) of the reports in 2011 were assessed as satisfactory for sub-category 1.2.2 (different land use areas demarcated) while 11 (73%) reports were rated as satisfactory in this study. Sub-category 1.2.4 (Estimated duration of the various phases) however was better performed in 2011. 11 (73%) of the reports were assessed as satisfactory in 2011 and five (33%) in this study.

Nine (60%) reports were rated as satisfactory for category 1.3 (Waste management) in 2011 compared to seven (47 %) reports rated as satisfactory in this study. Sub-category 1.3.3 (Methods of obtaining residual waste and waste) however was better performed in 2011 than in this study (11 (73%) reports rated as satisfactory against eight (53%).

Category 1.5 (baseline conditions) was satisfactorily achieved in seven (47%) reports in 2011. However, in this study, ten (67%) of reports achieved a satisfactory grade (A-C) for that category.

Longitudinal trend for Review Area 1

The description of the project site (category 1.2), the environment of the project (category 1.4) and the baseline conditions (category 1.5) have improved over time. However, insufficiencies are noted in EIA reports regarding the description of the development (category 1.1) and waste management (category 1.3).

4.2.2.2 Comparison of the categories and sub-categories of Review Area 2

This review strongly depends on the judgment and experience of experts. It can be considered the hub of the EIA process. Nevertheless, poorly performed in 2011; this review area performed the best in the present study. The table below is a visual comparison of categories and sub-categories across both studies.

Table 4. 10: Comparison of the categories and sub-categories of Review Area 2

Comparison of sub-categories in Review Area 2		Tchakounteu results (2020)				Talime results (2011)			
		A-B (%)	A-C (%)	D-F (%)	E-F (%)	A-B (%)	A-C (%)	D-F (%)	E-F (%)
2.1	Description of impacts	7(47)	12(80)	3(20)	0	0	2 (13)	13(87)	9(60)
2.1.1	Description of the effect of the project on the environment	8 (53)	12 (80)	3 (20)	0	0	5 (33)	10 (67)	7 (47)
2.1.2	Description of interaction of effect on the environment	5 (33)	11 (73)	4 (27)	0	0	5 (33)	10 (67)	7 (47)
2.1.3	Impact activities from non-standard operations	6 (40)	12 (80)	3 (20)	0	2 (13)	5 (33)	10 (67)	9 (60)
2.1.4	Impact determined as deviation from baseline	7 (47)	13 (87)	2 (13)	0	0	5 (33)	10 (67)	9 (60)
2.2	Identification of Impacts	5 (33)	11 (73)	4 (27)	0	0	4 (27)	11 (73)	8 (53)
2.2.1	Impacts identified using a systematic methodology	5 (33)	10 (67)	5 (33)	2 (13)	1 (7)	6 (40)	9 (60)	4 (27)
2.2.2	Description and rational of impact identification methods	4 (27)	8 (53)	7 (47)	2 (13)	-	-	-	-
2.3	Scoping	8(53)	13(87)	2(13)	0	0	4 (27)	11 (73)	9 (60)
2.3.1	Allowance for the participation of Interested and Affected Parties(IAP)	5 (33)	10 (67)	5 (33)	1 (7%)	3 (20)	8 (53)	7 (47)	3 (20)
2.3.2	Preparations to collect the views and concerns of the IAP	7 (47)	12 (80)	3 (20)	0	3 (20)	6 (40)	9 (60)	6 (40)
2.3.3	Key impacts selected for more intense examination	6 (40)	11 (73)	4 (27)	0	0	0	15 (100)	13 (94)
2.4	Prediction of impacts	5 (33)	9 (60)	6 (40)	2 (13)	0	4(27)	11 (73)	8(53)
2.4.1	Sufficient data to estimate magnitude of main impacts	3 (27)	9 (60)	6 (40)	2 (13%)	0	5 (33)	10 (67)	5 (33)
2.4.2	Description of approaches used to predict impact magnitude	6 (40)	11 (73)	4 (27)	1 (7)	1 (7)	3(20)	12 (80)	10 (67)
2.4.3	Where possible, prediction of impacts expressed in measurable quantities	5 (33)	11 (73)	4 (27)	2 (13)	-	-	-	-
2.5	Assessment of impacts	7(47)	11(73)	4(27)	1(9)	0	4(27)	11(73)	9(60)
2.5.1	Description of significance to the affected community and society	6 (40)	12 (80)	3 (20)	1 (7)	2 (13)	6 (40)	9 (60)	5 (33)
2.5.2	Assessment of impact taking into account appropriate national and international standards	7 (47)	13 (87)	2 (13)	0	1 (7)	3 (20)	12 (80)	10 (67)
2.5.3	Justification of standards, assumptions and value systems used	7 (47)	12 (80)	3 (20)	1 (7)	1 (7)	4 (27)	11 (73)	10 (67)

Talime Findings

In 2011 more reports were assessed as very unsatisfactory for category 2.1 (Description of impacts). Only two (13%) of the reports were graded as satisfactory. For all sub-categories in this category, ten (67%) reports were graded D-F with more reports rated E-F.

The scoping process (2.3), prediction of impacts (2.4), and assessment of impacts (2.5) were also very poorly performed with only four (27%) reports graded as satisfactory.

This review area had more reports rated E-F.

Present findings

In the present study, all the categories were well performed. The description of impacts (2.1) was satisfactorily performed in 12 (80%) reports, the identification of impacts (2.2) and assessment of impacts (2.5) in 11 (73%) reports. Category 2.3 (Scoping) achieved the best (with 13 (73%) reports graded A-C). Category 2.4 (prediction of impacts) obtained the least satisfactory grades with 9 (60%) of the reports graded A-C.

In this review area, several reports were generally well performed (graded A-B). Few reports were graded E-F.

Longitudinal trend for Review Area 2

In 2011, the majority of the reports in all categories for this review area were poorly performed (more reports rated D-F). The present study however reveals that most of the reports were satisfactory. A significant improvement in category 2.3 (scoping) is noticeable. In 2011, Talime mentioned that nine reports had not undertaken the scoping process. This task was however better performed in this study. A noticeable improvement is also observed for category 2.3.2 (Preparations to collect the views and concerns of the IAP) with six (40%) EIA reports graded A-C in 2011 compared to 12 (80%) in the present study. In 2011, most reports were graded as unsatisfactory (73%) concerning the assessment of impacts (2.5). Compared to this study, 11 (73%) of the reports satisfactorily completed this task.

4.2.2.3 Comparison of categories and sub-categories of Review Area 3

The grades assigned to sub-categories and categories for Review Area 3 for both studies are indicated in the table below.

Table 4. 11: Comparison of the categories and sub-categories of Review Area 2

		Tchakounteu results (2020)				Talime results (2011)			
Summary of categories and sub-categories in Review Area 3		A-B (%)	A-C (%)	D-F (%)	E-F (%)	A-B (%)	A-C (%)	D-F (%)	E-F (%)
3.1	Alternatives	4 (27)	7 (47)	8 (53)	4 (20)	2 (13)	3 (20)	12(80)	10 (67)
3.1.1	Alternative sites considered	4 (27)	9 (60)	6 (40)	2 (13)	2 (13)	5 (33)	10 (67)	6 (40)
3.1.2	Alternative processes, design and operating conditions considered	4 (27)	7 (47)	8 (53)	3 (20)	0	3 (20)	12 (80)	12 (80)
3.1.3	Alternatives rejected in the early planning phase reappraised	3 (20)	8 (53)	7 (47)	2 (13)	-	-	-	-
3.2	Scope and effectiveness	5(33)	9 (60)	6 (40)	1 (7)	1(9)	6(40)	9(60)	6(40)
3.2.1	Mitigation of all adverse impact considered and clearly describe	5 (33)	10 (67)	5 (33)	1 (7)	2 (13)	9 (60)	6 (40)	3 (20)
3.2.2	Unmitigated impacts discussed and reasons given	5 (33)	9 (60)	6 (40)	1 (7)	0	0	15 (100)	15 (100)
3.2.3	Mitigations include modification of the project and provision of alternative facilities	5 (33)	9 (60)	6 (40)	2 (13)	-	-	-	-
3.2.4	Indication of the extent of the effectiveness of mitigations measures	5 (33)	11 (73)	4 (27)	1 (7)	1 (7%)	4 (27)	11 (73)	10 (67)
3.3	Commitment to mitigation	5 (33)	9 (60)	6 (40)	1 (7)	2 (13)	5 (33)	10 (67)	7 (47)
3.3.1	Clear records of the commitment of the developer to mitigations measures	3 (20)	5 (33)	10 (67)	9 (60)	1 (7)	4 (27)	11 (73)	7 (47)
3.3.2	Monitoring arrangement	5 (33)	10 (67)	5 (33)	2 (13)	2 (13)	8 (53)	7 (47)	3 (20)

Talime Findings

In 2011, Talime's findings revealed that few opportunities were often given to modify the initial proposal. Only three (20%) of the reports reviewed were rated as satisfactory for category 3.1 (Alternatives). Sub-category 3.1.1 (Alternative sites considered) performed the best in this category with five (33%) reports with obtained A-C grades. Nine (40%) of the reports did not include any alternative plans (3.1.2).

