

**THE RELEVANCE OF ENVIRONMENTAL IMPACT ASSESSMENT TO HOUSING
CONSTRUCTION IN MASERU URBAN**

BY

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Declaration

I declare that “**The Relevance of Environmental Impact Assessment to Housing Construction in Maseru Urban**” is my own original work. All resources used or quoted have been indicated and acknowledged by means of complete references.

‘Mamoholane Mahao

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List of Abbreviations

DoE	Department of Environment
EIA	Environmental Impact Assessment
GoL	Government of Lesotho
LHLDC	Lesotho Housing and Land Development Corporation
LHWP	Lesotho Highlands Water Project
MASOWE	Maseru South West
MCC	Maseru City Council
NAP	National Action Plan
NEAP	National Environment Action Plan
NES	National Environment Secretariat
NEP	National Environmental Policy
NEPA	National Environment Policy Act
NGO	Non-Governmental Organisation
REMA	Rwanda Environment Management Authority
SADC	Southern African Development Community
SDG	Sustainable Development Goals
USA	United States of America
WASCO	Water and Sewage Company

Abstract

As a developing country, Lesotho is using Environmental Impact Assessment as an environmental management tool with the intention of attaining sustainable development. This is provided for by the Environment Act 10 of 2008 which entails guidelines for EIA. The guidelines identifies activities/projects for which Environmental Impact Assessment is required. Housing developments are subject to Environmental Impact Assessment in Lesotho under the EIA guidelines, while the collective individual undertakings are disregarded for being too small, yet their environmental impact is prominent. The guidelines also outline that buildings with a floor space of 500sqm or more should be subject to an EIA.

This study looked at the relevance of EIA in housing construction in Maseru urban using Maseru South West (MASOWE) and Motheo as case studies. Data was collected using qualitative research method, which included consideration of literature, interviews with various participants and observations.

The results revealed that individual house are regarded as small of undertakings even as a collective unlike undertaking of housing developments. Moreover, there were houses found to have a floor space of 500sqm and above that were also not subjected to EIA's. The relevance of EIA in housing construction is taken lightly, even when the compounded impacts are visible and detrimental to the environment. Public participation is one other aspect that the study found to be lacking, 95% of the public did not even what Environmental Impact Assessment was, let alone the specifications thereof.

The recommendations were, the public should be sensitised so that they are cautious of their environment and taught of EIA as an environmental management tool to advance sustainable development. Also, clear demarcation of sites dependent on size of buildings will better facilitate the clear and correct use of EIA in housing construction. The demarcation should be characterised by follow up site visits by relevant authorities to ensure encroachment of servitude zones is alleviated. Lastly the study recommends the formulation of a piece of legislation dealing exclusively with EIA, an EIA Act. This will facilitate a clear and proper way of applying EIA to manage the environment effectively, even in housing construction.

CHAPTER 1

THE PROBLEM AND ITS SETTING

1.0 Introduction

Large scale housing projects are some of the major forms of human intervention impacting the environment often in unintentional and unexpected ways (Stephen, 2022). Sound and stringent environmental impact standards through the use of tools such as the Environmental Impact Assessment (EIA) is often a very imperative requirement. This tool has existed since the 1960's (Rantlo, 2015), yet construction of housing projects continues to cause a considerable amount of negative impacts on the environment. How then is the use of management tools such as the EIA important in housing development?

This first chapter introduces the research concept by outlining the problem and its background. What the researcher intends to study, Environmental Impact Assessment (EIA) in housing construction. The problem as identified by the researcher, the research questions, the objectives and significance of the study and delimitations respectively.

1.1 Background to the Study

Globally, the environment seems to be under threat from various factors resulting from important human activities such as agriculture, urbanization and industrialization (Bhople, 2022). Urban sprawl, involving both the controlled and uncontrolled settlements into agricultural and virgin lands in one area that has not received much attention in terms of its impact on the environment. This however, is imposing a great danger not only to the environment itself, but also human health and the socio-economic wellbeing of the exploiters themselves (Agha, 2020). The negative impacts such as various forms of pollution, ill health, encroachment of agricultural land, and depletion of water sources that result from these activities are evident in different parts of the world.

Due to these negative impacts, environmental management and protection therefore headline a lot of discussions around the world. Various measures are undertaken by various stakeholders, governments, companies, Non-Governmental Organisations' (NGOs). They all strive for the

sustainable use and protection of the environment as one of the key pillars of sustainable development. Among efforts to better manage human intervention with the environment is through the use of Environmental Impact Assessment (EIA). EIA is an instrument used to inform decisions that are related to the holistic use of the environment in pursuit of sustainable development, (Rantlo, 2015, Tiwari, 2016). It is a public policy instrument that was first introduced in the 1960's in the United States of America (USA) (Rantlo, 2015). Since then, it has spread around the globe to become one of the most used tools of environmental management in various sectors of development such as mining, industries and construction (Tchakounteu, 2021).

The construction of housing in urban areas, in particular, is one of the more extensive forms of human intervention on the environment. While EIA is often required for large scale housing projects or developments, EIA for small housing projects undertaken by individuals often falls through the cracks. The latter are often considered to be small initiatives that do not require EIA. Yet as a collective they have a large impact on their local environments as often seen in cases of urban sprawl and proliferation of informal settlements. As argued by Stephen (2022), urban sprawl has detrimental and compound consequences that affect the environment adversely. Residential housing often comprises a major form of land use in urban areas around the world. Luederitz et al, (2013) state that, two-thirds of the world's population live in urban areas and by the year 2030 land converted to urban areas will have tripled. At a global scale, urban areas not only account for 70% of carbon emissions but also 70% of energy consumption with an increasing trend. With particular reference to the construction industry, Dutta and Sengupta (2014), state that, not only is it one of the largest industries globally, it is also responsible for 23% of the air pollution, 40% of water pollution and 50% of landfill waste pollution. It is therefore argued that since the construction sector includes housing hence not exempt from these impacts on the environment, yet very little consideration is often attached to it. This subsequently, comprises a significant research gap.

The use of EIA for individual undertakings can eliminate and limit the amount of environmental degradation and their effects from housing projects. However, the overall use of the tool is still very tentative, especially in developing countries. The cautious or lack of use of EIA in housing makes developing countries prone to environmental problems that could otherwise be managed

through the use of EIA in self builds and Lesotho is not an exception. The use of the tool would be a good method to promote sustainable development at grassroots level.

The adoption of EIA as a global instrument guiding policy making has been a relatively slow process. After its inception in the USA, European countries adopted EIA as a governance tool in the late 1980's and only then did its use become widespread (Rantlo, 2015). Internationally a lot has been done to combat and minimise the repercussions of developments such as construction, especially in the housing sector through the use of EIA as a regulatory tool, with some success in developed countries (Tchakounteu, 2021). However, Suskevics (2023), on the other hand disputes that, the realisation of the full potential of the EIA is still an elusive goal to attain in developing and developed countries. One of the key bottlenecks toward the achievement of its objectives has been the tendency to the top-down approaches implementing it as a governance tool. EIA is not only about development and protecting the environment, but also public participation during all phases (Glucker et al, 2013). Yet, participation by the public on the general use of the tool is almost nonexistent, this is despite the fact that it is one of the key indicators of effective EIA (Ye et al, 2023). Suskevics et al (2023), critique EIA by saying, reviews on scientific aspect of EIA have been done extensively, yet nothing has been done an important component of EIA process of public participation.

Sinclair and Diduck, (2017) state that, public participation is decision making by those directly affected by a project. Kanu et al (2018) and Wu et al (2017) argue that greater participation by the public in the EIA process leads to better environmental assessment. The participation leads to better planning of projects and fewer environmental costs (Kanu et al, 2018). It is very important nonetheless, that such participation be early in the EIA process. This is so that knowledge is gathered which can inform the project itself and minimise costs and reduce risks thus, benefiting investors. Despite its importance to the EIA process, public participation still faces some limitations. For instance, lack of political will in the implementation of EIA can hinder its success (Tangrungruengyoo, 2018). Information given by investors and governments is usually technical in nature and inadequately explained to the public (Kanu et al, 2018). Lack of interest by the public is another limitations to successful public participation.

African countries started adopting the EIA in the late 1980's (Rantlo, 2015). According to Champion and Essel (2013), successful integration of EIA in African countries has not yet been

realised because its application is limited to the project level. Nonetheless, the environment is being degraded irrespective of the level or scale of projects and it needs to be conserved. Morgan (2012), emphasises the need for EIA's to adapt with the changing environment as it is altered by various factors caused by global warming. Nevertheless, despite the shortcomings on proper integration of EIA, African governments seem to be on the right footing towards sound environmental protection and resource management (Campion and Essel, 2013). The EIA is now a prevalent phenomenon in African legislation. This is attributed mainly to the fact that a majority of projects in African countries are donor funded and EIA's constitute part of the approval process (Rantlo, 2015).

Most African countries are indeed adopting EIA as a mandatory governance tool in a lot of development projects. This is evident through incorporation of legislative measures (Campion and Essel, 2013). However, when it comes to EIA's in housing construction they are still lacking. A majority of them are trying to embrace EIA systems that are not suitable for the socio-economic and institutional conditions of their respective countries (Tangrungruengyoo, 2018). This is manifested in projects that are sponsored by international donors which implement policies and tools, in this case, EIA's that are not localised to project area. This is the worldview approach on policy and tools that are expected to thrive in developing countries often with no consideration paid to things such as culture, religion among others (Tangrungruengyoo, 2018). Customising a policy or tool to meet the specific needs of each country's environment, physical or otherwise, would ideally yield better results. There are also countries that do not formally recognise the use of EIA as a tool to predict and mitigate adverse effects of projects to the environment, especially in the housing sector (Stephen, 2022). Even among those that have adopted the EIA, the system is still not legally enforced despite the existence of laws that are in place (Tangrungruengyoo, 2018). For Campion and Essel (2013), the lack of strong institutions and human resource capacity, rapid population growth, lack of direct investment in project communities, illiteracy and corruption remain the greatest threat to EIA's success in Africa. In many instances EIA is viewed as some form of hurdle that developers have to jump over in order to get approval to carry out projects (Brangagnolo et al, 2017). Whereas it should be involved from the planning stage of whatever project is being proposed. This is simply so that it informs the whole project throughout, (Morgan, 2012).

There are notable strides taken towards the attainment of sustainable development in the Southern African Development Community (SADC) region through the use of EIA as a tool of governance. However, EIA has not achieved its full potential (SADC Environmental Legislation Handbook, 2012). The Handbook further states that the EIA's introduction and incorporation into laws, that already exist among SADC countries, has not resulted into a cohesive system to combat the impacts from different factors that affect the environment. But it seems South Africa is an exception. Montgomery (2015), says in that country developers are very cooperative and abide by measures and remedies deemed conducive to environmental protection and management.

The Government of Lesotho (GoL) is said to be among the first in Africa to adopt EIA with the aid of the World Bank (Tchakounteu, 2021). Issues concerning the environment were first encapsulated in the National Environmental Action Plan (NEAP) in 1989 (Rantlo, 2015). The Lesotho government has also put in place laws, the Environment Act 10 of 2008 and its predecessors such as NEAP. Additionally, there are policies that are meant to regulate the use of the environment in a sustainable manner. This is in line with the Constitution of Lesotho, chapter III section 36, page 45, "*Lesotho shall adopt policies designed to protect and enhance the natural and cultural environment of Lesotho for the benefit of both present and future generations and shall endeavour to assure to all citizens a sound and safe environment adequate for their health and well-being.*" It is within the Environment Act of 2008 that Lesotho's Environmental Impact Assessment (EIA) guidelines are embodied.

The EIA's primary objective is to contemplate environmental impacts of a proposed project and ensure minimal impacts to the environment. Tarr (2003) says the EIA policy in Lesotho it seems was mainly geared towards regulating hydroelectric and water projects. He says EIA was voluntarily implemented in the country in the early 1980's. However, in the advent of the Lesotho Highlands Water Project (LHWP), funded by foreign donors, EIA became mandatory in projects involving the LHWP. Even though there are provisions for other sectors such as tourism in the EIA guidelines, no provision is made for a proper section on housing development per se. This is in light of the rapid increase of urban migration in Lesotho. ABIQ, (2021) estimates that more than 100 000 homes are needed in the next decade to meet the demand driven by population growth and urbanisation. As things stand the prospects of more housing construction are inevitable. This is unfortunately amidst a review by Tchakounteu that Lesotho's EIA is generally of poor quality

(Tchakounteu, 2021). The construction of housing that is already taking place at alarming rates in Lesotho's urban areas, despite the poor quality of EIA's in Lesotho, therefore presents a great threat to Lesotho's environment. UN HABITAT (2015), further argues that, regulations governing housing development in Lesotho are outdated and need to be modified to make them relevant to current conditions.

In most urban areas, especially in Maseru, the EIA is purported to be implemented in "planned" housing developments. Yet what is happening on the ground does not seem to reflect this, what more of cumulative individual undertakings and unplanned settlements. Mots'oene (2014), states that Maseru has encountered largely unplanned growth due to urbanisation, and this has impacted housing development in this city. Newly established settlements such as Maseru South West (MASOWE) and Motheo should be dealing in proper environmental management and sustainability initiatives. Yet, from the outside it looks as though the EIA process has barely been implemented or has not worked as expected. This is seen through the very high rate at which housing construction is taking place, with special attention to self-build housing projects. Construction even taking place where it is evident to the layman that this should not be the case.