Only six (40%) reports obtained a satisfactory grade for category 3.2 (Scope and effectiveness). In this category, all the reports did not attempt the sub-category 3.2.2 (unmitigated impacts discussed and reason given).

The commitment to mitigation measures (3.3) was poorly done with only five (33%) of the reports found to be satisfactory. Only four (20%) reports were regarded as satisfactory for sub-category 3.2.1 (Clear records of the developer to mitigation measures). The monitoring arrangement (3.2) was the sub-category which performed the best (with eight (53 %) of the reports rated A-C).

Present findings

In the present study, seven (47%) of the reports obtained a satisfactory grade (A-C) for category 3.1 (Alternatives). Sub-category 3.1.1 (Alternative site) had the best performance in this category. The scope and effectiveness (3.2) and commitment to mitigation measures (3.3) were assessed as satisfactory in nine (60%) reports. For this category (3.3), the monitoring arrangement for mitigation measures (3.3.2) performed the best (with ten (67%) reports rated A-C).

Longitudinal trend Review Area 3

The sample of EIA reports reviewed by Talime (2011) showed a poor performance in all categories and sub-categories in this review area. Compared to this study, the majority of categories and sub-categories were rated as satisfactory. This shows a positive change with time.

4.2.2.4 Comparison of the quality of Review Area 4 across both studies

The table below shows the grades assigned to categories and sub-categories for both studies

Table 4. 12: Comparison of the categories and sub-categories of Review Area 4

Summary of categories and sub-categories in Review Area 4		Tchakounteu results (2020)				Talime results (2020)			
		A-B %	A-C %	D-F %	E-F %	A-B %	A-C %	D-F %	E-F %
4.1	Layout	6 (40)	9 (60)	6 (40)	0	2(13)	6(40)	9(60)	5(33)
4.1.1	Introduction	10 (67)	14 (93)	1 (7)	1 (7)	4 (27)	9 (60)	6 (40)	2 (13)
4.1.2	Coherent organization of information	9 (60)	12 (80)	3 (20)	1 (7)	5 (33)	10 (67)	5 (33)	4 (27)
4.1.3	Chapter summaries	2 (13)	5 (33)	10 (67)	5 (33)	-	-	-	-
4.1.4	External sources acknowledged	4 (27)	7 (47)	8 (53)	6 (40)	3 (20)	8 (53)	7 (47)	5 (33)
4.2	Presentation	7 (47)	12 (80)	3 (20)	0	4(27)	8(53)	7(47)	5(33)
4.2.1	Information comprehensive to the non-specialist	6 (40%)	13 (87%)	2 (13%)	1 (7%)	4 (27)	9 (60)	6 (40)	4 (27)
4.2.2	Definition of technical term, acronym and initials	7 (47)	12 (80)	3 (20)	0	-	-	-	-
4.2.3	Report presented as an integrated whole	6 (40)	11 (73)	4 (27)	0	6 (40)	11 (73)	4 (27)	1 (7)
4.3	Emphasis	6 (40)	13 (87)	2 (13)	0	4(27)	10(67)	5(33)	4(27)
4.3.1	Emphasis given to potential severe adverse impacts	5 (33)	9 (60)	6(40)	1 (7)	3 (20)	8 (53)	7 (47)	4 (27)
4.3.2	Report unbiased	6 (40)	11 (73)	4 (27)	1 (7%)	4 (27)	10 (67)	5 (33)	2 (13)
4.4	Non-technical summary	5 (33)	9 (60)	6 (40)	3 (20)	3 (20)	10(67)	5(33)	3(20)
4.4.1	Non-technical summary of the main findings included	5 (33)	8 (53)	7 (47)	4 (27)	4 (27)	7 (47)	8 (53)	6 (40)
4.4.2	Summary involved main issues discussed in the report	5 (33)	9 (60)	6 (40)	4 (27)	2 (13)	5 (33)	10 (67)	8 (53)

Talime findings

The communication of results in the Talime (2011) study the review area which had more reports rated as satisfactory. Sub-category 4.1 (Layout) was assessed as satisfactory in six (40%) reports. Sub-category 4.1.2 (Coherent organisation of information) performed the best (with ten (67%) of the reports rated as satisfactory).

Eight (53%) of the reports were evaluated as satisfactory for category 4.2 (presentation). Sub-category 4.2.3 (Report presented as an integrated whole) was the sub-category which obtained more satisfactory grades (11(73%) reports rated A-C).

Categories 4.3 (Emphasis) and 4.4 (Non-technical summary) were found satisfactory in ten (67%) reports. Only five (33%) reports satisfactorily addressed the main issues in the summary.

Present findings

In the present study, only nine (60%) reports were assessed as satisfactory for categories 4.1 (Layout) and 4.4 (Non-technical summary).

Category 4.2 (Presentation) was assessed as satisfactory in 12(80%) reports. In this category, sub-category 4.2.1 (Information comprehensive to the non-specialist) obtained more reports rated A-C (13 (87%)).

The emphasis (4.3) performed the best in this category, with 13 (87%) reports rated as satisfactory.

Longitudinal trend Review Area 4

In 2011, the Talime (2011) study revealed insufficiencies in EIA reports with regard to the communication of results. Although this review was one of the best performed, the study showed few reports rated as satisfactory for all categories and sub-categories. The present study, similarly, also shows inadequacies in this review area. However, compared to Talime's (2011) results, the number of reports assessed as satisfactory is slightly higher. A comparative analysis of the quality of EIA reports in both studies shows a positive change over time.

4.2.3 Strengths and weaknesses of both studies-Review Areas

The following section compares the strengths and weaknesses in each Review Area identified in both studies. The criteria used in this study to identify the strengths and weaknesses were the same used to identify the areas of strength and weakness in Talime's (2011) study. The values in bracket observed in the tables below represent %A-B for strenghts or % E-F for weaknsesses

4.2.3.1 Strengths and weaknesses of both studies-Review Area 1

The table below indicates the strengths and weaknesses identified in each study.

Table 4. 13: Strengths and weaknesses in the EIA reports of each study in Review Area 1

		Talime findings (2011)	Tchakounteu findings (2020)
Strengths		-	1.2.1 Land area taken up by the development site clearly shown on a map (53%) 1.2.2 Land use and different land use areas demarcated (53%) 1.4.1 Environment expected to be affected
Weaknesses	Moderately weak (between two (13%) to 4 (27%) reports graded E-F)	1.1 Description of the development (20%) 1.1.2 Design and size of the development (20%) 1.1.5 Nature and quantities of raw materials (20%)	1.1 Description of the development (13%) 1.1.3 Physical presence and appearance of the development (27%)
		1.2.1 Land area taken up by the development site clearly shown on a map (27%) 1.2.2 Land use and different land use areas demarcated (20%) 1.2.4 Number of workers and/or visitors entering the site, their access and transport (20%)	1.2.3 Estimated duration of the various phases (20%) 1.2.4 Number of workers and/or visitors entering the site, their access and transport (27%) 1.2.5 Means of transporting raw materials (13%)
		1.3 Waste management (13%) 1.3.1 Types and quantities of waste (20%) 1.3.2 Measures and methods to handle waste (13%) 1.3.3 Methods by which quantities of residual and waste were obtained	1.3 Waste management (13%)
		1.4 Environment description (13%) 1.4.1 Environment expected to be affected (20%) 1.4.2 Potentially significant effects occurring away from immediate construction site (20%)	1.4 Environment description (13%)
		1.5.2 Existing data sources searched (27%)	
	Weakest (more than 4 (27%) reports graded E-F)	1.1.3 Physical presence and appearance of the development (40%)	
		1.2 Site description (33%)	
		1.5 Baseline conditions (33%)	

Talime findings

17 weaknesses were identified in the Talime (2011) study for Review Area 1. These include 14 moderately weak areas and three weakest areas. Category 1.3 (Waste management) covered more weakness areas. The weakest areas identified were sub-category 1.1.3 (Physical presence

and appearance of the development); categories 1.2 (Site description) and 1.5 (Baseline conditions). No strength was identified in this review area.

Present work

Review Area 1 in this study hosted three areas of strength and seven weaknesses. No weakest area was identified in this review. Categories 1.2 (site description) covers more areas of strength (two) and more areas of weakness (three).

Comparison of the strengths and weaknesses of both studies-RA 1

EIA reports written before 2011 presented several weakness areas and no area of strength (Talime, 2011) whereas the 2020 study had more strengths and fewer weaknesses. This shows an improvement with time.

4.2.3.2 Strengths and weaknesses of both studies – Review Area 2

The strengths and weaknesses identified in the EIA reports in both studies are displayed in the table below. The comparison of these strengths and weaknesses follows.

Table 4. 14: Strengths and weaknesses in EIA reports in Review Area 2 in both studies

		Talime findings (2011)	Present findings (2020)
Strengths		-	2.1.1 Description of the effect of the project on the environment (53%)
Weaknesses	Moderately weak (between two (13%) to 4 (27%) reports graded E-F)	2.2.1 Impact identified using a systematic methodology (27%)	2.2.1 Impact identified using a systematic methodology (13%) 2.2.2 Description and rational of impact identification methods (13%)
		2.3.1 Allowance for the participation of interested and affected parties (20%)	2.4 Prediction of impacts (13%) 2.4.1 Sufficient data to estimate magnitude of main impacts (13%) 2.4.3 Prediction of impacts expressed in measurable quantities, when necessary (13%)
	Weakest (more than 4 (27%) reports graded E-F)	2.1 Description of impacts (60%) 2.1.1 Description of the effect of the project on the environment (47%) 2.1.2 Description of interaction of effect on the environment (47%) 2.1.3 Impact activities from non-standard operations (60%) 2.1.4 Impact determined as deviation from baseline (60%) 2.2 Identification of Impacts (53%) 2.3 Scoping (60%) 2.3.2 Preparations made to collect the views and concerns of the IAP (40%) 2.3.3 Key impacts selected for more intense investigation (94%) 2.4 Prediction of impacts (53%) 2.4.1 Sufficient data to estimate magnitude of main impacts (33%) 2.4.2 Description of approaches used to predict impact magnitude (67%) 2.5 Assessment of impacts (60%) 2.5.1 Description of significance to the affected community and society (33%) 2.5.2 Assessment of impact taking into account appropriate national and international standards (67%) 2.5.3 Justification of standards, assumptions and value systems used (67%)	

Talime findings

In Review Area 2, no report was rated A-B. Thus, no area of strength. 18 areas of weakness have been identified in the EIA reports reviewed by Talime (2011). These include aspects in categories and sub-categories. It is important to note that, among these weaknesses, the majority (16) were regarded as 'weakest'. There were only two areas of moderate weakness; the identification of impact identified using a systematic methodology (2.2.1), and the allowance for the participation of interested and affected parties (2.3.1).

Present findings

In the present study, for this review area, only one aspect was identified as 'strength' i.e. the description of the effect of the project on the environment (2.1.1). A few (five) aspects were considered as moderately weak and no weakest aspect was identified.

Comparison of the strengths and weaknesses of both studies-Review Area 2

In this review area, 18 weaknesses were identified in the Talime (2011) study, while only five were noticed in the present study. Amongst the areas of weakness, 16 were regarded as 'weakest' while no weakest area was identified in the present work. There was no strength in this review area in 2011 while one area of strength was identified in the present study.

4.2.3.3 Strengths and weaknesses of both studies-Review Area 3

Table 4.15 shows the strengths and weakness identified in Review Area 3 in both studies. The comparison of the strengths and weakness across those studies follows.

Table 4. 15: Strengths and weaknesses in Review Area 3 in both studies

		Talime findings (2011)	Present findings (2020)
Strengths		-	-
Weaknesses	Moderately weak (between two (13%) to 4 (27%) reports graded E-F)	3.2.1 Mitigation of all adverse impact considered and clearly describe (20%) 3.3.2 Monitoring arrangement (20%)	3.1 Alternatives (20%) 3.1.1 Alternative sites considered (13%) 3.1.2 Alternative processes, design and operating conditions considered (20%) 3.1.3 Alternatives rejected in the early planning phase reappraised 3.2.3 Mitigations include modification of the project and provision of alternative facilities (13%) 3.3 Commitment to mitigation (20%) 3.3.2 Monitoring arrangement (13%)
	Weakest Moderately weak (more than 4 (27%) reports graded E-F)	3.1 Alternative (67%) 3.1.1 Alternative sites considered (40%) 3.1.2 Alternative processes, design and operating conditions considered (80%) 3.2 Scope and effectiveness (60%) 3.2.2 Unmitigated impacts discussed and reasons given (100%) 3.2.4 Indication of the extent of the effectiveness of mitigations measures (67%) 3.3 Commitment to mitigation (47%) 3.3.1 Clear records of the commitment of the developer to mitigations measures (47%)	3.3.1 Clear records of the commitment of the developer to mitigations measures (60%)

Talime findings

In 2011, no strength area was identified in this review area. Ten aspects were classified as weaknesses and eight as 'weakest' (> 27% E-F)

Present findings

The present study identified eight areas of weakness, with only one 'weakest' area. No area of strength was noticed in this review area.

Comparison of the strengths and weaknesses of both studies-Review Area 3

Although no strength was identified either of the both studies, the Talime (2011) study had more areas of weakness and weakest areas than the present study.

4.2.3.4 Strengths and weaknesses of both studies-Review Area 4

The table below presents the strengths and weaknesses in EIA reports for Review Area 4 in both studies.

Table 4. 16: Strengths and weaknesses in Review Area 4 in both studies

		Talime findings (2011)	Present findings (2020)
Strengths		-	4.1 Coherent organization of information (60%)
Weaknesses	Moderately weak (between two and 4 (13%) to 4 (27%) reports graded E-F)	4.1.1 Introduction (13%)	4.4 Non- technical summary (20%) 4.4.1 Non-technical summary of the main findings included (27%) 4.4.2 Summary involved main issues discussed in the reports (27%)
		4.1.2 Coherent organization of information (27%)	
		4.2.1 Information comprehensive to the non-specialist (27%)	
		4.3 Emphasis (27%) 4.3.1 Emphasis given to potential adverse aspects (27%) 4.3.2 Report unbiased (13%)	
	Weakest (more than 4 (27%) reports graded E-F)	4.4 Non- technical summary (20%)	4.1.4 External sources acknowledged (40%)
		4.1.4 External sources acknowledged (33%)	
		4.2 Presentation (33%) 4.4.1 Non-technical summary of the main findings included (40%) 4.4.2 Summary involved main issues discussed in the reports (53%)	

Talime (2011) findings

No area of strength was identified in the Talime (2011) study for this review area. Several areas of weakness were however noted. This includes seven moderate weaknesses and five weakest areas. The moderate weakness areas were more identified in category 4.3 (emphasis) and the weakest areas in Category 4.4 (Non-technical summary).

Present findings

The present study identifies for this review only one area of strength; category 4.2 (Coherent organization of information). More moderate weaknesses were identified in category 4.4 (Non-technical summary). The weakest area was sub-category 4.1.4 (External sources acknowledged).

4.2.3.5 Comparison of the strengths and weaknesses of both studies-Review Area 4

Talime's (2011) findings indicated more areas of weakness for Review Area 4. By contrast, only a few areas of weakness were identified in the present study. It is clear that, for this review area, the reports assessed in this study were better performed than those reviewed in the Talime (2011) study.

4.2.4 Conclusion of strengths and weaknesses

It emerges from the comparative analysis of the areas of strength and weakness identified in Talime's (2011) study and the present study that:

In 2011, for all Review Areas, no report obtained grade A-B of 53% or higher. No strength was identified in the Talime (2011) study. This study however has identified few (five) areas of strength. 54 areas of weakness were identified in the Talime (2011) study against 24 in the present study. This shows a decrease in the number of weaknesses identified in the EIA reports over time.

In Talime's (2011) study, Review Area 2 had more weaknesses, followed by Review Area 1, then Review Area 4 and finally Review Area 3.

In the present study, on the other hand, more weaknesses are identified in Review Area 3, then Review Area 1, and finally Review Areas 2 and 4.

Although the number of reports rated as satisfactory for Review Area 1 in the present study is not much higher than the number of reports rated satisfactory in Talime's (2011) study, this review area has more areas of strength (3) in this study. This suggests that for a few projects, this task is generally well performed in EIA reports.

In summary, an improvement in areas of strength and a significant decrease in areas of weakness are observed in EIA reports in Lesotho over time.

The next section focuses on the change in the overall report quality, the Review Area, categories and sub-categories.

4.2.5 Discussion of temporal change

This section details the discussion of temporal change across both studies. The change in the overall report quality between both studies will be discussed first, followed by the change in review areas quality and lastly at category and sub-category level.

The comparative analysis of the quality of EIA reports in both studies indicates a general improvement in the number of areas of strength, as highlighted in the previous section. However, with regard to the number of reports rated as satisfactory, improvement and regression in the quality of EIA reports at category and sub-category level were identified based on the comparison of percentage of satisfactory grades (A-C %).

4.2.5.1 Overall report quality-Temporal change

The comparative analysis of the EIA reports reviewed in both studies reveals a positive change in the quality of EIA report over time. In fact Talime (2011) findings showed only five (33%) reports rated as satisfactory, while in the present study, 12 (87%) reports were of satisfactory quality. A significant improvement over time is thus noticed.

This may be due to several reasons. The first reason could be that most of the studies analysed by Talime (2011) were environmental Project Briefs (PB). A Project Brief does not require a very detailed study compared to a full EIA, which represents 93% of the sample of the present study. The number of pages of the brief project document is often small (Ministry of Transport, 2006). Although the length of EIA reports does not automatically give a judgment on its quality (Wood & Jones, 1997), Mokhehle and Diab (2001) contended that one of the great differences between the quality of EIA reports in developed and developing countries is that in developed countries, EIA reports are voluminous, more descriptive and therefore more satisfactory. Moreover, studies carried out in United Kingdom (Lee & Dance, 1993) and in Greece (Cashmore *et al.*, 2002) revealed that the length of the EIA influenced the quality of the reports in those countries. For instance, the findings of Cashmore *et al.* (2002) on the quality of EIA reports in Greece showed that, the quality of reports with an average size of 203 pages were more satisfactorily attempted

than the report with an average size of 63 pages. It can also be a reason for the poor quality of EIA reports revealed in Talime's (2011) results in 2011.