This is despite the fact that Lesotho's EIA guidelines require an EIA to be undertaken on building projects, dependent of size of course, buildings with total floor space of 500m² and above (Environment Act 10 of 2008). There are houses and rental units with floor space exceeding the specified floor space whose construction is questionable and the use of EIA doubtful in the construction of such projects. More importantly, with the rapid growth of residential housing that seem unregulated, there is no EIA literature specific to construction of housing in Lesotho. The tool itself, it seems, does not fully meet what it was intended to do overall. Therefore, a need to look into its relevance, in particular for purposes of this thesis, its relevance in construction of housing in urban areas.

1.2 Statement of the Problem

The environment is not a stagnant entity, with or without human intervention it will evolve. It is however worth noting that human influence on the environment has perpetuated outcomes that have accelerated the natural evolution with unwanted and disastrous consequences. Lesotho is a developing country and with this comes a significant amount of urbanisation taking place. The

urbanisation is mostly influenced by the movement of people for economic gain activities. This movement has significant implications on the environment. The Government of Lesotho (GoL) has shown its commitment through introduction of the Environmental Act 10 of 2008 and through it the introduction of EIA in various projects. Despite the efforts made to protect the environment, through the Environmental Act and specifically EIA guidelines, it seems, it does not fully meet what it was intended to do overall. A number of scholars have talked about this in their respective researches. It therefore suffices that there is a need for this research to look into the relevance of EIA in construction of housing in pursuit of the attainment of sustainable development. More so, with the rapid growth of construction of individual residential housing that seems to be unregulated. There is no EIA literature specific to construction of housing in Lesotho. Thus, there is need to explore the relevance of EIA in housing construction in urban Maseru. Individual housing construction undertakings may not necessarily have significant on the environment, but the collective construction by many individuals is a perspective that has not been explored in Lesotho. Therefore, the need for this research.

1.3 Statement of Purpose

The purpose of this study was to investigate the relevance of EIA in urban housing construction in Maseru and gain knowledge.

1.4 Objectives of the Study

1. Discuss the significance of the EIA in housing construction and how EIA can advance sustainable development in housing
2. Assess the extent to which the EIA is being used in the house construction industry in Maseru Urban
3. Explain challenges faced in the implementation of the EIA on housing projects
4. Assess in what way the environmental challenges caused by housing construction can be addressed through the use the EIA in Maseru Urban

1.5 Research Questions

1. How significant is the EIA in housing construction and how does it advance sustainable development in housing?
2. To what extent is the EIA being used in the house construction industry in Maseru Urban?
3. Which are the challenges faced in the implementation of the EIA in housing projects?
4. How can EIA be employed to address environmental issues that arise from housing construction in Maseru Urban?

1.6 Hypothesis

The study hypothesised that EIA has been introduced in Lesotho since 2008, yet its use in individual housing construction projects, to better manage the negative impacts on the environment, is non-existent.

1.7 Significance of the Study

Proper implementation of EIA would translate into reduced negative effects of human activity on the environment in Maseru urban and enhance benefits such sustainable development. There are several aspects that have to be considered in the implementation of EIA for the tool to be rendered relevant or otherwise, especially in housing construction in Maseru. There is a need to consequently assess the relevance of EIA in housing construction in Maseru by looking at if it has/has not achieved its intended outcomes. Thereafter provide theoretical and practical measures to improve its purpose and relevance. More especially in housing construction so that a more environmentally conscious approach is adapted in this sector, specifically in urban Maseru, Lesotho's capital as a developing country striving for sustainable development.

The study will provide useful knowledge that can inform policy in developing a sector specific EIA, in this case EIA for housing construction, especially individual projects.

1.8 Assumptions of the Study

Residential sites in urban areas are allocated by the Lesotho Housing and Land Development Corporation (LHLDC) and Maseru City Council (MCC). Authorities responsible for ensuring the sites have all services suited for modern day living conveniences. It is in light of this that an assumption that EIA would be a prerequisite for construction on all sites allotted by the authorities, whether it be for company developments or as individual undertakings. This is in relation to the amount of environmental disruption that has to be done in constructing and servicing such sites.

1.9 Delimitations of the Study

The researcher has chosen to deal with the importance of EIA to housing construction, unlike most studies that were done before that deal with the effectiveness of EIA in housing or the quality of EIA reports within the housing sector. The study could have been veered towards the social and economic implications of EIA on communities in Maseru urban but it has not, instead it has been confined to just how important it is as a tool that drives environmental sustainability. No scholars have previously written about Environmental Impact Assessment in relation to housing in Lesotho. The researcher was unable to find literature relating to EIA and housing in Lesotho. Due to this the subject matter still leaves a lot of room for other scholars to carry out research on this.

1.10 Outline of the Study

Chapter 1: The Problem and its Setting

This chapter comprised of the problem, how it manifests itself, from the global stage until it reached the chosen study area. The chapter is composed of the following sections, the introduction, background to the study, statement of the problem, statement of purpose, objectives of the study, research questions, hypothesis, significance of the study, assumptions of the study, delimitations of the study and limitations of the study.

Chapter 2: Review of Related Literature

Review of literature on the relevance of EIA in housing construction in urban areas. The literature that will be looked at will start from global level zoning in on the chosen study area.

Chapter 3: Research Methodology

In this chapter, the researcher will outline the methodology found best suited and applicable to this study. Qualitative method was used for purposes of this study.

Chapter 4: Data Presentation and Analysis

The data collected for the study was presented and analysed in this chapter. Thematic was used to present and analyse themes that emerged in the study.

Chapter 5: Summary, Conclusions and Recommendations

The last chapter is a summary of the whole research study. Conclusions and recommendations were drawn based on the data collected in contrast to the initial objectives of the study.

1.11 Summary

This chapter introduced the research problem through a summarised how it manifested itself at globally. The main research problem was clearly stated and a gap identified. The researcher also stated the purpose, objectives, research questions, hypothesis, significance, assumptions as well as delimitations of the study.

CHAPTER 2

REVIEW OF RELATED LITERATURE

2.0 Introduction

The motive of this study is centered on how relevant EIA is in construction of individual housing developments in urban Maseru. The issue of the ever-growing rate of rural urban migration is a very prominent issue around the world which leads to rapid influx in the inevitable need for housing (ABIQ, 2012). Increased housing means a lot of pressure placed on the environment and ultimately a need to regulate the rate of housing construction and minimise its effect on the environment. Construction generally is a major contributor to the production of pollutants (Hou and Braham, 2021). This chapter begins with defining key terms then reviews the literature, definition and evolution of EIA, its purpose, the different phases, public participation and the strengths and weaknesses of EIA. The role of EIA in housing and how it advances sustainable development. EIA in Lesotho and lastly, it outlined the theoretical framework against which data that was collected in this study was evaluated against.

2.1 DEFINITION OF KEY TERMS

The key terms in the study are defined in line with their usage in relation to the study itself.

2.1.1 Definition of Relevance

According to the Cambridge Advanced Learner's Dictionary and Thesaurus (2023), the word relevance refers to the degree to which something is related to or useful to what is happening or being talked about. Merriam-Webster (Undated) on the other hand defines relevance as something practical and especially social applicability or the state of being relevant in relation to the matter at hand. From the definitions above and for purposes of this study, relevance meant, the importance and applicability of EIA in relation to construction of housing in Maseru urban.

2.1.2 Definition of Housing

Ruonavaara, (2018) defines housing as a multi-faceted topic. Firstly he defines housing as a material object that can be manufactured and demolished, produced and consumed, bought or sold.

Here he is referring to the actual structure. In his second definition, he talks of housing as in people getting housed, which comes from the activities that people themselves and others in society do to provide housing to the population. For purpose of this study the first definition was the one that was adopted.

2.1.3 Definition and Evolution of the EIA Concept

EIA is a procedure used to predict the environmental consequences or impacts, both beneficial and adverse, of a proposed development project and to ensure that these effects are taken into account in project planning and design (Selvakumar and Jeykumar, 2015, Loomis and Dziedzic, 2018). Morgan (2012), on the other hand defines it as an established tool to promote sustainable development. A more comprehensive definition is that by Bond et al., (2020), it a universally applied tool meant to objectively facilitate evidence-based decision making and to deliver greater accountability on development projects. From the definitions above it is evident that, the interdependent relationship between the environment management through the use of EIA and sustainable development is one that cannot be ignored. The whole idea behind EIA and environmental consciousness is to attain sustainability. That is, ensuring that the current generation does not deplete natural resources available to a point of extinction and the demise of future generations (Mots'oene, 2014). Sustainable development advancement through the use of EIA is and should be the ultimate goal for preservation of the environment for future generations. EIA should therefore be a prerequisite in the process trying to attain such. It is because of this interdependent relationship between sustainable development and the environment, that tools such as various forms of impact assessment were devised to try and protect the environment, among them the EIA (Glasson, et al, 2012; Morgan, 2012).

The concept of EIA first came into being through the introduction of the National Environment Policy Act (NEPA) in the United States of America in 1961 (Morgan, 2012; Campion, 2013; Rantlo, 2015 and Bond et al., 2020). Since then, the EIA has become a widespread governance tool that regulates and maintains proper and sustainable use of the environment (Rantlo, 2015). The tool has gained a lot of momentum since its introduction. This is evident through its recognition in numerous international conventions such as the Convention on Transboundary Environmental Impact Assessment, the Convention on Wetlands of International Importance, the Convention on Access of Information, Public Participation in Decision-making and Access to

Justice in Environmental Matters, the United Nations Framework Convention on Climate Change, the United Nations Convention on the Law of the Sea and the Protocol on Environmental Protection of Antarctic Treaty (Morgan, 2012) to name a few.

2.2 Purpose of EIA

The purpose of EIA is essentially embedded in its definition, for instance, Bond et al, (2018) define EIA as a process that is best undertaken at an early phase of policy development integrating environmental concerns prior to project implementation, through incorporation of analytic techniques in a process of a comprehensive impact analysis. They further go on to state the purpose of EIA as to protect the public and the environment from the consequences of reckless or inadequately informed policies and decisions. Similarly, Romeza et al., (2012) state the purpose of EIA as to protect the environment against negative externalities a proposed development may cause. Kumar et al, (2022) even equates the importance of the interaction between development and the environment at a similar position as the economy in the catalogue of issues that need exceptional consideration. It is in this spirit that the principles of sustainable development namely: 1) conservation of the ecosystem, 2) conservation of biodiversity of the planet, 3) sustainable development of society, 4) conservation of human resources and 5) population control and management, seem to correlate well with the purpose of EIA (UNEP, undated). Therefore, at the forefront of recurring headlines globally. EIA is meant to regulate environmental use in numerous sectors and industries, mining, construction, fishery and agriculture to name a few (Morgan, 2012). It is therefore only appropriate to coin and design EIA's that deal and attend to issues in each specific sector of industry (Kumar et al, 2022). The sector specific EIA, purposely designed to cater to a specific sector, can also best address impacts such as physical and socio-economic, direct and indirect, short-run and long-run, adverse and beneficial, reversible and irreversible, quantitative and qualitative, distribution by group and area, actual and perceived, relative to other developments and deal with them in accordance (Stephen, 2022). There are various phases in the EIA process and they are explained below:

2.3 Phases of EIA

As stated above in the definition, EIA is a process, and thus has a number of phases or stages, namely screening, scoping, preparation of EIA report, application and consultation, decision

making, implementation of EIA and monitoring, evaluation and rehabilitation (Zhang, 2013). These phases are elaborated on below as cited by Rantlo (2015) and other scholars:

2.3.1 Screening

Screening analyses the design of a proposed project that clearly outlines what the project intends to do and the scale and magnitude of such a project (Rantlo, 2015). It involves identifying and clarifying specified activities that will take place and which may be subject to an EIA during the project (Rantlo, 2015). This is also where pre-application and consultation with relevant authorities' takes place to gather all necessary facts before decision making (Rantlo, 2015). In short, this is where an assessment is made of whether a project requires an EIA and if so, what would be the possible impacts of such on the environment, and where necessary, further inquiries are made. According to Rantlo (2015) this initial stage should involve public participation.

2.3.2 Scoping

After the identification of major impacts of a proposed project, then comes scoping. This is where the impacts are weighed to gauge whether the project is worth doing and where possible come up with alternative ways of carrying out the project without inflicting significant amount of damage to the environment (Rantlo, 2015). The scale and cumulative effect of the impacts should be given considerate attention, as some impacts may not be immediate but their effect can in the long run be disastrous (Tan Yee Qin, 2020). Here, the proponent prepares a plan of study for scoping and a report to be reviewed by relevant authorities for approval (Rantlo, 2015).

2.3.3 Preparation of EIA Report

According to the Rwanda Environment Management Authority (REMA), (Undated) at this stage of the EIA process, all possible and foreseeable impacts should have been identified, social, economic, cultural, health and safety together with mitigation measures and alternatives outlined in a report. The report produced informs the decision of whether the project requires an EIA and if so, how to go about the project in an environmentally sound manner (Rantlo, 2015). But even after a report is made, an application to implement the project even with the identified impacts can still be made.