An additional reason could also be that the majority of reports evaluated in this study are big projects, and most had external financial support. This does not mean that projects that are financially supported by agencies are perfect; they also present limitations. For instance, the study of Kamijo and Huang (2016) on the quality of 160 reports financed by the Japan International Cooperation Agency (JICA) revealed that the consideration of alternatives and public participation areas were just satisfactory.

According to Kamijo and Huang (2016), the size of the projects can also affect the quality of EIA reports. EIA reports for big projects usually tend to have more unnecessary information and/ or more critical information missing.

Another reason that Talime (2011) raised is the insufficient knowledge and experience of EIA practitioners. It cannot be concluded that this is also a reason for the limitations observed in the reports analysed in this study. It is, however, also important to note the creation of an environmentalist association in Lesotho in 2017; the Environmental Assessment Practitioners Association of Lesotho (EAPAL). The association regularly organises professional training and workshop to improve the knowledge of practitioners. EAPAL also promotes continued professional development for EAPs in Lesotho; The list of the members of the association is displayed on the website of the Ministry of the Environment and Tourism to assist any proponent in need of an EIA expert. It can thus be assumed that to a certain extent, the knowledge of EIA practitioners in the field of EIA has been and or is improving. This may also contribute to improving the quality of EIA reports in the area.

4.2.5.2 Review Area quality- Temporal change

Tables 4.15 and 4.16 show, an improvement in the quality of EIA reports for the majority of Review Areas (RA 2, 3, and 4). No improvement has been seen for Review Area 1. In both studies, only seven (47%) reports were regarded as satisfactory for this review.

Talime's (2011) results showed that four (27%) of the reports were assessed as satisfactory for Review Area 2, whereas this study showed 73%. A significant improvement over time is observed. A reason could be increase in the existing environmental data as it is assumed that over time scientific studies have been carried out in the area.

Five (33%) reports were rated as satisfactory in 2011 (Talime, 2011), and eight (53%) in the present study for Review Area 3, this also indicate a significant improvement in this review over time.

With seven (47%) of the reports graded as satisfactory in 2011 (Talime, 2011), compared to ten (67%) in the present study for Review Area 4, a significant improvement over time is observed.

4.2.5.3 Category and sub-category level - Temporal change

The comparative analysis of the quality of EIA reports reviewed in both studies shows an overall improvement over time at the category and sub-category level. Sixty-seven aspects including categories and sub-categories for all Review Areas were compared. The comparison shows that there has been an increase over time in sixty aspects, i.e. in 90% of the aspects compared. A decrease is observed in seven aspects. Significant, slight decrease and improvement were identified. The category or sub-category where there was a difference of 20% is considered "significant" (improvement or decrease). The table below shows the areas of improvement and decrease observed over time in both studies. In the table only significant improvements, significant regression and slight regression are included.

The green colour indicates a significant improvement, the orange colour a slow or moderate decrease, and the red colour a significant decrease.

Table 4. 17: Decrease and improvement in quality at category and sub-category level across both studies

Studies	Talime results 2011	Present findings	Studies	Talime results 2011	Present Findings
Summary of all categories and sub-categories	A-C (%)	A-C (%)	Summary of all categories and sub-categories	A-C (%)	A-C (%)
1.1 Description of the development	9 (60)	7 (47)	2.1 Description of impacts	2 (13)	12 (80)
1.1.3 Physical presence and appearance of the development	7(47)	3 (20)	2.1.1 Description of the effect of the project on the environment	5 (33)	12 (80)
1.2 Site description	7 (47)	10 (67)	2.1.2 Description of interaction of effect on the environment	5 (33)	11 (73)
1.2.1 Development site clearly shown on a map	8 (53)	11 (73)	2.1.3 Impact activities from non-standard operations	5 (33)	12 (80)
1.2.2 Land use areas demarcated	7 (47)	13 (87)	2.1.4 Impact determined as deviation from baseline	5 (33)	13 (87)
1.2.3 Duration of the various phases	11 (73)	5 (33)	2.2 Identification of Impacts	4 (27)	11 (73)
1.3.1 Types and quantities of waste and rate of production	7 (47)	6 (40)	2.2.1 Impact identified using a systematic methodology	6 (40)	10 (67)
1.3.2 Methods to treat wastes	11 (73)	10 (67)	2.3 Scoping	4 (27)	13 (87)
1.3.3 Methods of obtaining quantities of residual and waste	11 (73)	8 (53)	2.3.2 Preparations made to collect views and concerns of the IAP	6 (40)	12 (80)
1.4 Environment description	7 (47)	10 (67)	2.3.3 Key impacts selected for more intense investigation	0	11 (73)
1.4.2 Effects occurring away from immediate construction site	7 (57)	10 (67)	2.4 Prediction of impacts	4(27)	9 (60)
1.5.3 Local land uses plan and policies consulted	8 (53)	11 (73)	2.4.1 Sufficient data to estimate magnitude of main impacts	5 (33)	9 (73)
3.1 Alternatives	3 (20)	7 (47)	2.4.2 Description of approaches used to predict impact magnitude	3 (20)	11 (73)
3.1.1 Alternative Sites considered	5 (33)	9 (60)	2.5 Assessment of impacts	4 (27)	11 (73)
3.1.2 Description of alternative proceses, design and operating condition	3 (20)	7 (47)	2.5.1 Description of significance to the affected community and society	6 (40)	12 (80)
3.2 Scope and effectiveness	6 (40)	9 (60)	2.5.2 Assessment of impact i.t.o national and international standards	3 (20)	13 (87)
3.2.2 Unmitigated impacts discussed and reasons given	0	9 (60)	2.5.3 Rationale of the process of determining significance	4 (27)	12 (80)
3.2.4 Indication of the extent of the effectiveness of mitigations	4 (47)	11 (73)			
3.3 Commitment to mitigation	5 (33)	9 (60)			
4.1 Layout	6 (40)	9 (60)			
4.1.1 Introduction	9 (60)	14 (93)			
4.1.4 Non-technical summary of the main findings included	8 (53)	7 (47)			
4.2 Presentation	8 (53)	12 (80)			
4.2.1 Information comprehensive to the non-specialist	9 (60)	13 (87)			
4.3 Emphasis	10 (67)	13 (87)			

As seen in Table 4.17, the quality of EIA reports in most categories and sub-categories has significantly improved. The improvement is observed in all Review Areas. 35 sub-categories and categories out of 60 where improvements are noticed are significant. The remaining 25 are slightly improvement. Significant improvement at category and sub-category level is more observed in Review Area 2 (Identification and assessment of impacts).

The fact that there are up to 25 aspects that have only slightly improved suggests that measures need to be taken to increase the quality of EIA reports in Lesotho.

There is a general consensus is that the quality of EIA reports increases over time (Sandham *et al.*, 2020). This is in line with the majority of categories and sub-categories and goes against few.

Seven categories and sub-categories have decreased. These include two significant decreases and five slightly.

The significant decreases are noted in sub-categories 1.1.3 (the physical presence and appearance of the development) and 1.2.3 (duration of the various phases of the development).

The categories and sub-categories which show slight decreases were mostly related to the description of the development (1.1), the types and quantities of waste generated, rate of production (1.3.1), methods to handle the waste (1.3.2) and methods of obtaining quantities of residual wastes (1.3.3). This suggests less involvement of developers in environmental impact assessments over time. They are more interested in their financial benefits.

It was noticed that no categories and sub-categories decreased in Review Areas 2 and 3. This is encouraging as they are considered to be the most complex tasks and keys in the EIA process.

In summary, the quality of EIA reports in Lesotho has generally improved over time; however, some aspects still require attention.

4.3 Discussion of the comparison of the findings with EIA reports internationally

In the previous chapter, a wide literature review was conducted on the findings on the quality of EIA reports internationally. The results of the quality of environmental impact assessment reports and the quality of information included in EIA reports in 20 countries were presented. This section discusses the findings with the quality of EIA reports assessed in this study.

The quality of EIA reports internationally tends to be slightly more satisfactory than the current quality of EIA reports in Lesotho. It has been observed that, at the international level, the descriptive (Review Area 1) and presentation area (Review Area 4) are usually the best performed. This is supported by the analysis of Sandham *et al.* (2020). Contrary to this, the findings on the EIA reports in Lesotho show that Review Area 1 was the worst performed. This might be due to the poor consideration of EIAs from developers and negligence of the experts. The presentation of results is well performed in Lesotho, but compared to international studies, the percentage of

satisfactory reports is lower. The review of the quality of the EIA reports at the international level indicated that Review Areas 2 and 3 are the areas with more insufficiencies. According to Sandham *et al.* (2020), this might be due to the complexity of those tasks. This concerns mainly the Review Area 2. Although the identification and evaluation of impacts (Review Area 2) were the tasks that performed the best in the reports in Lesotho, the percentage of satisfactory reports is almost equal to the percentage of EIA reports at the international level. The consideration of alternatives (Review Area 3) is not well performed, whether in Lesotho or internationally.

4.4 Conclusion

This chapter discussed the quality of the sample of 15 EIA reports. The results show that the overall quality of EIA report is satisfactory, but some critical areas still need attention. Compared to the study carried out in 2011, the quality of EIA report has improved. The areas of strength have increased over time while the weaknesses have decreased considerably. The reports analysed in this study have revealed a different trend with no improvement observed in Review Area 1, and significant improvement noted in Review Areas 2, 3 and 4.

CHAPTER 5: INVESTIGATION ON EIA PRACTITIONERS' OPINION ON THE STUDY FINDINGS.

This chapter discussed the achievement of Objective 3. It aims to present and discuss EIA practitioners' opinions on the 2020 findings regarding EIA report quality in Lesotho. A questionnaire was administered to 25 environmental consultants who work in Lesotho. Chapter 2 describes the main issues included in the questionnaire. Of the twenty-five (25) questionnaires administered, eleven (11) were returned. The results and analysis are presented as follows:

5.1. Section 1: Demographic analysis

This section presents the gender, age, background, and academic level of practitioners. The educational level gives an idea of respondents' skills level to understand the questionnaire and answer specific questions. Demographics information determines what factors may influence the answers and opinions of respondents.

Question 1-2: Gender and age of respondents

Of the eleven (11) respondents, six (54%) were men and five (46%) women; two (18%) were between 26 to 35 years old; four (37%), between 36 to 45; three (27%) between 46 to 55; and two (18%) of the respondents were above 56 years old. The majority of respondents were above 36 years old.

Question 3: Qualifications of respondents

One (9%) of the respondents holds a matric certificate. This respondent has more than 16 years of experience as an EIA practitioner, whilst two (18%) respondents obtained an honours degree in environmental management; two (18%) hold a master's degree in environmental science, with one (9%) who has an honours degree in environmental health; four (36%) of the respondents obtained a master's degree in environmental management and one (9%) has a background in water resource management and also a certificate in ISO 14001. One (9%) respondent has a master's degree in sustainable agriculture, and one (9%) holds a Ph.D. degree in land resource management. Given these percentages, it can be concluded that the majority of respondents have obtained an acceptable academic level.

5.2. Section 2: Involvement of the practitioner in the field

This section outlines practitioners' experience, the sectors where they are most involved in the Environmental Impact Assessment process, and the environmental components most studied. The

more experience someone has in a field, the more open he would be, and the more the comments he would mention.

Question 4: How many years of experience do you have in environmental impact assessment?

The respondents were asked about their experience as an EIA practitioner in Lesotho. Their responses are presented in the following table.

Table 5. 1: Experience of EIA practitioners

Years	
1-5 years	2 (18%)
6-10 years	5 (46%)
11- 15 years	1(9%)
16-20 years	3 (27%)
21 and above	

Of the eleven respondents, two (18%) have 1 - 5 years of experience working as EIA practitioners, five (46%) have 6 - 10 years of experience; one (9%) has 11-15 years of experience, and three (27%) have been involved in EIA for 16 - 20 years. Most of the respondents have been practising EIA for more than six years.

Question 5: At which stage (s) of EIA are you mostly involved?

Different stages of EIA were indicated for this question. The respondents were free to select one or more answers, and if possible add comments.

The following summarize their answers.

Table 5. 2: Stage of EIA involvement by practitioners

EIA stages	
Screening	6(55%)
Scoping	6 (55%)
Baseline studies	8(73%)
Impact prediction and evaluation	8(73%)
Mitigation measures	8(73%)
Monitoring	4(36%)
Presentation of findings	8(73%)
Review	5(45%)
Other (Please state)	
Evaluation of project site pro-proposal and estimation of cost evaluation of impacts and complaints	1 (9%)

The baseline studies, impact prediction and evaluation, mitigation measures, and the presentation of findings are the stages of EIA where most of the respondents (eight (73%)) are involved. Six

(55%) respondents have been involved in the screening and scoping stages, while five (45%) have been involved in the review stage. The Department of Environment (DoE) currently has only two environmental officers for the review process. The department often uses external EIA consultants for reviewers when they are over. Some of the respondents involved in the review process are often working as EIA consultants for the Department of Environment.

The monitoring process is the activity where the fewest of respondents have been involved – one (9%) respondent was often involved in the evaluation of project site pro-proposal, estimation of cost, and evaluation of social complaints. The smaller number of practitioners involved in the monitoring process suggests that the monitoring process is neglected.

Question 6: In which sector(s) of EIA are you more experienced/mostly involved?

In this question, the practitioners were invited to select one or more areas of EIA where they have more experience and or, where they are mostly involved. Their answers are presented in the table below:

Table 5. 3: Sector of EIA

Sector	%
Mineral	6(55%)
Agriculture	4(36%)
Housing	7(64%)
Transport	4(36%)
Forestry	1(9%)
Energy	7(64%)
Water	6(55%)
Other (<i>Please state</i>); Chemical sector	1 (9%)

The majority of respondents (seven (64%)) stated they have been involved in the housing and energy sectors; Six (55%) mentioned to be often involved in the water and mineral sector; Four (36%) respondents are often involved in the agriculture and transport sector. Only one (9%) is involved in forestry and chemistry projects. Among the EIA reports analysed, five are from projects in the housing sector, three from the water sector, three from the mining sector, two from the energy sector, one from the construction road sector, and one from the waste sector. Given this, it is clear that most respondents could have a perfect idea of the possible challenges encountered in the reports studied. Some of them have participated in the production of specific reports analysed in this study.

Question 7: During EIA practice, on which environmental component are you mostly involved?

The responses to this question can be seen in the table below:

Table 5. 4: Environmental components where respondents are more involved

Environmental components	
Socioeconomic	6(55%)
Water	9(82%)
Air quality	3(27%)
Soil	4(36%)
Ecology	8(73%)
Noise	4(36%)
Landscape	1 (9%)
Heritage	2(27%)
Other (Please state)	2 (18%)
Health aspect	
Community participation	3 (27)

The majority of respondents (nine (82%)) mentioned working mostly on the impact of projects on water, the ecology (8 (73%)), and the socioeconomic aspect (6 (55)). Few respondents are involved in the impacts of the projects on soil and noise. Only three (27%) respondents mention being often involved in public participation. This might explain the poor quality of the involvement of public in the EIA process. Two (18%) respondents are often involved in the heritage and health aspect, and one (9%) states to be involved in the landscape aspect.

5.3. Section 3: Practitioners' understanding of EIA

Question 8: Give your opinion on the benefits and advantages of undertaking EIA?

The table below indicates the practitioner's opinion on the purpose and advantage of undertaking EIA.

Table 5. 5: Purpose and advantage of undertaking EIA; practitioners opinions

Purpose of EIA		Advantage of EIA	
Ensure sustainable development	9(82%)	Ensure sustainable development	9(82%)
Helping decision maker	11(100%)	Helping decision maker	11(100%)
Helping developer to establish a sustainable project	9(82%)	Helping developer to establish a sustainable project	9(82%)
Reduce environmental impacts	11(100%)	Reduce environmental impacts	11(100%)
Others (please specify)	1(9%)	Others (please specify)	
Incorporate environmental management plans into designs and projects		Ensure stakeholders participation, and Host communities benefits	1(9%)
		Developers see EIA as a waste of time and money.	

All respondents mentioned that the purpose and advantages of EIA are to help decision making. The majority (nine (82%)) also mentioned that the tool contributes to reducing environmental impacts. One (9%) respondent states that the purpose of EIA is to incorporate environmental management plans into designs and projects.

Nine (18%) respondents stated that EIA contributes to ensuring sustainable development and helping developers establish a sustainable project. However, two (18%) mentioned that EIA does not help developers because they see it as a waste of time and money. This perception can influence the quality of information on the project required in environmental impact studies.

Question 9: Do you think that EIA in Lesotho contributes to?

Multiple choice questions with six point Likert scale were presented to the respondents (Table 5.6).

Table 5. 6: Practitioner's opinions on the effectiveness of EIA in Lesotho

		Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
1	Reducing environmental impacts (protecting the environment)					2(18%)	9(82%)
2	Contributing to sustainable development					2(18%)	7(64%)
3	Helping developers					8(73%)	1(9%)
4	Assisting decision-makers					6(55%)	5(45%)
5	Environmental Awareness	2(18%)				4(36%)	5(45%)
6	Other (please specify)						

The majority of the respondents (nine (82%)) strongly agree that EIA effectively contributes to reducing environmental impacts. However, two (18%) respondents think that EIA does not help developers and two (18%) others firmly believed that the tool is not effective at assisting in environmental awareness. This might suggest a poor consultation of the public in the EIA process.