2.3.4 Application and Consultation

At this point of the EIA process, the proponent makes an application to relevant authorities. A report of what has been found from the planning stage to this stage where there is a report is key in helping the relevant authorities come to a decision of allowing or disallowing the project to continue (Rantlo, 2015).

2.3.5 Decision Making

Rantlo (2015) says, many decisions will have already been made from the initial stage of screening to this point, but the decision being referred to at this here is whether the project should be implemented or not. The views of all stakeholder should be considered when making this decision. If the decision is in favour of the project, then the next phase will be that of implementation.

2.3.6 Implementation of EIA

Here the project is implemented after considering possible outcomes of impacts on the environment. During this time, checks and balance of what and how far the project will damage the environment is essential and, in some cases, unforeseen impacts may arise and need to be dealt with amicably (Rantlo, 2015).

2.3.7 Monitoring, Evaluation and Rehabilitation

During a development project and after its completion, amends need to be made where possible. The amendments needed will be identified through constant monitoring of the project (Rantlo, 2015), EIA is meant to try to make projects to blend in or enhance the environment, not for a project to be outstanding and destructive to the environment. After completion of a project, it is therefore of paramount importance that, where possible, rehabilitative efforts should be advanced. It is worth noting that, EIA is not a once-off process which terminates in the production of a report on the effects of the project and associated mitigation measures. It also deals with monitoring the construction and operational phases and this continues until the project is decommissioned. Mishra (2016), puts emphasis on this by saying, the post-closure care and rehabilitation is also an integral part of the EIA process. It is also very important throughout the whole EIA process that various

stakeholders are involved, especially the public who reside in and near development sites. The importance of public participation is thus highlighted below:

2.4 Public Participation Incorporation in EIA

Public involvement is vital for the success of projects where the public is a stakeholder in one form or another (Hasan, 2018; Roque de Oliveria and Patidario, 2020). Public participation is largely considered an integral part in the EIA process. It is deemed to foster democratic policy-making and to render EIA more effective. However, according to Cuppen, (2012), public participation does not guarantee that the project is in fact accepted by the public. Not only are there not guarantees, public participation in EIA upon closer scrutiny is said to still be considerably diverge (Glucker et al, 2013).

Systematic participation in EIA in most (governmental) projects is quite unknown and often goes without being acknowledged (Hasan et al, 2018). There is therefore no significant influence of public participation in EIA. Public participation, it seems, is dependent on government versus privately run projects (Gavrilidis et al, 2022). Private companies tend to ensure participation of the relevant stakeholders at different stages of EIA while harnessing their inputs to successfully complete a project. By contrast in government, public participation in government run projects is mostly found to be carried out towards the end of an EIA exercise. This severely limits the stakeholders' ability to contribute and question the legitimacy of such a project (Hasan and Aldosary, 2018). This process of neglect systematically overlooks stakeholders' concerns, critics and suggestions while pre-emptive motive of the project gets glorified and implemented. In short, what is pledged does not translate into practice.

The point of public participation in EIA is not only that the public is involved in the earlier stages of development projects (Kanu et al, 2018). Public participation is key in capacitating the public with skills and knowledge of environmental management even long after the project has been completed (Hasan et al, 2018). The environment, irrespective of developmental projects that it is subjected to, still needs proper management simply so that it flourishes and not degrade as it is seemingly so around the globe (Mishra, 2016). Public participation in EIA therefore plays an integral part in the attainment of sustainability in environmental management.

2.4.1 Values of Public Participation

- Promotes timely disclosure of relevant information to participants in the environmental decision-making process.
- Makes people understand and respect the final decisions on projects.
- Gives an insight into environmental protection and long-term environmental problems.

There are however limitations to public participation in EIA

2.4.2 Limitations of Public Participation in EIA

Despite public participation being an important part of EIA, there are still a number of limitations when it comes to its execution. Public participation is not initiated early and sustained throughout the process. It also overlooks issues such as language, location cultural, political and socio-economic dimensions (Omenga et al, 2019). The downside to this is that the EIA process in such cases does not contribute to proper environmental management.

EIA is a process that predicts what may or may not happen (Duinker and Greig, 2007). It is a process of trial and error, and with this comes strengths and weaknesses that are discussed underneath:

2.5 Strengths of EIA

Morrison-Saunders et al, (2015); Roos et al, (2020) and Sara and Fischer, (2020) all agree the EIA aids in ensuring the sustainability of a project. That is, a project that is economically and environmentally feasible. A project that causes as little harm as possible to the environment.

EIA helps in reducing costs and time implementation of the project. Prediction of negative effects of projects means precautionary measures are put in place to curtail the occurrence of the negative effects and this means costs to remediate the effects are evaded also (Nita et al, 2022).

Development projects are generally costly, and should be done right once off. Therefore, the cost saving modifications during the design stage of the project, for instance, monetary and environmental costs that are irreversible are attended to from the onset (Mubvumi, 2014). Construction produces permanent structures that are very expensive to correct if not correctly

carried out (Hietaharju et al, 2021). The environment has to endure disturbances for prolonged periods that is why these structures need to be in harmonised with the environment as much as possible. Nevertheless, in an event where unwanted disturbances take place, they can be mitigated during the construction of the project through the use of EIA. EIA is therefore very important as it spearheads costly mistakes that may have been missed at the beginning or planning stage. Subsequently, it is therefore very important to involve various stakeholders as their perspectives are bound to differ and raise different issues. Some of which may have been missed by planners and decision makers, as opposed to just involving only certain stakeholders (Nita et al, 2022).

EIA increases the probability of project approval if the welfare of the environment is at the forefront of things to be considered. In most developing countries development projects are donor funded (Mubvumi, 2014). For large scale construction projects to get funding from international organisations, EIA has become one of the pre-conditions. This is to ensure that projects are environmentally conscious and sustainable (Ding, 2008). It is through the use of environment management tools such as the EIA that this pre-condition can be met and consequently secure funding for development projects needed in developing countries (Nita et al, 2022).

Through the use of EIA, developers can avoid the violations of law and regulations that might get them into trouble. Most countries in America, Europe, Asia and Africa now have legislations that govern the use of the environment (Nachmany, 2014). EIA can therefore be used to steer away from violations set in such legislation and in the same breath, use the environment in a sustainable manner (Nita et al, 2022). The project performance rate is even higher if projects abide by the laws that ensure environmental safety. This is if they are subjected to EIA's in order to properly manage the environmental effects that may ensue during and after the project (Nita et al, 2022).

Even the smallest of disturbance or alteration in the biodiversity have such disastrous ripple effects which in some cases can be felt for many generations. It is therefore vital that measures are put in place and adhered to in order to maintain our biodiversity as is. According to Nita et al (2022), EIA does aid in the conservation of biodiversity. For example, Ezekilov (2011) talks about "the largest man-made change to the Earth's surface" The Polonoroeste Project. The project transformed the province of Rondonia in Brazil, from one of the least deforested areas of the Amazon rainforest to one of the most deforested in the 1980's. The World Bank and Brazilian government wanted to clear land for farming in the rainforest. However, after construction of a

highway through the forest the initial cleared ground did not prove fertile. But even after this, more and more land was cleared. In just a few years, an amazingly huge area had been decimated and with these a host of new illnesses were brought to the province. This forever changed the biodiversity in that province. A preliminary environmental impact assessment study is said to have been done and the negative effects were dismissed by the development partners and the Brazilian government. Had the findings of the assessment been addressed prior to the commencement of the project, a lot of the negative effects would have been avoided and dealt with in time and the biodiversity would have been preserved or just slightly altered.

Alternatively, EIA also has some shortcomings and a few are elaborated on below:

2.6 Weaknesses of EIA

The process is viewed as time consuming and a drawback by decision makers, especially politicians (Brangagnolo et al, 2017). The expanse of details and time that has to be dedicated for a proper and systematic way in an EIA is viewed as tedious, while it is in fact the attention to detail that ensures premium quality of EIA's.

Predictions are not always correct. The scale at which both the positive and negative impacts are forecast does not solidify such impacts happening as a matter of fact. There are factors that may come into play in the duration of a project. These can either be positive and minimise impacts or negative and exaggerate the impacts beyond initial predictions (Nita et al, 2022).

Despite EIA being a tool that has existed for decades now, it has not evolved and been adapted as it should with the changing times. Obstacles that were meant to be constrained by the tool at inception have evolved, also new additional problems have arisen caused by things like climate change and modern day activities. The EIA should therefore not be rigid but rather fluid to change and adapt to a wide spectrum of varying environments (Wayakone and Makoto, 2012).

It is worth noting however that since its inception, the EIA has evolved to some extent in some countries to accommodate varying fields and sectors such as mining, forestry, fishery, road building and housing. There sector specific EIA's, for instance, an EIA specifically governing construction, but not just construction, housing construction to be precise (Kolhoff et al, 2013).

2.7 Role of EIA in Housing Construction

Siqueira-Gay and Sanchez (2019) point out that, the world population living in cities around the globe is increasing due to political endeavors but more importantly due to economic opportunities. Luederitz et al, (2013); Gruebner et al (2017) further state that, more than half of the world's population currently reside in cities. The growing population in cities leading to further urbanisation and need for provision of basic needs like shelter (Siqueira-Gay and Sanchez, 2019). As such, the need to provide housing for a growing urban population poses an enormous challenge for governments globally (Zhang, (2016); Opoko and Oluwatayo, (2014); Mukibi, (2012)). As the demand for housing in urban areas in ever-growing, urban planners need a high-performance tools like Environmental Assessment, to control and reduce the environmental impacts of such development projects (Lotteau et al, (2015); Marerro et al, (2020); Rasel and Parvez, (2021)).

Housing is provided under different arrangements worldwide, involving private and public sectors or community-based organisations (Siqueira-Gay and Sanchez, 2019). Individuals also undertake construction of their own housing projects. Building of houses at large scale encroaches on the natural biodiversity and in the process modifies both natural and urban environments (Siqueira-Gay and Sanchez, 2019), and can have significant environmental impacts. It is therefore very important that new construction causes minimum damage to the environment in which the construction will take place (Zahibi et al, (2012); Tadiou et al, (2015)). The environment quality should not be altered much, this is where a need for EIA in construction, particularly housing construction becomes necessary.

In order to provide housing for the growing population in cities, new settlements are established causing urban sprawls (Luederitz et al, 2013; Abdullah et al, 2022). Selvakumar and Jeykumar (2015), point out that, it is important that the proper functioning of urban areas should maximise the quality of life of the people that live and work in such areas, without compromising the quality of life of those who reside in peri-urban and rural settlements outside their boundaries. EIA does not only assess impacts to the environment, but also impact on people who inhabit the very same environment (Azom et al, 2012).

According to empirical literature, the purpose of EIA in construction is to anticipate measures and weigh the socio-economic and biophysical changes that may result from a proposed building

construction project (Pavlickova and Vyskupova, 2015). Dutta and Sengupta, (2014) further clarify this by stating that, EIA of construction projects focuses on prediction of environmental impacts of the different components of the construction activity, ways and means to reduce adverse impacts by shaping the project to suit local environmental conditions and presents the predictions and options to the decision-maker. This means, best practice EIA identifies environmental risks, lessens conflict by promoting community participation, minimises adverse environmental effects, informs decision makers and promotes environmentally sound projects.

Undertaking EIA for construction industry and improving site management can reduce environmental impacts both on and off site (Dutta and Sengupta, 2014). Through early planning before the start of the project, as well as through all phases of the project's development. If environmental concerns are considered simultaneously with other technical and economic criteria, it may be possible to develop the housing projects with the protection of natural resources of that area (Selvakumar and Jeykumar, 2015). Ijigah et al, (2013) state that, it is through the use of EIA in construction industry, governments and stakeholders can initiate sustainable construction measurement and management practice. EIA in housing construction does not just look at the footprint physical structure, but it also takes into account all other services that go along with such as waste management, water and electrical provision. More especially so in urban areas where a multitude of services are needed in just one household (Maria et al, 2017).

There are several countries that have pioneered and successfully implemented EIA's precisely for housing construction globally since its inception (Hasan et al, 2018). Most of these have reported a significant improvement of results yielded by these sector-specific EIA's that are also particular to each country and its environment (Lee, 2013). Sev, (2011) points out that it is important EIA is at mainly effective in mitigating the environmental effects of buildings. The tool presents some difficulties in application, especially in developing countries. It is therefore important that the tool be developed nationally to best address the issues that are relevant to each country.

2.7.1 Countries that have EIA for House Construction

Finland

EIA first received recognition in Finland in the beginning of the 1980's inspired by international discourse on EIA. In 1982 the first EIA report was published in the country. The report showed

that the existing norms of impact assessment were not sufficient in many respects and EIA was trying to address this. The Finnish government therefore saw it fit to include EIA in development projects in various levels of planning and decision making. Since then, EIA in Finland has evolved and it said to have achieved a meaningful role in the environmental policy toolbox to be applied to projects of the right size, including housing projects (Polonen, 2011).

Switzerland

According to Drouilles et al, (2019), an ingenious way the Swiss government has tried to effectively minimise the impacts of housing construction on the environment is by encouraging the building of multi-family or row houses as opposed to single-family houses. Single-family houses account for 75-85 % of impacts while multi-family houses only account for 37% of impacts. Not only this, the government also puts emphasis on renovation projects that have an even lower environmental footprint. EIA's for new single-family houses are a lot more expensive to encourage people to opt for the alternatives mentioned above.