5.4 Section 4: Opinion of practitioners on the findings of the study, the strengths and weaknesses of EIA practice, and suggestions for improvement

This section covers Questions 10, 11 and 12. In Question 10, the respondents were given the opportunity to give their opinions on the study's findings. The areas of strength and weakness

identified in the EIA reports were presented (Table 5.7 and 5.8) to the practitioners. In Question 11, practitioners' opinions on the strengths and weaknesses of EIA practice in Lesotho were examined. This question was not related to the findings obtained in the previous chapter. Question 12 required the practitioners to give their suggestions on how to improve EIA practice in Lesotho.

Question 10: What is your opinion on the strengths and weakness of EIA reports analysed in the present study

The following table summarizes practitioners' opinions on the areas of strength on the quality of EIA reports assessed. In the table, NA means that no answer was given for this aspect (question not attempted) usually because the respondent did not have anything to say about the question.

Table 5. 7: Practitioner's opinions on the strengths areas of EIA reports analysed in the present study

Areas of strength (numbers refer to categories and sub-categories in the Lee and Colley review package)	Opinions			
	Agree	Disagree	Partially agree	NA (not attempted)
1.1.1 Purpose and objective of the development	10 (91%)	1 (9%)		
1.2 Development site clearly shown on a map	10 (91%)		1 (9%)	
1.2.2 Land use and different land-use areas determined	10 (91%)		1 (9%)	
1.4. Environment description				
1.4.1 Environment expected to be affected	9 (82%)	2 (18%)	1 (9%)	
1.5.1 Identification and description of essential components of the affected environment	9 (82%)			
2.1 Description of impacts				
2.1.1 Description of the effect of the project on the environment	10 (91%)			1 (9%)
4.4.2 Coherent organization of information	8 (73%)	1 (9%)		2 (18%)

It emerges from the investigation that most respondents (73-91%) agreed on the areas of strength identified in the reports and only a few of them (1%) partially agreed. Only two respondents do not agree that the description of the environment can be well attempted in the reports assessed. The respondents mentioned that the cultural heritage impacts were mostly overlooked for most of those reports when they were discussed.

One respondent mentioned that the description of the objective of EIA is often not satisfactory. Two (18%) respondents stated that the prediction of potential impacts should be considered an area of strength.

The following table summarizes practitioners' opinions on the areas that need improvement based on the EIA reports assessed.

Table 5. 8: Practitioner's opinions on the weakness areas of EIA reports analysed in the present study

Areas of weakness	Opinions			
	Agree	Disagree	Partially agree	NA
1.1.Description of the development				
1.1.3 Physical presence and appearance of the development	8 (73%)			3 (27%)
1.1.4 Nature of production processes and expected rate of production	8 (73%)		2 (18%)	1 (9%)
1.1.5 Nature and quantities of raw materials	8 (73%)		2 (18%)	1 (9%)
1.2. Site description				
1.2.3 Estimated duration of the various phases	7 (64%)			4 (36%)
1.2.4 Number of workers and visitors entering the site, their access and transport	7 (64%)		2 (18%)	4 (36%)
3.1. Alternatives				
3.1.1 Alternative sites considered	5 (45%)		5 (45%)	1 (9%)
3.1.2 Alternative processes, design, and operating conditions considered	6 (55%)		4 (36%)	1 (9%)
3.3.Commitment to mitigation				
3.3.2 Clear records of the commitment of the developer to mitigations measures	9 (82%)		1(9%)	1(9%)
4.1 Layout				
4.1.3 Chapter summaries	10 (91%)			1(9%)
4.1.4 External sources acknowledged	6 (55%)		4 (36%)	1(9%)
4.2 Non-technical summary				
4.4.1 Non-technical summary of the main findings included	4 (36%)	4 (36%)	3 (27%)	
4.4.2 Summary involved main issues discussed in the report	3 (27%)	3 (27%)	3 (27%)	2 (18%)

The majority of respondents (73%) share the opinion that the description of the development for the projects assessed could have certain limitations; two respondents partially agreed on that point.

Three (27%) of the respondents affirm that there is often a lack of understanding of what is expected to be done on task 1.1.3 (physical presence and appearance of the development). In contrast, five (45%) respondents affirmed that it is not in the legal requirements. Concerning the nature of production processes, the expected production rate, nature, and quantities of raw material, two (18%) of the respondents emphasized that these are not major weaknesses.

Respondents who supported that there are often insufficiencies in the site's description came to seven (64%). However, two respondents mentioned that the number of workers and visitors entering the site is often not included in the EIA reports for specific projects (such as mining and construction projects), but that they are included in the health and safety reports.

Half of the respondents agreed that the consideration of alternatives might be poor. On the other hand, others (50%) think that this might be because, regarding the alternative site, some projects (such as mining projects) analysed in the reports cannot have an alternative site. Concerning the consideration of alternative processes, two respondents mentioned cases where the client said *alternative green technologies should not be included in EIA since they had already bought a machine that would allow them to do processing*. The poor consideration of alternatives also depends on the applicant.

The majority of respondents (82%) agreed that there are no clear commitments to mitigation measures. The reason for this could also be the fact that it is not a legal requirement. One respondent argues that even if there is no particular record for the commitment to mitigation measures, the EMP can be seen such a commitment. This respondent explained that once the Department of Environment has approved the Environmental Management Plan through the Record of Decision (RoD), the developer is bound to comply with the proposed mitigation in the EMP.

Almost all (91%) of respondents stated that they often do not include the summary chapter in the EIA reports.

Six (55%) respondents agreed that few EIAs in Lesotho included external sources. In comparison, four (36%) partially agree, and two (18%) respondents explained that it is not a legal requirement, but a requirement for big studies (such as studies financed by agencies).

Question 11: In general, what is your personal opinion of the strengths and weaknesses of EIA practice in Lesotho

This section presents EIA practitioners' opinions on the strengths and weaknesses of EIA practice in Lesotho, according to their own experience. The following table indicates the practitioner's opinion of the strengths and weaknesses of EIA practice in Lesotho.

Table 5. 9: Strengths and weakness of EIA in Lesotho: opinions of practitioners

EIA report sections	Area of strengths	Area of weaknesses
1. Description of the project	8 (73%)	2 (18%)
2. Legislation	6 (55%)	4 (36%)
3. Consideration of alternatives		8 (73%)
4. Public participation	6 (55%)	4 (36%)
5. Description of the baseline environment	6 (55%)	3 (27%)
6. Identification and evaluation of the impacts	8 (73%)	
7. Mitigation measures and monitoring	2 (18%)	8 (73%)
8. Communication of results	3 (27%)	5 (45%)
9. Other (Please state)		
Management of cumulative impacts		1 (9%)
Physical presence and appearance of the development		8 (73%)
Description of the size of the development	3 (27%)	
Quantities of wastes produced		7 (64%)
Number of workers and visitors entering the site, their access and transport		7 (64%)
Clear records of the commitment of the developer to mitigations measures		8 (73%)
Nature and quantities of raw materials		7 (64%)

Major strength areas

It emerges from this survey that some respondents considered certain aspects of EIA practice as weakness, while other respondents considered them as strength.

The table indicates that most respondents pointed out the description of the project, the identification and evaluation of impacts as strength. The reason given is that the developer generally gives the description of the project and also, most EIA practitioners are qualified in the Environmental field.

Other strength areas

The other areas of strength mentioned, but which are more discussed by others are:

- legislation
- public participation
- the description of the baseline conditions

Although six (55%) respondents mentioned legislation as an area of strength, for others (four (36%)), the legislation does not cater for evolving and contemporary approaches and emerging environmental challenges. The Environmental Act was formulated in 2008 and the EIA regulations in 2012. No changes have been made to the regulations since 2012 to improve the EIA process. In 2015 a study (Ratlo, 2015) comparing the EIA legislation in Lesotho, Swaziland, and South Africa identified areas of improvement in Lesotho's EIA legislation that have not been added in the

legislation yet. These include public participation process and requirements for EIA in the mining sector. The author also recommends that the regulation should include the gaps found in the legislation. By referring to the Tilakram (2018) study, which argued that EIA regulation amendment could positively influence the quality of EIA reports, it would perhaps be necessary to revise the legislation and regulations which govern the EIA in Lesotho for a positive change in EIA report quality.

The description of the baseline environment was stated as often well attempted (six (55%), although three (27%) of the respondents mentioned that there is often limited data on the existing environment. Talime (2011) believed that it might be due to the inaccessibility of the data. Another reason could also be a lack of study or scientific research in specific areas. For instance, some respondents affirmed that the impacts of noise and the impacts on air quality are often overlooked. Only one respondent stated that lack of data on the baseline environment is often due to poor knowledge and limited experience of practitioners. This is often identified in many developing countries (Talime, 2011; Nasim, 2013; Mounir, 2015).

Participation of public is also an aspect to be discussed. Six (55%) respondents mentioned that this task is always well performed in the reports; four (36%) respondents think the opposite. Some mentioned insufficient involvement of the community in many projects. A reason given is that the legal framework for public participation is limited. Two (18%) respondents stated that "there is participation but not consultation, also for most proponents EIA is more seen as a formality to seek approval for the project. This is in line with Waliyu's (2015) opinion.

Two other respondents further stated that, even when there is public involvement, the consideration of local communities is often ignored. Also, public participation does not facilitate the active participation of stakeholders, especially affected parties at the grass-root level.

This corroborates with the story revealed in Talime's (2011) study on the diamond mining exploitation project at Kola-Ha-Petlane in Mafeteng district, where local communities had never been consulted about the project.

Major weaknesses

The majority of respondents (83%) indicate the consideration of alternatives, mitigation measures and monitoring as weaknesses in the Environmental Impact Assessment process in Lesotho. The respondents mentioned that the consideration of alternatives is often overlooked and the mitigation and monitoring measures are often inadequate. Two respondents commented that mitigation measures, although well prescribed in the Environmental Management Plan (EMP), are not implemented in practice. Talime (2011) also mentioned this as a shortcoming in the practice of EIA in Lesotho.

Five respondents considered the communication of results as often inadequate because they are rarely published or disclosed.

The majority of respondents also mentioned the following weaknesses;

- Physical presence and appearance of the development
- Nature and quantities of raw materials
- Quantities of wastes produced
- Number of workers and visitors entering the site, their access and transport
- Chapter summaries
- Clear records of the commitment of the developer to mitigations measures

Question 12: What can be done to improve the EIA practice and effectiveness in Lesotho ?

In this question, the respondents were given the opportunity to voice what they thought could be done to improve the EIA practice in Lesotho, and thereby the quality of EIA reports. The following table contains their responses.

Table 5. 10: Practitioner's opinions on how to improve EIA practice in Lesotho

EIA practice and effectiveness can be improved by	
Increasing involvement of the interested and affected parties?	5(45%)
Increasing environmental awareness	9(82%)
Sensitizing developers on the importance of the EIA?	10(91%)
Increasing resources? (Funding, time, staff) often allocated for the EIA study?	10(91%)
Not involving politics in projects	8(73%)
Increasing staff reviewers in the department of the environment	6(55%)
Properly ensuring the monitoring and management of the impacts during all phases of the project.	10(91%)
Equipping the Department of Environment with enough personnel to monitor compliance for developments.	2 (18%)
Enforcement of stoppage for fatally flawed projects	3 (27%)
Remove tenderpreneurship from development projects.	2 (18%)
For government entities like Water, Trade promotion, they must have EIA practitioners on the staff.	2(18%)

The majority of respondents (91%) suggested the following solutions to be done to improve EIA practice in Lesotho.

- Increasing the resource (funding, time) often allocated for the EIA study.
- Ensuring the monitoring and management of the impacts during all phases of the project.
- Sensitizing developers to the importance of EIA.

The first suggestion confirms the opinions of numerous researchers. According to Nadeem and Hameed (2006), Aung *et al.* (2017), Chanthy and Grünbühel (2015), Kamijo and Huang (2016), it is

difficult to improve the quality of reports in developing countries due to limited funding, lack of human resources and information (data).

Respondents also mentioned a lack of profound regard by project proponents for EIA and its practitioners. According to the respondents, most developers do it as a requirement, not to inform decision making. This is also observed in Cambodia (Chanthy & Grünbühel, 2015). To improve the practice of EIA in Lesotho, developers must be well aware of the importance of the tool. Although five (45%) respondents suggested that increasing involvement of the interested and affected parties can improve EIA practice in Lesotho, nine (82%) recommended increasing environmental awareness. Kamijo and Huang (2016) contend that the positive motivation from proponents could improve EIA report quality if supported by public pressure. The public must therefore pressure understand the projects and the objective of EIA. Their consultation and participation in the EIA process must be effective. This could also reduce the disparity of knowledge between communities and developers that Lostarnau *et al.* (2011) considered an obstacle to public participation.

Eight (73 %) respondents mentioned that EIA practice could be improved in Lesotho if there is a stoppage for fatally flawed projects even when politically attractive. It has been argued that in developing countries, the political situation strongly influences the quality of EIA reports (Morgan, 2012; Momtaz & Kabiz, 2012; Chanthy & Grünbühel, 2015). Matandare (2019) supported this belief when he stated that in Lesotho, the implementation and monitoring of environmental laws have been difficult over the past few years, mainly due to the political conditions.

Two respondents suggested that some government entities must have EIA practitioners within their staff and even at company executive level. According to them, it will cultivate a culture of environmental compliance in the organization.

5.5 Conclusion

The objective of this section was to explore the views of practitioners regarding the findings on the quality of the sample of EIA reports analysed in the previous chapter. A questionnaire was emailed to 25 practitioners. The major strengths and weaknesses identified in the analysis were presented in the questionnaire. The results indicating the grades assigned to each review area, category, and sub-category were included in the questionnaire. Only 11 practitioners responded. The majority of respondents agreed with the areas of strengths, and most areas of weakness. The practitioners further explained the reasons for the weaknesses identified. A question was asked to practitioners to give their opinions on what could be the strengths and weaknesses of EIA practice in Lesotho. The weaknesses or strengths encountered during EIA practice were identified. Most

areas of strength and weakness were similar to those identified in the EIA report quality analysis presented in Chapter 4. The practitioners further proposed suggestions to improve the EIA practice in Lesotho and also of the EIA reports.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

In this chapter the conclusion of the study is presented, in four sections a brief summary of the background of the study, a summary of the main findings, a conclusion of the main findings and recommendations and perspectives for future research.

6.1 Background of the study

Environmental Impact Assessment has in recent years been considered worldwide as an important tool for environmental protection and support for sustainable development. Despite its well-known benefits, its effectiveness remains a weakness in many countries. One of the methods commonly used by experts to assess the effectiveness of EIA is evaluating the quality of the EIA reports.

Lesotho is a developing country which, like many countries is concerned about the quality of its environment. For several years, the country has been facing various environmental problems (Kakonge, 1997; UNDP, 2017). Measures were taken to resolve those problems. As it is stated in the constitution established in 1993, *'every citizen or person living in Lesotho has the right to a healthy environment for his or her well-being'* (Lesotho, 1993). To ensure a healthy environment, environmental policy and legislations, have been established. The National Environmental Plan formulated in 1998 presented EIAs as an important tool that contributes to better environmental management. EIAs have been practised in Lesotho since 1988 (Mokhelele & Diab, 2001.). However, legislation requiring the undertaking of an EIA for certain projects was established in 2008. Despite the measures taken by the government, the country still faces various environmental problems (UNDP, 2017). This raises concerns regarding the effectiveness of EIAs.

In Lesotho, the effectiveness of EIA remains a concern. The latest study on the quality of EIA reports in Lesotho carried out in 2011 revealed poor quality of the reports. Practitioners have noted several causes for this (Talime, 2011).

Therefore, this study aimed to evaluate the quality of EIA reports in Lesotho and investigate the views of practitioners on the findings. The following section presents the main findings of the study.

6.2 Findings of the study

The findings of this study are presented according to the objectives achieved.

6.2.1 Findings for objective 1 – Assessment of the quality of a sample of EIA reports

Objective 1 was to assess the quality of a sample of EIA reports. 15 reports written from 2011 to 2018 have been evaluated using the Lee and Colley review package. The results indicated that 13 (87%) of the reports were of satisfactory quality. Four (27%) were rated generally satisfactory (graded B). No reports were rated E-F. Review Area 1 was the worst performed, with 47% A-C, followed by Review Area 3 (with 53% A-C), then Review Area 4 (67% A-C). Review Area 2 performed the best (with 73% A-C). This is different from what is usually observed in the literature where descriptive rather than analytical activities are often performed better (Sandham *et al.*, 2020). Criteria were established to identify areas of weakness and strength. The analysis shows that the reports have more areas of weaknesses than areas of strength. The areas of strength were:

- The introduction (1.1.1)
- The description of the effect of the project on the environment (2.1.1)
- the information comprehensive to the non-specialist (4.2.1)
- Coherent organization of the information (4.1.2)

The study identified areas regarded as “weakest” and “moderately weak”. The weakest areas are follows:

- The acknowledgement of external sources
- Clear records of mitigation measures.

The comparison of these results with the quality of the EIA reports reviewed by Talime (2011) and the quality of the reports written internationally was the second objective.

6.2.2 Findings for objective 2 – Comparison with the Talime (2011) study and international reports

To achieve Objective 2, the study compared the overall quality of reports, the quality of reviews, and the quality of categories and sub-categories. A comparison of areas of strength and weakness was made. Areas of improvement were also discussed.

The overall quality of EIA reports in the present study achieved higher satisfactory grades (87% A-C) compared to the reports reviewed in the Talime (2011) study (5% A-C) which led to the conclusion that the quality of EIA reports has increased over time. The majority of reports in the Talime (2011) study were rated E-F. However, in the present study, no report was rated as very unsatisfactory.

The comparison between Review Areas reveals that Review Area 2 which is the best performed in the present study was the worst performed in 2011, i.e 13% (A-C) in 2011 to 73% (A-C) in the present study. A significant improvement is noticed with time in Review Areas 2, 3 and 4, and no improvement is observed in Review Area 1, thus indicating less consideration for this review area

over time. At the category and sub-category level more improvements were observed. The study identified 63 (90%) categories and sub-categories where improvements are observed, and seven (10%) where a decrease in quality is observed. Significant improvements were observed in RA 2 and significant decreases in RA 1.