India

Dutta and Tiwari, (2015) state that India has EIA to regulate housing projects. Land zoning and land use suitability are also not taken into consideration. However, the inadequate implementation of the regulations and the post project conflicts are major player in hindering the success of EIA in housing.

Nigeria

Nigeria has legislation that govern EIA in the housing sector, it is however mostly characterised by lack of proper implementation (Ajidasile, 2019). According to Owoyeni and Bamigboye, (2013), there is a need for periodic environmental audits for projects, more especially in the housing sector. This is in light of floods frequently destroying houses by washing them away and taking lives in areas where EIA is said to have been carried out on housing projects.

Rwanda

Unstable social and political climate has seen Rwanda as one of the countries to adopt EIA late, 2005. However, great strides have been made since then, the formulation of EIA that is specific to

housing for one (Marara et al, 2011). The government has shown their commitment towards pursuing sustainable development by making EIA mandatory for various projects, including housing projects.

South Africa

Botha (2022) states that South Africa does have EIA for housing developments. Reports have shown that 73% of EIA's done with regard to housing developments to be of satisfactory quality. The only shortcomings are the insufficiencies on alternatives and mitigation measures (Mbhele, 2009).

From the examples made above, EIA in housing has worked for the most part, the only drawback seems to be lack or improper implementation of the tool, not the lack of legislation. The examples made above are not conclusive of what is going on globally. Suskevics et al (2023), critique the EIA saying, reviews on scientific aspect of EIA have been done extensively, yet not much has been done on EIA in relation to housing development. There is still a long way to go before we enjoy the full benefits of EIA and reach the pinnacle of sustainable development.

2.8 EIA's Advancement towards Sustainable Development in Housing Construction

Sustainable development coupled with EIA are now indispensable in decision making in the development of cities (Ameen, 2015; Marrero et al, 2020; Fiscal et al, 2021). One of the most significant risk cities and urban areas are faced with is rapid population growth due economic prospects that lure multitudes from rural areas (Buhaug et al, 2013; Satterthwaite, 2017; Garcia-Soriano et al, 2020). This overstretches the number of resources available to populations in these areas, especially land because of rapid urbanisation. Therefore, a need for effective environmental management in planning for such changes (Satterthwaite, 2017), especially in striving to provide the basic need of housing. The urgency to house the growing population should however not overshadow the need for sustainable development. EIA is consequently one of the tools that can be used as a sustainability assessment tool and a driver for the pursuit of sustainable pathways (Ameen, 2015). Lee (2013), goes on to say, tools that regulate environmental sustainability should be a mandatory building approval requirement. It therefore follows that; this would better

capacitate the use of EIA as a tool necessary for the advancement of sustainable development in the construction of housing overall.

2.9 Evolution of EIA in Lesotho

Lesotho is said to be among the first African countries to adopt and introduce EIA (Rantlo, 2015; Tchakounteu, 2021). According to Tchakounteu (2021), with the aid of the World Bank, Lesotho introduced a national strategic plan for environmental protection. EIA was however, not a new concept to the country. It had been in existence well before the introduction of the national strategic plan (Rantlo, 2015). Although it had previously been undertaken voluntarily prior to the strategic plan. The first step the country took in making EIA obligatory for development projects was through the introduction of the National Environmental Action Plan (NEAP) in 1989. This plan defined the National Environmental Policy (NEP) which acknowledged the importance of effective EIA implementation to the policy itself. Lesotho's Constitution concurrently includes the protection of the environment as a fundamental right to all. Section 36 thereof states that the government has a duty to come up with strategies and ways to protect the environment to ensure the welfare of present and future citizens. In essence, it advocates for environmental protection and management that strives for sustainability.

In 1994 after the after the Rio De Janeiro Earth Summit, Lesotho established a new strategy through the introduction of National Action Plan (NAP) which replaced NEAP. The premise of the new plan was to improve the management of natural resources and promote sustainable development. The country further endorsed numerous international environmental conventions which it adheres to such as the convention on biodiversity, climate change and the fight against desertification. It is through NAP that the National Environment Secretariat (NES) now the Department of Environment (DoE) was established (Rantlo, 2015). The mandate of NES was to facilitate the EIA process of major projects. The Secretariat also had to ensure the public participated in the EIA process and that technical reviews were conducted.

NES has played a proactive role in spearheading the EIA process in Lesotho. Among its many functions are 1) to approve EIA consultants as such, 2) to meet with developers at commencement of projects, 3) to approve public participation process for EIA and 4) to decide if a project needs and EIA and oversee its implementation and compliance.

2.9.1 Administrative Authority over EIA in Lesotho

The Department of Environment (DoE) formerly known as NES, is the one vested with the power of overseeing the administration of EIA in Lesotho (Rantlo, 2015; Tchakounteu, 2021). The department plays an advisory and regulatory role in environmental matters. It is responsible for dealing with issues of setting standards and guidelines, monitoring and compliance, publicising environmental information and creating awareness. The Environment Act 10 of 2008 calls for the establishment of environmental units within every ministry. This is done to better integrate environmental consciousness and efficacy of the Act and maximise its efficiency.

2.9.2 EIA Guidelines in Lesotho

EIA guidelines in Lesotho are encompassed in Lesotho's (Environment Act 10 of 2008). These guidelines are aimed to among others 1) integrate environmental considerations into development planning to promote sustainable livelihoods 2) to ensure that unwarranted negative impacts are avoided and mitigated and 3) to ensure that decision makers are provided with information on environmental costs and benefits.

The guidelines also outline the type and scale of development projects that may need an EIA and here are few:

- Major changes in land use
- Any activity out of character with its surrounding
- Designation of new urban areas
- Buildings with total floor space of 500sqm or more

Floor space refers to an area on the floor of a premises where objects may be placed (Collins English Dictionary, Undated). That is the total amount of livable space.

2.9.3 Legal Requirements for an EIA in Lesotho

Lesotho's Environmental Act 10 of 2008 entails the EIA guidelines which outline the requirements for carrying out an EIA dependent on the type, size and location of project which are as follows:

The first requirement is the submission of a project brief and screening. As per Section 20 of the Act, a project brief clearly laying out the following so as to inform the relevant authority, DoE of the nature of the intended project:

- 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 potential effects of the project and evaluation of key issues
- Alternative site and process of the project
- Opportunities and constraints
- Mitigation measures and an environmental management plan

All these will aid and inform the DoE make a decision on whether a project will require an EIA or not before issuing out a license. There are instances where additional information may be required before issuing out a license to clarify some aspects that may be deemed unclear.

Section 21(1) of the Environmental Act provides that, in a situation where an EIA is required the next phase would be submission of an Environmental Impact Assessment report and an Environmental Management Plan (EMP). The EIA is carried out by a specialist/practitioner approved by the DoE (Tchakounteu, 2021). The practitioner is the one that will compile an EIA report which must entail the following components:

- 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
- Identification and description of all direct, indirect, cumulative, short term and long term social, economic and cultural effects of the project
- An indication of the transboundary effects of the project
- An evaluation of the impacts
- Identification of gaps in knowledge and uncertainties encountered during the study and

- A comprehensive mitigation plan

The next phase will then be submission of the report to the Director of Environment to be reviewed as provided for by Section 22 of the Act. The Director reviews the report in consultation with the relevant ministries that are related to the project. If the report is found to be satisfactory it will be subject to public hearing. All people who might potentially be affected by the project will give the remarks/inputs in relation to the project. According to Section 25(2, 3) of the Environment Act 10 of 2008, once the Director is satisfied with the review, a decision is made whether to issue a license for a project or not.

In case an unfavourable decision was made by the Director, Section 25(5) states that a developer can make an appeal against the decision within 30 days of being informed of the decision. And in turn, within 30 days the Director of Environment must issue a Record of Decision affirming, modifying or reversing its earlier decision.

In case where a project's EIA was approved, the ensuing phase will be to monitor the activities of the project that affect the environment. Ensuring that the mitigation and improvement measures provided for in the EIA report are being effectively implemented. The monitoring is done by the DoE in consultation with the ministry in line with the said project.

An environmental audit is another phase that has to be followed in the EIA process. This requirement is mentioned in Section 24 of the Environmental Act. The audit is carried out by the DoE in collaboration with the ministry to which the project is affiliated.

Non-compliance with the Act may result in a fine not less than M5, 000 or imprisonment of no less than two years or both.

2.9.4 Land Administration for Urban Housing in Lesotho

There are two entities in charge of the allocation of land on which to construct housing in Lesotho, namely Lesotho housing and the district and local government/councils. However, in Maseru urban, Lesotho Housing and Land Development Corporation (LHLDC) and Maseru City Council (MCC) are responsible for allocating land. The mandate of the two bodies is to provide residential sites that are serviced. In Maseru, the MCC is also the one responsible for overseeing that stipulated

guidelines are followed when construction of housing takes place. This they implement through issuing of building permits.

2.9.5 Legal Requirements for Housing Construction in Lesotho's Urban Areas

By law in Lesotho, Building Control Act 8 of 1995 section 18, a written approval from the relevant authorities is a prerequisite for commencement of any form of building. The MCC is the one vested with the power to approve and issue out building permit in Maseru urban for any form of construction. The permit does however, not say anything about the environmental implications of such buildings in its stipulations.

2.9.6 EIA and Housing Construction in Lesotho

The law in Lesotho, Environmental Act and EIA guidelines, specify the dimensions of buildings that legally require an EIA. Buildings with a footprint of total floor space of 500m² or more. The average residential house is smaller than this. Individual houses are therefore considered small in accordance with the law to be subjected to an EIA. And the amount of degradation this causes is considered insignificant. However, the amount of environmental degradation caused by the collective construction of houses is over overlooked. There is no EIA to regulate housing construction, especially in newer settlements. Rather, EIA's are done for residential sites in cases where the land was initially used for something else other than housing, like agricultural land.

2.10 Theoretical Framework

This section of the literature will deal with theoretical framework that the researcher found as best suited and applicable for supporting this study. The planning theory of rationalism could be used to inform this study. The rationalism theory operates under the premise that planners and professionals should be put at the centre in informing decision makers on development projects that are meant for public consumption (Morgan, 2012). However, the theory has been criticised for being too rigid, uncompromising and not taking into consideration all stakeholders, especially the public. Despite all criticism, Morgan (2012) asserts that, rationalism remains the best way of planning, the only the thing lacking is to move the power dynamics by making collaborative decision. While EIA on the other hand is a collaborative and participatory process, rationalism does not cater for this. They are therefore incompatible. It is through the collaboration and

affording all stakeholders ‘a stake’ in the decision making that planning with the aid of EIA will achieve sustainable development. It is due to this shortcoming in the rationalism theory that the researcher saw the sustainable development theory as best suited for this study.

To start off, the sustainable development theory was first introduced in 1972 during the United Nations Conference on Human Environment. However, it gained popularity after Brundtland Report in 1987 and later the Earth Summit in 1992 (Mots’oene, 2014). The theory was based on the following principles, living within environmental limits, integrated decision-making and good governance that is democratic, transparent, inclusive, participatory and accountable. Mots’oene, (2014) and Serrat, (2017), similarly state that, the idea of sustainable development actually stems from numerous environmental movements, best defined and embodied in the Brundtland Commission 1987. The theory helps formulate development activities that are people centered, responsive and participatory, multilevel, conducted in partnership with the public and private sectors, dynamic and most important sustainable.

Sustainable development practice is increasingly being accepted worldwide because it supports economic development while considering the environmental protection necessary for our long-term survival (Esseghir and Haouaoui Khouni, 2014; Marques et al, 2018). The concept of sustainable development was further reaffirmed through the introduction of the Sustainable Development Goals (SDG’s) adopted by the United Nations’ member states in the form of Agenda 2030 (Zabihi et al, 2012). SDG 11 in particular talks directly to sustainable cities and communities, by making cities and human settlements inclusive, safe, resilient and sustainable. The SDG has targets that are set out to be achieved by 2030. For purposes of this study we will talk about only three, namely:

- 1.** 11.3, enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries
- 2.** 11.6, reduce the environmental impact of cities, including by paying special attention to air quality and municipal and other waste management

3. 11.8, strong national and regional development planning by supporting positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning (Zabihi, 2012).

In this study, sustainable development theory facilitated the understanding of the importance of EIA in construction of housing in urban Maseru. In its application, it can come up with feasible ways of reducing the negative environmental impacts caused by unregulated cumulative housing construction undertaken by individuals, with the ultimate goal of attaining sustainable development. As a developing country striving for economic development, sustainable development should be the driving force in decision making, especially those concerning the environment and permanent structures such as houses. Where and how houses are built in urban areas plays an important role in the economic growth of nations, Lesotho is not an exception. The use of EIA would therefore play a fundamental role in the attainment of sustainable economic development.

A lot has been written on effectiveness of EIA and the quality of EIA's reports in relation to housing developments. However, the importance of the relationship between EIA and individual housing projects is one that is yet to be clearly defined because there are many cases where its use is still vaguely implicit. Without clear legislative measures or policy in place to outline how the two concepts can co-exist and work together to preserve the environment sustainably, hence the purpose of this study. Legislatures are yet to make sector specific EIA's, especially for the housing industry as it is growing rapidly to try to meet the needs of people.