No areas were identified as strength in the Talime (2011) study and more areas of weakness were noted compared to the present study. In the present study, some areas of strength were also identified.

In general a significant improvement is noted over time at all levels of comparison. The comparison with the quality of EIA reports internationally reveals that the overall quality of EIA reports in Lesotho is slightly lower than the quality of EIA reports internationally.

6.2.3 Findings for Objective 3 - Practitioners' opinions on the study

This section presents.

The quality of the reports evaluated in this study was presented to the practitioners, with a view to achieving Objective 3, which was to investigate their opinion of the results obtained. The majority of respondents agreed with the areas of strength identified in the reports reviewed. Regarding the weakness areas, some of respondents agreed with some weaknesses identified. The practitioners further stated their own observation of weaknesses and strengths in the EIA practice in Lesotho. Recommendations were proposed to improve the EIA practice in the Lesotho. In general these agreed with the issues revealed by the report quality review.

6.3 Conclusion

The analysis of the reports shows that the overall quality of EIA reports in Lesotho is of satisfactory quality, despite some areas of weakness. Hence, some EIA activities require improvement.

Compared to Talime's (2011) study conducted in 2011, the overall quality of EIA reports has increased over time.

A comparative analysis of the quality of the EIA reports in Lesotho and those at the international level places Lesotho at a slightly lower level of report quality.

An investigation of the EIA practitioners' opinions in Lesotho on the findings of the study revealed that the majority of practitioners agreed with most of weaknesses and strengths identified in the EIA reports. However, the practitioners did not all agree on the areas of strengths and weaknesses in the current practice of EIA in Lesotho.

6.4. Recommendations and perspectives

This section includes recommendations based on the research findings and suggestions of practitioners, and future research areas. The future research areas are related to the findings of the study and also addressed the limitations of the present study.

6.4.1 Recommendations

The following suggestions are recommended to improve EIA report quality and the EIA process in Lesotho. The study recommends that:

- Resources allocated for the EIA should be increased. These include financial resources and staff for EIA review, control and monitoring.
- Proponents should be sensitized to take the Environmental Impact Assessment more seriously;
- Government should ensure that politics do not influence the EIA process and decision making.
- Government and or Non-Governmental Organizations (NGO) should increase environmental awareness.
- An independent review of EIA reports should be carried out every 3 to 5 years.

6.4.2 Perspectives

The following areas of investigation are proposed on the basis of the study's findings and its limitations.

- The results of the study show that Review Area 1 performed the poorest in many reports. One of the reasons, according to EIA practitioners, is the lack of information of the project from the developer. This suggests a lack of consideration of EIAs by the proponents. Further research should be undertaken in order to investigate the proponents' perceptions of the EIA process.
- It emerges from the respondents' statements that more attention should be paid to the public participation process in order to enhance the quality of EIA reports. This raises the question on the effectiveness of the public participation process in EIA in Lesotho, or in some selected EIA case studies. Future research on this aspect is recommended.
- According to the findings of the study and the practitioners' views, EIA monitoring is one of the neglected areas in EIA practice in Lesotho. The study proposes to investigate the effectiveness of EIA monitoring in Lesotho.

- One of the limitations of the study was the relatively small number of people who responded to the questionnaire. The majority of respondents were EIA practitioners. Government regulators did not respond even though the questionnaire was sent to them. A study to investigate the regulators' perception on the quality of EIA reports should be interesting and such a study should include a comparison of their perceptions with those of the practitioners.
- As Sutton-Pryce (2015) suggested, when reviewing EIA reports from different sectors, the project type influences the overall quality of EIA reports. Relevant research on the quality of EIA reports by sector should therefore be undertaken.

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APPENDIX

Appendix A: Questionnaire to respondents

Dear Participant,

My name is Mitrance Nana. As part of the requirements towards the completion of a qualification in Masters in Environmental Management at North-West University, I am conducting research on the review of Environmental Impact Assessment Report Quality in Lesotho. The main objective is to analyse the strengths and weaknesses of Environmental Impact Assessment reports in Lesotho and investigate the opinions of the practitioners on the findings.

The attached questionnaire will take about 10 minutes to complete. Please return the questionnaire after a week or maximum of 10 days. Please be assured that your responses will be treated with the utmost confidentiality and will not be divulged to any other party. The information that you will provide will not be used for any other purpose except for research investigation only. I wish to assure you that all information received will remain confidential and that your participation will remain anonymous. Your contribution to this study is extremely important to ensure the success of the research.

1. Please tick with an (X) in the box that corresponds to your response and/or fills in where indicated.
2. Answer all questions.

Section 1: Demographic information

1. Age

YEAR	
18-25 years	
26-35 years	
36-45 years	
46-55 years	
56 and above	

2. Gender

Gender	
Male	
Female	

3. What are your training level and your academic background? (You can choose more than one)

Training level		Academic background (Field)
Metrics		
Bachelor		
Honours		
Master		
PhD		
ADD CERTIFICATES OR OTHER		

Section 2: respondent's involvement with EIA

4. How many years of experience do you have in environmental impact assessment?

Years	
1-5 years	
6-10 years	
11- 15 years	
16-20 years	
21 and above	

5. At which stage (s) of EIA are you mostly involved? (You can mark more than one answer(s))

EIA steps	
Screening	
Scoping	
Baseline studies	
Impact prediction and evaluation	
Mitigation measures	
Monitoring	
Presentation of findings	
Review	
Other (Please state)	

6. In which sector(s) of EIA are you more experienced/mostly involved? (You can mark more than one answer(s))

Mineral	
Agriculture	
Housing	
Transport	
Forestry	
Energy	
Water	
Other (Please state)	

7. During EIA practice, on which environmental component are you mostly involved? (You can mark more than one answer(s)) and rank them by number)

Socioeconomic	
Water	
Air quality	
Soil	
Ecology	
Noise	
Landscape	
Heritage	
Other (Please state)	

Section 3: Practitioners' understanding of EIA

8. Give your opinion on the benefits and advantages of undertaking EIA? (You can mark more than one answer(s))

Ensure sustainable development	
Helping decision maker	
Helping developer to establish a sustainable project	
Reduce environmental impacts	
Others (please specify)	

9. Do you think that EIA in Lesotho contributes to?

	Strongly disagree	Disagree	Slightly disagree	Slightly agree	Agree	Strongly agree
Reducing environmental impacts (protecting the environment)						
Contributing to sustainable development						
Helping developers						
Assisting decision-makers						
Environmental Awareness						
Other (please specify)						

Section 4: Opinions of practitioners on the study's findings and the areas of strength and weakness of EIA practice.

10: It emerges from the present study that the EIA reports in Lesotho are mostly just satisfactorily. The reports present certain areas of strength and some areas of improvement. Please give your opinion on the following findings?

Areas of strength	Opinions
1.1 Description of the development	
1.1.1 Purpose and objective of the development	
1.2. Site description	
1.2.1 Land area taken up by the development site clearly shown on a map	
1.2.2 Land use and different land use areas demarcated	
1.4. Environment description	
1.4.1 Environment expected to be affected	
1.5. Baseline conditions	
1.5.1 Identification and description of important components of the affected environment	
2.1 Description of impacts	
2.1.1 Description of the effect of the project on the environment	

Areas of weakness	Opinions
1.1. Description of the development	
1.1.3 Physical presence and appearance of the development	
1.1.4 Nature of production processes and expected rate of production	
1.1.5 Nature and quantities of raw materials	
1.2. Site description	
1.2.3 Estimated duration of the various phases	
1.2.4 Number of workers and/or visitors entering the site, their access and transport	
3.1. Alternatives	
3.1.1 Alternative sites considered	
3.1.2 Alternative processes, design and operating conditions	

considered	
3.3.Commitment to mitigation	
3.3.2 Clear records of the commitment of the developer to mitigations measures	
4.1 Layout	
4.1.3 Chapter summaries	
4.1.4 External sources acknowledged	

11. In your opinions, what are the strengths and weaknesses in EIA practice in Lesotho? (Explain or give the reason (s) of your statement if possible)

12. What can be done to improve the EIA practice and effectiveness in Lesotho ?

Appendix B: List of respondents

1-Dr Fidelis Esenjor Esenjor	EIA consultant - President of Environmental Assessment Practitioners Association of Lesotho
2- Keeena Malefane:	-EIA Consultant -Secretary General - Environmental Assessment Practitioners Association of Lesotho (EAPAL) -Former Alternate Representative of the Kingdom of Lesotho to the UNFCCC, UNIDO, IAEA
3- Malelea Jame	EIA Consultant
4- Lipalesa Malebese	EIA Consultant - Greenway Consultancy
5- Molibelu Raphael	EIA Consultant
6- Mamphok molaoa	EIA Consultant
7-Mamopeli Matooane	EIA consultant-Environmental Health Scientist at CSIR
8- Makheta Ntuli	EIA consultant
9-Ntsoti Tjabane:	EIA specialist at Tsoelopele Consultants and Contractors
10-Obed Letsela	EIA consultant
11-Willie Lebamang	EIA consultant