2.11 Summary

In this chapter, the literature related to EIA and housing construction was reviewed. The researcher gave a brief historical background of the EIA, the steps involved in the process itself, the strengths and weaknesses of the concept. Public participation was also discussed as an integral part of EIA. The evolution, legislative and administrative aspects of EIA in Lesotho, land administration in Maseru urban, legal requirements for building in urban areas and EIA and housing construction in Lesotho were discussed. Lastly the theoretical framework underpinning the study was deliberated. The next chapter discussed the methodology that was used in this study that is how the researcher intended to collect and analyse data.

CHAPTER 3

RESEARCH METHODOLOGY

3.0 Introduction

This chapter deals with how the researcher intends to conduct data collection for the research project by outlining the methodology that was used to carry it out. The following concepts and processes are discussed in this chapter to shed some light on the researcher's approach to collecting data for the study: the research paradigm, research methodology, research design, description of the study area, units of analysis, sampling techniques, data collection techniques, data analysis and ethics. The rationale for choosing the above mentioned method is also outlined.

3.1 Research Paradigm

A research paradigm is described as a collection of logically related assumptions, concepts of propositions that orient thinking and research or the philosophical intent or motivation for undertaking a study (Mackenzie and Knipe, 2006). The interpretivist/constructivist paradigm was chosen for this study. The paradigm is said to strive for understanding the world of human experience. Tubey et al (2015) supports this by stating, the paradigm believes in that meaning is embedded in the participants experience. It is in reference to this paradigm that the researcher intended to interpret the lived experiences of participants in the study. Especially in relation to their understanding of the importance of using EIA in regulating housing construction in urban areas. This was achieved through interpretation of all participants that were involved in the study.

3.2 Research Methodology

Methodology can be defined as a collection of methods or rules by which a particular piece of research is undertaken and the principles, theories and values that underpin a particular approach to research (Mackenzie & Knipe, 2006). The qualitative research methodology has been chosen for this study because, according to (Bhandari, 2020), the methodology involves collecting and analysing data to understand concepts, opinions or experiences. It can be used to gather in depth insights into a problem or generate new ideas for research. According to Antwi et al (2015), the researcher tries to understand the participants from their point of view, in essence the researcher

becomes the instrument of data collection. The researcher in this study choose this method simply because it was the best way to understand how people experience the world. In this case, tried to understand the participants view on the importance of EIA in relation to urban housing construction in Maseru.

3.3 Research Design

The research design is a strategy for answering the research questions through the use of empirical data (McCombes, 2021). Yin (2014) on the other hand explains a research design as a logical plan of going about research. In accordance with these explanations, the researcher in this study made use of the interpretive method which according to Rawat (2021) helps describe, show or summarise data points in a constructive way such that patterns might emerge that fulfill every condition of the data.

This part of the research was fulfilled through the use of the interpretive research design that makes use of, case study, naturalistic observation and survey, and also the review design in the form of literature review (secondary data), which has already been used in the previous chapter. However, in this part of the study, the researcher used naturalistic observations. The researcher has chosen this type of research design for a number of reasons, 1) it is inexpensive and fast, 2) multiple variables can be assessed and 3) it might prompt more studies being done in relation to the subject matter the researcher is tackling.

3.4 Description of Study Area

The study area in this research was Maseru urban. Maseru is the capital city of a small mountainous, sovereign kingdom in Southern Africa called Lesotho. Lesotho as a developing country and Maseru being the economic hub of the country, a lot of rural-urban migration takes place within the city itself and people from other districts also flock here as well (ABIQ, 2021). This makes Maseru urban susceptible to rapid and continuous growth and numerous development projects. This is evident in the rate of housing construction that takes place around the city, especially individual undertakings that collectively are a lot. Maseru urban is quite an expansive area, the researcher therefore choose a number of relatively smaller villages within the city that have a significant amount of construction activity going on as samples, namely, the Maseru South

West (MASOWE) and Motheo villages. These villages were purposely chosen because they are both relatively new and a majority of the houses were constructed after the Environment Act and EIA guidelines came into being.

3.5 Units of Analysis

Unit of analysis is the entity that frames what is being looked at in a study. Majid et al (2018) define it as the study's target population that it intends to study. The authors go on to further state that, in research studies it is often not possible to access the entire population of interest, then a certain portion of the population is studied and from this meaning induced through interpretation. The researcher in this study had a limited time frame and as per Majid could not access the entire population of interest hence the reason only a certain number was sampled. An interpretation was then drawn from that sample. For purposes of this study the following units of data analysis were be used as samples.

- Personnel from the Department of Environment (DoE) in the Ministry of Tourism, Environment
- Personnel from Maseru City Council
- Personnel from Lesotho Housing and Land Development Corporation
- Five(5) EIA Practitioners were interviewed
- Chiefs and or Community Councilors
- Community members from the study areas, twenty (20) members, ten (10) from each village were interviewed.

3.6 Sampling Techniques

Due to the nature of the research questions the researcher found it necessary to engage non probability sampling techniques. This was based on the unit of analysis the researcher was trying to attend to in the study. Purposive sampling was used, this was in pursuit to attain the best possible results from the study that portray validity, credibility and dependability. Data was collected from the Maseru City Council, DoE's personnel and EIA Practitioners, as key informants. The

researcher had contact with one practitioner. The said practitioner was asked to suggest a handful of other practitioners who were then contacted. This snow-ball effect was very useful to the researcher as it increased the number of participants that might have not contacted without referrals. Community members however on the other hand were interviewed randomly. This was done in striving to make the study well rounded and unbiased, equal opportunity to all.

3.7 Data Collection Techniques

These are processes used to gather accurate data from various sources to find answers to research problems, trends and probabilities to evaluate possible outcomes (Simplilearn, 2023). Here, the researcher looked into reviewing what happens in cases of planned housing developments and made a comparative analysis with what happens in individual housing project that are not subject to EIA. Below is a tabulation of methods that were employed to collect data for this study:

3.7.1 Secondary Data

Popenoe et al (2021) define literature review as a synthesis and analysis of published research on a relevant issue and it is a common format for academic theses. They further go on to say the central task of a researcher with reviewing literature is to analyse the results of multiple scientific studies in order to describe the state of knowledge about a particular topic, in order to draw conclusions with methodical applications. Literature was referred to, throughout the whole study, even though a chapter (2) was dedicated to just the literature which tried to, detail as much as possible, what the researcher was discussing in the study. The library, books, internet sources and relevant documents were the basis for the secondary data used in conducting the research project.

3.7.2 Semi-structured Interviews

Rantlo (2015), says, EIA is a process that involves various stakeholders, so interviews with various stakeholders were selected as another method of data collection in this research. It was selected because alleviated any chance of biases the researcher might have been inclined to without the views and representation of different stakeholders. Respondents interviewed for this research were personnel from in DoE, personnel from MCC, personnel from LHLDC, five EIA Practitioners as the key informants in the study. In this way the researcher was able to gather information from people who have relevant knowledge and insight and it is an affordable way to gain a big picture

of situation (Faifua, 2014). Chiefs and Councilors from the study areas and twenty community members from MASOWE and Motheo. Semi-structured interviews used because the researcher saw this as the best approach for the study. It allowed for a more interactive, systematic and objective outcome. Face to face interviews were selected as they enabled the researcher to read participants body language that were very expressive. Telephone interviews were also used where face to face interviews were not possible due to limitations such as unavailability of respondents during work hours. Interviews were also beneficial as they could be conducted at any stage of the research, the researcher also had the liberty of going back for a more detailed exploration of the matter at hand.

3.7.3 Observation

Here the researcher observed at individual level what was really happening to the environment in the selected study areas. Through observations in the form of transact walks, the researcher learned things that were not mentioned during interviews such as rearing of livestock in the study areas, contributing to environmental degradation. In this manner the researcher gained a broader overview of the interaction between, the construction, the environment and the communities in the study areas. According to Johnson, (2023), this form of data collection is more liable to reveal subtleties and complexities that may go unnoticed through other standardised methods of collection. The researcher therefore found this form of data collection very useful in this regard.

3.8 Data Analysis

Data analysis is a process of inspecting, cleansing, transforming and modelling data with the goal of discovering useful information, informing conclusions and supporting decision making. Johnson (2023) describes it as nothing but gathering information by using a proper application or tool which allows one to explore the data and find a pattern in it to get an ultimate conclusion that will inform decision making.

Thematic analysis was used in this study. This is where the researcher highlighted themes or patterns that emerged from the research objectives and the raw data collected in this study. Mohammed Ibrahim (2012), states that thematic analysis is best at clarifying the relationship between the research objectives and the raw data. This is exactly what the researcher had planned

to achieve through this method of analysis. Themes that arose from both the objectives of the study and data collected, were carefully studied, highlighted and conclusions drawn from those patterns which then informed the study itself.

3.9 Validity and Reliability

According to Louw (2014), the researcher has a responsibility to publish the results as they are, without distortion or undue influence on them. In this study the researcher has therefore presented the research findings in a manner that reflected the true response of the participants.

3.10 Research Ethics

Research ethics are a set of rules or guidelines that a researcher uses to try to ensure protection of all parties' involved in the research. According to Mustajoki et al, (2017), the question of research ethics is often brought in studies dealing with human subjects. They are not meant to reprimand researchers as it is often thought. The focus should rather be on a broader perspective of how they can be a positive force in strengthening the community and offering valuable guidance to the researcher and ethical decision maker. Research should be carried out with active engagement of communities instead of it being merely carried out upon them (Friedman Ross et al, 2010). Thus emphasising the importance of ethical considerations. In this research, the following ethical considerations were therefore observed in carrying it out:

3.10.1 Consent

Getting informed consent refers to the process of informing potential research participants about key elements of a research study and what their participation would involve. This is done to give the participant the option of agreeing or disagreeing to participate in the research. The informed consent process is said to be one of the most important components of ethical conduct considerations for research with human subjects (Mustajoki et al, 2017). Perhaps the most important part in data collection of any study is the introduction of the researcher and informing participants what the study is about and what the researcher intends to do with the collected (Mustajoki et al, 2017). The researcher in this study followed this pre-requisite by producing and introductory letters from the National University of Lesotho, which showed authenticity of the study. This was geared towards obtaining informed consent from all those who participated in the

research. This gave the participants a better understanding of what the study was about, and also an option to partake or decline being part of the study at any given time during the research process. Participants were also informed that any information they gave out would be used only for purposes of this academic research study.

3.10.2 Risk

Mustajoki et al (2017) postulate that naturally, studying human subjects is a risky, intricate and complicated process in itself. There are therefore risks involved in undertaking a study in which human subjects are involved. It therefore goes without saying that participants be informed in advance of such risks and be protected by all means. The envisaged risk for this study is individuals house owners (community members) encountering problems due to not following some procedures like obtaining building permits. The community members might not being forthcoming with information as they may consider it as too inquisitive.

3.10.3 Privacy

People's participation in research may be influenced by various reasons, some of which may be very personal, and this give rise to the issue of privacy (Macleod & Mnyaka, 2018). The researcher in this study observed with great care the issue of privacy in line with participants' motives and wishes for partaking in the study. It is also worth mentioning that some of the interview questions directed to community members were very personal and made participants uncomfortable. The researcher however assured them that this information would remain private.

3.10.4 Anonymity and Confidentiality

There are situations in research where participants may wish to remain unknown due to the sensitivity of the subject matter or for other personal reasons. The names and identifying details are hidden from public consumption, in this manner maintaining confidentiality of participants (Macleod & Mnyaka, 2018). The same applied for this study also, those who wished to remain anonymous were afforded such courtesy.

3.10.5 Autonomy

In some occasions, participants want to be known and credited by the researcher for their contribution to the research (Ryerson University, 2015). This ethical consideration was also observed in this study. The participant's wishes were observed, for the researcher had an obligation to respect their requests.

3.11 Limitations

A majority of the interviews were conducted face to face with a few exceptions of EIA practitioners that had very busy schedules. The fact that they had no physical offices also added on to the challenge, but their participation as key informants in the study was vital. The researcher therefore resorted to telephonic interviews, as opposed to the face to face set out at first, to get the data needed, as this proved to be the best way of going about this. Not only this, the researcher had intended to interview five EIA practitioners, however only four were interviewed. This was due to the fact the fifth practitioner had initially agreed to the interview but ended up ignoring the researcher when follow ups to set the time were made. Another issue was that not all home owners were receptive to being interviewed. There were cases where some outright refused to grant the researcher interviews and they were not forced to do so.

3.12 Summary

There have been many studies done on EIA in Lesotho and EIA and housing construction globally, it is however worth noting that a study of this nature is new to Lesotho. It is important to note the relevance of EIA in housing in Lesotho's context, its performance and challenges as a tool used to advance sustainable development. This chapter outlined the methodology through which the researcher went about in collecting data. Different data collection methods have been discussed and their use in the study justified. Data analysis and ethical considerations applied in the study were also expounded on.

CHAPTER 4

DATA PRESENTATION AND ANALYSIS

4.0 Introduction

This chapter presents and analyses the data collected from various participants using semi-structured interviews. The data and then the discussion and interpretation are presented in a synopsis in accordance to the objectives of the study. In this study the following participants were interviewed, twenty home owners, two chiefs and two councilors, one from each village sampled in the study, five EIA Practitioners, one representative from the Department of Environment (DoE), one representative from Maseru City Council (MCC) and one representative from Lesotho Housing and Land Development Corporation (LHLDC). The first section entails the data presentation, where various themes that adhere to the study's objective were discussed. The latter part of the chapter is the discussion and interpretation of the data presented in the first part. The participants in this study were divided into groups, the first being the key informants:

- Professionals herein refers to representative from the DoE, MCC and LHLDC and will be referred to as Professional 1, key informant (*KI*) and the like
- Five EIA Practitioners herein referred to as EIA Practitioner 1 (*KI*), 2 and so on

And the group consisting of:

- Chiefs and Councilors referred to as Chief 1, Councilor 2 respectively
- Homeowners will referred to as Home owner 2 Motheo etcetera

4.1 Demographic Characteristics

In order to understand the importance of EIA in housing construction in urban areas, the demographics of residents/ home owners in the study areas play a significant role in the study. The demographic data will assist in understanding amount and type of environmental challenges housing construction poses. The data will also help in addressing the major negative environmental impacts that affect them in the areas where they live in. This will help in predicting the type and scope of mitigation measures that may be needed.

4.2 Socio-Economic Data

The socio-economic status of home owners in relation to employment showed that a majority of the home owners were employed. Out of the sampled home owners 90% were employed on a full-time basis, while 10% were self-employed and the remaining 10% were retired. In order for sustainability to be effective, the people most concerned, the ones directly interacting with the environment and using resources thereof, have to full understand and partake in the process of sustainable development. It is therefore, of great importance that this study takes in account, the educational and income aspects of the homeowners in trying to understand their interaction with the environment. This data has a bearing on how the community members understand the importance of EIA in housing construction in relation to attainment of sustainability.

4.3 Educational Backgrounds

The educational level of the home owners in this study is of importance as it played a role in gauging the knowledge, awareness and interest of the homeowners in matters that affect them directly or indirectly. The home owners who constructed their own houses were asked about their educational backgrounds. A vast majority of the home owners, 99.8%, had tertiary level education. This showed that the home owners are mostly educated, and because of this, the expectation is that they should be aware of laws in Lesotho. They can easily have access to information via their mobile phones and other media platforms available to them. This would be of importance because when one violates the law, for instance the EIA guideline concerning buildings that require an EIA, ignorance of the law is not an excuse in a court of law.

4.4 Sources of Income

The home owners that were sampled indicated that their sources income varied employment salaries, business income or others. The study showed that out of the total number twenty interviewed, a majority, thirteen, of households were dual income with both parties employed full time. While, three out the twenty are double income households, two home owners had a combination of one employed and self-employed and the last one was a pensioner. All in all, 85% of the households had at least one stable income. This particular aspect was of importance to understand because it is through it that a clear understanding of these communities' environmental

needs and challenges can be met. The income stream can also be an indicator to predicting the ability of the home owners to afford services such as an EIA should there be a need for such. Below is an outline of the themes that emerged during data collection which are now used for the analysis.

4.5 FACTORS WHY HOUSING CONSTRUCTORS EMBRACED THE EIA

Lotteau et al, (2015); Marerro et al, (2020); Rasel and Parvez, (2021), all aver that, as the demand for housing in urban areas in ever growing. Urban planners consequently need a high performance tools like Environmental Assessment, to control and reduce the environmental impacts of such development projects. Siqueira-Gay and Sanchez, (2019) put further emphasis on this stating, building of houses at large scale encroaches on the natural biodiversity and in the process modifies both natural and urban environments and can have significant environmental impacts. The demand for housing in Maseru as a capital city is ever growing. The selected study areas are some of the most rapidly growing in the city and thus a need for a high performance tool to control and reduce environmental impacts. There are a number of factors that would benefit constructors in the use of EIA in housing which are presented below:

4.5.1 Sustainable Development Advancement in Housing

Ameen (2015) stresses that, sustainable development coupled with EIA are now indispensable in decision making in the development of cities. Consequently, EIA is one of the tools that can be used as a sustainability assessment tool and a driver for the pursuit of sustainable pathways.

4.5.1(a) EIA done for Change of Land use not Housing Construction

According to responses given during data collection by some professionals, EIA's are said to be done only in cases of change of land use. For instance, both study areas are said to have previously been used as agricultural land. The Chiefs, both in Motheo and MASOWE, and the authorities at Maseru City Council (MCC) and Lesotho Housing and Land Development Corporation responsible for land allocation in both areas did confirm this. Also, both the MCC and LHLDC representatives did show that EIA's were carried out when the land was being converted from agricultural land to residential sites. One of the key informants clarifies this by saying the following:

The Department of Environment demands EIA's for projects where land conversion is involved – Professional 3, KI.

The above statement indicates that EIA's are in fact, done for change of use of land for housing but not for the construction of the actual houses themselves. However, Lee (2013), submits that, tools that regulate environmental sustainability should be a mandatory building approval requirement. In Lesotho EIA's are only requested for housing developments not individual undertakings, Professional 2 states:

EIA is not a prerequisite in construction of individual housing, however there are ways in which environmental impacts are regulated like through the use of a building permit – Professional 2, KI.

Nevertheless, the use of EIA only for change of land use or housing developments does not mean there are no measures in place to regulate individual housing in pursuit of sustainability. Below are some of the ways in which sustainable development is being advanced in Lesotho's housing industry, in particular Maseru urban areas alternative to the use of EIA.

4.5.1(b) Land Acquisition

Matters pertaining to land allocation are encapsulated in Lesotho Land Act 8 of 2010 which replaced the 1979 Land Act. In urban Maseru, the MCC and LHLDC are the two bodies mandated with allocation of land. In accordance to the data collected, the land on which the houses sampled in this study are constructed on was purchased through the two bodies responsible for allocating land in Maseru urban, LHLDC for MASOWE and MCC for Motheo. There is one exception though in MASOWE where one participant has inherited their site. With 95% of the home owners saying they acquired land from the two bodies that have power to assign land in Maseru urban, the understanding would be that the pre-conditions that have to be met before construction of houses are properly communicated to the home owners after purchasing land, such as obtaining a building permit.

4.5.1(c) Building Permit

A building permit is a document that allows a person to construct a house on an allotted site. This permit is issued by the MCC after submission an application clearly outlining what a site owner

intends to build on their site. A proposal of a house plan indicating the type and size of house to be build is included in the application. It is only upon approval by the relevant authority, the MCC, that construction would take place (Building Control Act 8 of 1995).

In the sampled study areas, a relatively large number, 95% of the home owners, allege they had acquired a building permit before beginning of construction, the remaining 5% says they did not acquire it. Those who had acquired the permit did not know the contents or rather the terms and conditions of the permit. The only thing they remember is the boundaries lines they have to observe. Homeowners 6 Motheo has this to say concerning the issue and their knowledge of the contents of the permit:

The only thing I remember is that we were told to leave a distance of 2.5 metres on all sides of our houses to the borderlines of our sites. This is for in cases of fire, should my house be on fire, the neighbour's house will not easily be affected – Home owner 6, Motheo.

Nonetheless, they did not adhere to this one stipulation they seem to remember from what the researcher observed. The understanding would be that within the building permit, there be stipulations of expectations on the side of home owners in relation to the environment. However, the permit has no environmental implications or repercussions in relation to house construction. The permit therefore does not cover the environmental implications of housing construction on the environment and thus a need for a more detailed and extensive EIA guideline or legislation in the housing sector.

4.5.1(d) Type and Number of Houses on Allotted Site

The issue of the types of houses constructed in the study areas is of paramount importance. It plays an important role as it can be the determining factor of whether an EIA should be undertaken or not as per EIA guidelines. Varying types of houses have different impacts on the environment. The density bearing and environmental implications of a single storey house are far more different compared to those of a double or triple storey house.

The type and size of house have varying implications on the environment. For instance, according to Drouilles et al, (2019), an ingenious way the Swiss government has tried to effectively minimise the impacts of housing construction on the environment is by encouraging the building of multi-

family or row houses as opposed to single-family houses. The type of houses found in the study areas varied in size and appearance across these areas, from single storey two roomed houses to fifteen roomed double storey house, but they were all single family homes. Every person gets to build whatever she or he wants. There is no demarcation on where various types or sizes of houses one gets to be build.

There is also the matter of the number of buildings build on site. One home owner in one of the study areas had multiple buildings one site. The additional building was an extension of the main house, a bedroom a double garage. Home owner 4 from Motheo:

I converted the garage in the main house to a bedroom as I needed more space. After that I build the standalone extension that house a bedroom and double garage – Home owner 4, Motheo.

The home owner indicates that they have not acquired a building permit for the extension. This means that the MCC is not aware of this new extension and are not aware to consider such to undergo an EIA. An extension means more floor space as opposed to the original floor space that appear in the application for a building permit on that particular site. They are also not be aware to provide to correct amount of services to such a household. The findings of this research have unveiled that EIA is used in housing only in cases of large scale change of land use or large housing developments not for individual house construction undertakings.

4.6 EIA USAGE IN HOUSING CONSTRUCTION IN MASERU URBAN

4.6.1 General EIA Implementation

Rantlo (2015) and Tchakounteu (2021), assert that EIA reports in Lesotho are of poor quality. The findings in this study correlate with this. Professionals interviewed in the study also point out that EIA in Lesotho is still a far way off from being full appreciated and benefits being reaped from the tool that can sustain the environment for the future through proper implementation. There is still a long way to go before the tool is fully appreciated and implemented to its fullest capacity and capability. For instance, EIA Practitioner 1 had this to say about EIA implementation:

At the moment EIA studies are mainly carried out by developers when attached to funding. On a normal basis, it is not easy to carry them out. I think one reason would be costs inherent to such studies. Most developers do not see the value in such studies. When the movement began in the

1970's it got into the play field of engineers who were considered smart and now environmentalism comes in as some sort of a stumbling block and some perceptions are it is against development – EIA Practitioner 1, KI.

4.6.2 EIA Implementation in Housing Construction

The study discovered that, home owners are not aware of EIA generally, let alone EIA in housing. They are only required to obtain building permits, irrespective of the size of building they want to construct. This is despite the fact that the permit does not say anything about the environmental implications of houses. All the professionals and EIA practitioners that participated in the study say carrying out an EIA on housing construction is a futile exercise because EIA's are too costly, both financially and time wise. This is despite the clear stipulations in the EIA guidelines with reference to buildings with a floor space of 500 square metres (sqm) or more. And as mentioned above there are houses with that much floor space. Moreover, the authorities fail to guide home owners building house that have a floor space of 500 sqm or above about the requirement of an EIA in such cases. As mentioned previously in this chapter, 20% of the sampled houses had a floor space of over 500 sqms. The study revealed that irrespective of the EIA guidelines requiring an EIA for construction of 'buildings' with a floor space of 500 sqm or more, this is loosely taken not to be in relation to housing and thereby totally disregarded.

According to the Key informants, the lack of will power, from the authorities, and human resources to oversee the enforcement and compliance issues not just for housing, but all development projects that have to undergo an EIA in various fields is a real problem in Lesotho. Professional 1 emphasises this by saying:

We do not have enough people to ensure that the EIA requirements in each and every project are adhered to timely, let alone for housing construction. Another issue is that follow-ups are a challenge because of resources, both human and other types such as transportation and financial support to the department (DoE). Environmental audits are also deficient due to limited resources – Professional 1, KI.

4.7 CHALLENGES FACED IN IMPLEMENTING THE EIA IN HOUSING PROJECTS

The study discovered a number of challenges that hinder EIA implementation in individual housing projects and they are as follows:

4.7.1 EIA Guidelines too General

A professional interviewed points out that, Lesotho's EIA guidelines are too broad and general to cater for housing construction. The demarcation of the size of a building that requires an EIA is unclear, not only this, the building referred to in the guidelines is not specific to houses. This is how Professional 1 speaks on this issue:

The EIA guidelines are too general overall, they need to be narrowed down and clarified so that they address specific issues in specific sectors – Professional 1, KI.

4.7.2 Outdated Laws and Policies

The laws used in house planning and construction in Lesotho are very old (ABIQ, 2021). They do not meet the needs and demands of modern standards especially with regard to sustainable development. Professional 1 highlights this and says:

Our laws and policies relating to housing and planning are outdated. We use laws from the 1980's like that fall short of what is needed currently – Professional 1, KI.

4.7.3 Scale too Large

According to Lesotho's EIA guidelines construction of any building with a floor space of 500 square metres (sqm) and above must be subject to an EIA, (Environment Act 10 Of 2008). The professionals interviewed for the study point out that the general thinking in Lesotho is that most houses in Lesotho have a floor space that is less than the 500sqm. However, in one of the study areas, Motheo in particular, there are several, four to be exact, double storey houses with floor space exceeding 500sqm out of the sampled group of ten. There is also one site that has multiple buildings on a single site amounting to a floor space exceeding 500sqm. The home owners of these houses report to have only gotten building permits not EIA's for construction of their houses. They

were unaware that buildings of this size are required to undergo an EIA. This is consistent with what EIA Practitioner 3 articulates:

EIA should be carried out for floor plan covering 500sqm but people are not aware –EIA Practitioner 3, KI.

4.7.4 Process too Costly and Long

According Brangagnolo et al, (2017), the EIA process is time consuming. Four out of five EIA practitioners and two out of the three Professionals, interviewed did acknowledge that building permits were in fact falling short to regulating negative environmental impacts caused by housing construction. They were, nonetheless, quick to point out that EIA's on the other hand are very expensive and impractical for housing construction as things stand, EIA Practitioner 1 went as far as to say:

You do not need an EIA process for a residential house. A town Master plan and building permit would do. Let me put it in context, in the case of mines, for mine exploration stage we do a project brief and EIA is only done at the full scale mining phase. And for housing the scale is very small. It is like killing an ant with a bomb. EIA studies are much more intense and would not be practical for construction of a house – EIA Practitioner 1, KI.

On the same point another practitioner, EIA practitioner 3 adds that:

Even with building permits it is still a problem due to cost and value, what more with an EIA – EIA Practitioner 3, KI.

Not only is the EIA process costly, but in some cases the cost of carrying out an EIA does not always yield the desired outcome. EIA practitioner 2 puts it as such:

The institutional stakeholders can delay the process and with very minimal values when you finally get them –EIA Practitioner 2, KI.

4.7.5 Public Participation

Mots'oene, (2014), public participation is largely considered an integral part in the EIA process. It is deemed to foster a democratic policy-making approach to EIA rendering it more effective.

This is achieved by making participation transparent, inclusive, participatory and accountable. Moreover, this is in correlation with the guiding principles of sustainable development.

When it comes to EIA public participation in Lesotho, the numbers are not favourable for urban areas. This is generally due to fatigue on the part of the public residing in such areas because of the frequency of development project taking place. They are constantly subjected to various forms of researches, even those that are not EIA related, to a point where they are not interested in participating in matters that affect them. The only interest they show is when they have something material to gain as Professional 2 points out:

EIA is a long strenuous process and people are not that patient to participate in it, especially if the gain is not physical or instant – Professional 2, KI.

Professional 1 affirms this by saying:

There are instances where the public flat out refuses to partake in the EIA process because there are not donations or temporary jobs involved – Professional 1, KI.

4.7.5(a) Perception of Professionals and EIA Practitioners on Public Participation

The professional that were interviewed for this study pointed out a few issues that contribute to the disinterest in taking part in EIA by the public. EIA Practitioner 2 talks on this in relation to public participation:

In other districts there are not many issues, Maseru as a district is problematic when it comes to public participation in EIA – EIA Practitioner 2, KI.

4.7.5 (a(i)) Public Fatigue

Lesotho is a developing country and with this comes a number of development projects, especially in Maseru which is the capital city. These developmental projects mean EIA's are generally being done frequently for various projects. In the EIA process public participation is key in the success of the project. However, with the frequency of projects being carried out either simultaneously or consecutively the public is showing signs of fatigue. Professional 1 even indicates this by saying:

They simply refused to be part of this projects, some of which are going to benefit them directly – Professional 1, KI.

4.7.6 (a(ii)) Lack of Knowledge and Interest

A huge number, 95%, of the home owners have no knowledge of EIA. This may be attributed to the lack of interest on the part of the public. Similarly, the authority responsible for the administration of EIA is not playing an active role in educating the general public about EIA or how important it is, especially to sustainable development. Professional 2 says:

The general public still do not know anything about the EIA or its importance in relation to environmental management – Professional 2, KI.

4.7.5 (a(iii)) Home Owner's Knowledge and Awareness of Lesotho's Environment Act and EIA Guidelines

One other reason for the lack of effectiveness when it comes to the scarcity of public participation in EIA in the study areas is lack of knowledge about legislation that governs environmental issues in Lesotho as a whole. About 95% of home owners that participated in the study showed no knowledge of Lesotho's Environmental Act 10 Of 2008 or the EIA guidelines. And a few that had an idea of what EIA is just knew what EIA means in full not it's importance or usage in various activities, such construction, that humans undertake involving the environment. Conversely, 95% of the home owners stated they acquired a building permit prior to constructing their houses. The one measure in place in regulation environmental impact of collective individual housing construction. Though, none of them new the regulations and conditions of the permit. This shows that awareness on this subject matter was there, they participants just did not regard the components of the permit as important. Awareness, which is an important aspect as it makes people conscious and accountable for their actions.

4.8 ENVIRONMENTAL CHALLENGES IN THE STUDY AREAS CAUSED BY HOUSING CONSTRUCTION THAT CAN BE ADDRESSED THROUGH THE USE OF EIA

There are environmental challenges that caused but the construction which may otherwise be curbed through the use of EIA as an environmental management tool. As mentioned before in this chapter, both MASOWE and Motheo are areas that were initially agricultural land before they were used as residential areas. It therefore goes without saying that the type of environmental challenges in these areas have evolved with the change in land use. The land is being subjected to

a lot more activity than when it was just agricultural land. Not only this, these two areas are some of the newly established and most sort after residential areas in Maseru urban. A lot of construction therefore takes place at a rapid pace in these areas and with this comes a multitude of problems such as:

4.8.1 Pollution

The Chiefs in both areas highlight pollution as one of the major environmental problems they face in their respective areas. They directly attribute this to the establishment of the new and growing human settlements in their areas. The most prominent environmental issue they talk about is that of garbage pollution:

4.8.1(a) Garbage Pollution

Garbage is one of the more prominent pollutants in the areas sampled in this research study. Whether it be garbage resulting directly from the construction of house or that generated from everyday life. The disposal of this garbage is one of the major environmental challenges both the home owners and the chiefs in particular, said they faced in the study areas sampled. Chief 1 states:

Dumping sites appear everywhere, with no proper ways of disposing of such. I do not understand this because MCC is the one giving out sites, it is also the one responsible for garbage collection- Chief 1.

Below is an image of one of the unofficial dumping site that the residents in Motheo have established along the Main South One road. It is a new dumping site that was not in existence before houses were built in the area.



Image 4.8.1 (a) *the unofficial dumping site along Main South One in Motheo (Setleketseng)*

Source: *Image taken by researcher during field work, May 2023*

Another compounding factor is that, people in this villages are middle working class and their consumption level is higher, 85 % of the households have stable incomes. This translates to increased levels of waste and garbage generation in direct contradiction to lack of garbage removal services thereof. One Chief even showed that since of the unofficial dumping site is along the main road passers-by take advantage of this on their way to various destinations, Chief 1:

They simply dump their garbage there, most of them coming from wherever they are from – Chief 1.

The community members on the other hand report to using various methods of disposing of their garbage, from hiring contracted workers who collect the garbage to dispose of on designated sites to burning the garbage themselves in their own backyards. The designated dumping sites are no better the unofficial dumping site.

Below is an image of what the purported designated dumping site in MASOWE looks like.



Image 4.8.1(a(i)) a designated dumping site in MASOWE

Source: Image taken by researcher during field work, May 2023

Not all residents in the study areas take their garbage to garbage sites or burn it, some resort to the easiest and most convenient ways they found appropriate to them. Homeowner 2 from MASOWE had this to say:

There is a donga in front of my house. There are people who dispose of their diapers and leave them as is, there are others that burn their garbage and the smoke comes and fills our homes and this affects us. Not only this, the donga when it rains becomes very muddy making it unusable as a route for people who use it. As a result, they resort to walking inside my yard because it is unfenced leaving behind a muddy mess – Home owner 2, Motheo.

4.8.1(b) Air Pollution

Air pollution was yet another form of pollution that the home owners talk about. This, they point out is caused by smoke caused by people burning their garbage as a method to disposing of it, Homeowner 2 from MASOWE states:

There are people who dispose of their diapers there, while others burn their garbage and the smoke comes and fills our homes and this affects us – Home owner 2, MASOWE.

Below is an image of what the donga, where some community members in the MASOWE area dispose of their garbage by burning looks like.



Image 4.8.1 (b) showing the donga where some community members burn their garbage

Source: Image taken by researcher during field work, May 2023

4.8.1(c) Sewage

Sewage spills are another form of pollution found in the study areas. There were sewers visibly overflowing in the street in Motheo when the researcher went to the area. The home owners in this study area state that there is no sewer line in their village. This, they say, has led them to resorting to septic tanks. Home owner 3 from Motheo states:

The overflow from these tanks during rainy seasons is even more problematic. The run-off from the tanks goes into neighbour's yards and public roads. The raw sewer smells and it becomes fertile ground for breeding various types of diseases – Home owner 3, Motheo.

This, they say is harmful and making them prone to catching diseases from the contamination, especially their children who play on the very streets that are filled with raw sewage. The community members in Motheo point out that they have contacted responsible authorities, the Water and Sewage Company (WASCO) to ask them to install sewer lines. Their plea was rejected as there was no place, according to the company, close to the village to establish a sewage treatment plant. Home owner 6 from Motheo points out that:

When we bought the sites, we were told that a sewer line is going to be installed to serve surrounding communities together with the proposed tertiary school close by, however, this has not materialised –Home owner 6, Motheo.

According to one of the professionals however, the lack of services in the study areas can not solely be attributed to the service providers. The home owners themselves have extended the boundaries lines on their sites and in some cases infringed on service sites, Professional 2 stresses:

One of the major stumbling blocks when it comes to waste management is encroachment to servitude zones by the home owners. This leads to blockage of drainage systems resulting in flooding –Professional 2, KI.

4.8.2 Erosion/ Land Degradation

Another major challenge that the home owners in the study areas highlight is soil erosion. The roads in both areas of study are dirt roads, which are not gravel and consequently prone to being washed of by rain. One other factor causing this erosion according to the home owners, is the continuous heavy vehicle traffic to construction sites. Both areas are some of the most sort after in Maseru. Construction in both areas in always very active. Home owner 9 from Motheo in relation to erosion says:

When it rains, the roads get so muddy to a point where getting to our homes becomes a challenge. It does not matter whether you own a car or are a pedestrian, using the roads is problematic – Home owner 9, Motheo.

The next two images show how some of the roads in Motheo and MASOWE, respectively, look like after it has rained.



Image 4.8.2 (a) *A dirt road in Motheo after some rain fall*

Source: *Image taken by researcher during field work, May 2023*



Image 4.8.2(b) *A dirt road in MASOWE*

Source: Image taken by researcher during field work, May 2023

4.8.3 Mitigation to the Challenges as Suggested by Key Informants

There are suggestions made by EIA Practitioners, Professionals, Chiefs and community members that participated in the study to address some of the issues prevalent in the study areas and they are as follows:

EIA Practitioner 1 highlighted the importance of decentralising the EIA process and making it easily accessible, cutting down on both cost and duration.

The Department of Environment in conjunction with community councils should do districts EIA's at costs by the government and implement them through councils, as the councils are involved in the administration of land resources – EIA Practitioner 1, KI.

Professional 2 talking on the issue of follow ups says:

Enforcement in the form of inspection of set rules and regulations, would play a pivotal role in insuring the success of EIA in all aspects – Professional 2, KI.

Professionals 1 and 2 both agreed that the guidelines were too general. There was a need for specific guidelines governing specific sector. Professional 2 went on to further point out:

A need for an EIA Act catering to very specific things that the current guidelines have left out such as housing construction – Professional 2, KI.

Professional 3 talks of: *Supervision on what are supposed to be service site projects to ensure that home owners do not beyond that boundaries so that services can be easily installed where necessary – Professional 3, KI.*

4.8.3 (a) Policing and Awareness

Educational campaigns on different media platforms talking about the environment, to raise awareness on how and why the environment should be looked after will be of great importance, Professional 1 says that:

There was policing by the MCC in Motheo at some point that dealt with garbage disposal, however at the moment that is no longer the case due to financial constraints – Professional 1, KI.

On same notion of policing another Professional 3 emphasises that:

Regulation, monitoring and consistent collection of waste material in all forms would be a remedy for most of these problems, but only if people are willing to pay such services – Professional 3, KI.

4.8.3(b) Construction of Gravel or Tar Roads with Proper Drainage

Installation of proper tarred or gravel roads in the study areas that are more durable than dirt roads with good drainage systems is considered another way in which the environmental challenges in the study areas could be solved long term. Homeowner 10 in Motheo suggests that:

Proper drainage systems would be very helpful because the locations of some homes are on slopes. The drainage would also help to avoid conflicts among the community members that are caused by improper self-made drains that diverts water or sewerage into neighbours' yards – Home owner 10, Motheo.

4.8.3(c) Installation of a Sewage Line in Motheo

A proper sewage disposal system would avert a lot of undesirable things such as illnesses, conflicts among neighbours and the unpleasant smell.

A sewage line would not only save us the cost of a the monthly septic tank drainage but it would also eliminate the risk of getting sick due to contamination from the sewage and eliminate conflicts among neighbours caused by leaking septic tanks – Home owner 7, Motheo.

4.9 DISCUSSION AND INTERPRETATION

This section of the chapter will discuss and interpret the data presented above though linking it to both the literature reviewed for the study and the chosen theory both appearing in chapter two. The research objective will be used guidelines to better aid make the discussion clear and coherent.

4.9.1 Significance of EIA in Housing Construction and How it Advances Sustainable Development

According to Dutta and Sengupta (2014), the construction industry is one of the major contributors to environmental problems faced by the world currently. Rasel and Parvez, (2021), there is therefore a need for a high performance tool to aid negate the negative environmental impacts caused by housing construction and EIA is one such tool. This study however found that EIA is not a significant part of housing construction in Maseru urban, despite its importance as mentioned by other scholars or the fact that there are guidelines in Lesotho that outline the importance of the tool.

The total disregard of EIA in the housing construction industry affects sustainable development, a notion that came about as a result of environmental abuse through the mismanagement of natural resources (Mots'oene, 2014). Zabihi (2012) further argues that SDG 11 advocates for sustainable cities and communities, by making cities and human settlements inclusive, safe, resilient and sustainable. The findings in this study nonetheless, indicate that EIA is not used as an environmental management tool in pursuit of sustainable development, even though there are mechanisms in place, such as the EIA guidelines. There is rather a building permit that one has to obtain prior to construction of a house. The permit itself, conversely, does not adequately respond to the endeavor of good environmental management practices or sustainable development. The study also found that in 100% of the houses sampled EIA use was non-existent. The study areas are therefore plagued with persistent environmental challenges that even the responsible authorities do not know where or how to begin addressing. The environmental degradation is spreading almost as rapidly as the need for new human settlements in the city to accommodate the growing population. Natural resources are being mismanaged and the prospects of a safe, inclusive, resilient or sustainable human settlements at this point seem far-fetched.

4.9.2 The Extent of the Use of EIA in Housing Construction

Sustainable Development Goal (SDG) 11.8 talks about a need for strong national and regional development planning by supporting positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning (Zabihi, 2012). This is in effort to cater for the growing population in cities leading to further urbanisation and need for provision of basic needs like shelter (Siqueira-Gay and Sanchez, 2019). The demand for housing in urban areas in ever-growing, urban planners need a high-performance tools like Environmental Assessment, to control and reduce the environmental impacts of such development projects (Lotteau et al, (2015); Marerro et al, (2020); Rasel and Parvez, (2021)). The results in this study, on the other hand, indicate that 100 percent of the houses sampled in this study were not subjected to an EIA prior to the construction of such houses. Not only this, no EIA's were requested for the 20% of houses that had floor space of 500 sqm in the study areas, this is irrespective of the clearly outlined EIA guidelines requirements. Even though there are EIA guidelines that oversee the environmental management relating to construction of buildings, there are still drawbacks that need to be dealt with. One in particular being the EIA guidelines does not define what floor space is. But when taken in its literal meaning, floor space is the total area of 'livable' space. The study findings thus reflect a need for EIA in housing construction of buildings with a floor space exceeding 500sqm regardless of whether the building is residential and individually constructed. This in line with Lesotho's existing EIA guidelines, provided for in the Environmental Act 10 of 2008.

There is also the fact that the body responsible for issuing out building permits is not observant enough to identify applications for permits of buildings that actually have a floor space of 500 sqm or more. This oversight shows that even the law enforcement body is not diligent enough to distinguish cases that have a need for the use of the EIA guidelines. The matter of the scale being too large does not apply to all cases when it comes to housing construction. The environmental implications of constructing buildings of this magnitude without carrying out any EIA are simply dismissed. EIA is therefore has no relevance in housing construction in urban Maseru.

4.9.3 Challenges Faced in the Implementation of EIA in Housing Construction

According to Zabihi, (2012) one of SDG 11's target is to enhance inclusive and sustainable urbanisation and capacity for participatory, integrated and sustainable human settlement planning and management in all countries. A few more scholars share the same sentiments with him, Hasan, (2018), Roque de Oliveria and Patidario (2020), they affirm that, public involvement is vital for the success of projects where the public is a stakeholder in one form or another.

The findings of this study however, indicate that there are a number of challenges that characterise the use of EIA in housing projects. Findings of the study show that lack of political will, lack of public participation due to fatigue, lack of interest or knowledge, as put forth by a key informant, are the most prominent features that hinder proper implementation of the EIA process in Lesotho generally. The study areas are no exception to this. The lack of knowledge or awareness of Lesotho's Environmental laws and total disregard for all forms of environmental problems in the sampled areas demonstrates the disinterest in matters relating to the environment by the public. It therefore goes without saying this lack of interest or knowledge is not a conducive platform for the public to take part in the EIA process.

4.9.4 The Use of EIA in Addressing Environmental Issues that are caused by Housing Construction

Maria et al, (2017), state that, EIA in housing construction does not just look at the footprint physical structure, but it also takes into account all other services that go along with such as waste management, water and electrical provision. More especially so in urban areas where a multitude of services are needed in just one household. According to the study, the non-existent use of EIA in the housing construction industry mean the tool does in fact to the environmental problems that are a consequence on housing construction in the study areas. For instance, pollution in all forms and land degradation are among some of the issues that fail to be addressed.

4.10 Summary

This chapter was a presentation of the data collected on the relevance of EIA in housing construction in Maseru urban. It also presented the environmental challenges that people in the study areas faced and proposed mitigation measures that would combat these challenges. What was drawn from the data was that, by law housing developments in Lesotho are required to be subjected to EIA while individual house construction is considered to too small, however, they

collective cause as much damage as housing developments, if not more because they cover more land, on the environment. Yet they are not required to undergo EIA because of the supposition that houses in Lesotho are generally smaller than 500 sqms. But then again buildings with a floor space of more than 500 sqms are required to undergo an EIA, yet this is not the case for houses that have the stipulated floor space or more. The next chapter dealt with the summary, conclusions and recommendations.

CHAPTER 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

In this chapter the summary, conclusions and recommendations of the study are presented. The chapter is divided into three sections, that is the summary of findings as the first, followed by concluding remarks on each specific objective, and lastly the recommendations as said by all the participants and the researcher in this study.

5.1 Summary

Lesotho is a developing country, which like other countries in the same position, has a lot of on-going development activity. More so in urban areas where people flock to pursue a better life leading to a lot of urbanisation. The urbanisation in turn means housing need for housing for the growing urban population. With this need comes encroachment of land to build housing for the growing population on, mostly barren, agricultural land. This change in land use translates to implications that in some instances are unwanted and detrimental to the wellbeing of the very urban population and the environment thereof. This is where a need for an intervention from authorities, government in this case, arises. In an effort to address of the implications of the growing population on the environment, the Environment Act 10 of 2008 entailing EIA guidelines, is an important environmental management tool that contributes to sustainable development.

According to the EIA guidelines there are specifications on what size buildings, floor space of 500 sqm or more, have to subject to EIA.

Housing developments are subjected to EIA, however, the accumulation of individual housing construction and buildings with a total floor space exiting 500sqms are simply disregarded and not put through an EIA. These EIA's done for change of land use predict what may happen when human settlements are established, but they miss the mark by a wide margin because there is no demarcation of what type or size of house is build where. It therefore follows that EIA specific to housing construction needed to compensate for the lack of planning, but more importantly to better

manage the environmental impact of such activity and attain sound sustainable development for Lesotho.

5.2 Conclusions for Specific Objectives

The initial hypothesis of the study was that EIA has been introduced in Lesotho since 2008, yet its use in housing construction is non-existent. The outcomes of the study showed that EIA is only used for housing development not individual housing constructions, irrespective of the size of the building or accumulative negative impacts that the individual undertakings have on the environment as a collective.

5.2.1 Discuss the Significance of the EIA in Housing Construction and how it can Advance Sustainable Development

The lack of legislative clarity results in inconsistent interpretation and application of EIA guidelines. This has led to EIA's not being carried out even in cases where there was a need for such. It therefore follows that EIA does not play any role in the construction of housing in urban Maseru.

The whole idea behind sustainable development is to use resources in a manner that the current and future generations enjoy those resources in the same way. The land on which the houses in the study areas are built on is land that was initially agricultural land. This change in land use itself has already denied future generations from enjoying the benefits of the agricultural land and produce from that land. This is in contrast with the theory of sustainable development. Even after the change in land use, the environment is not being looked after in such that future generations residing in the study areas will enjoy, some if not the same amenities that the current residents do. For instance, the amount of pollution and land degradation taking place in these areas goes on undeterred.

5.2.2 Assess the Extent to which the EIA is being used in the Housing Construction Industry in Maseru

The key informants in the study point out that Lesotho's EIA guidelines are unclear. The guidelines talk of EIA in relation to buildings construction, however, it does not specific or categorise the buildings. The findings of the study show a need to classify various buildings to subject to EIA's

depending on their impacts on the environment. In housing construction, the sizes and types of houses differ vastly and so is their impact on the environment. There therefore need to be a clear demarcation on sizes in order to attain sustainability.

5.2.3 Explain the Challenges Faced in the Implementation of EIA in Housing Projects

There were many issues that were brought up during data collection pertaining to the whole EIA process itself. Firstly, the lack of personnel to properly monitor the on-going EIA's all in one and on time. The monitoring after decommissioning of projects is also a struggle due projects out numbering the personnel from the DoE.

Amongst the public interviewed in this study, only 5% even knew about EIA, the remaining 95% did not know what it was. Even the 5% that knew just knew what it meant not what it entails. The study therefore revealed due to the lack of knowledge of what the EIA concept is. The sampled public had never taken part in any consultations in any EIA process. Public participation in the EIA is more effective in other districts and rural areas as opposed to Maseru as said by of the EIA practitioners interviewed for the study. Another issue unveiled by this study is that, the EIA process is also too long and costly, this was verified by Professionals and EIA practitioners engaged for purposes of this study. It is therefore impractical for housing construction as things stand.

5.2.4 Assess how EIA is Used to address Issues caused by Housing Construction in Maseru Urban

The study revealed that there are numerous environmental issues caused by housing construction in Maseru urban, especially because houses are built on land that was initially used for agricultural purposes. The lack of EIA use in the house construction industry mean the tool is not being used to address issues caused by the industry.

It is the conclusion of this study as revealed by the findings, the EIA presently has no relevance in the housing construction in Maseru urban and this is despite the accumulation of environmental problems that are caused by such.

5.3 Recommendations

The recommendations in this study are based on the opinions expressed in the findings by various participants in relation to this research and are therefore not conclusive. The issue of EIA and housing is one that has never been explored in Lesotho until. There are still a lot of gaps to be explored by other scholars in relation the subject matter.

In this study it was found that environmental degradation caused by cumulative individual housing construction poses a great threat to the environment and requires a high performance and effective management tool. Current efforts on environmental management in place for housing construction have proved to be ineffective. The home owners showed that the environmental state in their areas was bad and needed to be attended to. The study therefore recommends development of an EIA system appropriate for Lesotho's context. Furthermore, a more cost effective alternative, specific housing, to EIA to developed.

Compounding human settlements due to urbanisation does not have a one size fits solution. The prevalence of this issue is one that needs to be approached cautiously, especially in a developing country like Lesotho. The aim being to safeguard the environment through stringent measures. The study thus recommends the enactment of legislation that specifically and solely deals with the EIA that is the formulation of an EIA Act which is comprehensive and effective, and accommodates sector specific EIA's. This according to the study is one of many ways sustainable development, use of natural resources for current and future generations, can be attainable. If not taken seriously now, environmental degradation is bound to have consequences that are far-reaching. Thereby, defeating the whole notion of sustainable development, undoubtedly to the peril of the planet earth and its future.

The issue of site demarcation is also an important one to consider. Houses sampled in the study were of different sizes, ranging from a two roomed houses to a fifteen roomed. Clear demarcation will serve as means to grouping and sorting houses by size. This will make it easier for both authorities and home owners to know when their buildings requires an EIA or not.

The study also recommends site audits by the authorities responsible for site allocation. The audits will be to ensure that home owners stay with their borderlines, to avoid any encroachment on

servitude zones. In order to achieve this, building and maintaining adequate human resource capacity to oversee the EIA process from the beginning to the end is necessary.

Another recommendation is that the public should be taught of EIA and environmental management generally, this will foster a sense of ownership of the environment. In return participate in matters relating to their environment in a meaningful manner.

The last recommendation is for more scholars to do research related to EIA and different sectors in Lesotho that will aid in policy matters and contribute to literature overall.

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Annexes

Interview guides

Annex A. Home Owners as Participants

1. Name
2. Gender
3. Educational level and background
4. Occupation
5. Main source of income
6. How did you acquire your site? (Inheritance, gift or purchased)
7. Were there any requirements before building on your site? (building permit..)
8. Number of buildings on your site?
9. Type/types of buildings on site?
10. Number of rooms the house has?
11. Do you have access to water (WASCO/ others) and electricity?
12. What is your method of garbage disposal? (burning, a hired contractor that collects the garbage)
13. What are the main environmental challenges in your area?
14. What are the causes of this challenges?
15. How can they be remedied?
16. Do you know about EIA?

Annex B. Professionals and EIA Practitioners

1. Lesotho has an Environmental Act, which entails an EIA requirement, is the requirement being well implemented generally? State reasons for your answer?
2. What are the challenges with implementing the Act specifically in relation to housing?
3. What are the key environmental impacts specifically relating to housing?
4. What in your opinion needs to be done to remedy the situation?
5. What are the challenges pertaining to public participation in the EIA process in Lesotho?
6. Does the Environmental Act and the EIA regulations adequately cover issues related to the proper implementation of EIA with respect to housing?
7. Does your department get the proper the necessary support from other government ministries? If no, what support is required and why is it not getting that support?
8. What are they key environmental problems encountered by residents of unplanned settlements for which EIA has not been underwritten?

Annex C. Chiefs and Community Councilors

1. What are the key environmental problems in your area?
2. Which problems are caused by housing?
3. Which problems impact housing?
4. What was the land used for before building of those houses?
5. What were the key environmental challenges then?
6. Do you know about EIA? If yes, what do you know?