The efficiency of Social Impact Assessment (SIA) in South African renewable energy projects

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ABSTRACT

Social Impact Assessment (SIA) determines the social impacts that a development could have on the environment, including social and cultural impacts on communities involved, and it suggests mitigation measures to minimize the negative impacts that a proposed development might hold. Section 24 of South Africa's Constitution highlights human rights in a sustainable environment and it became evident in order to gain the trust of affected communities, as well as minimize adverse impacts on surrounding communities. The amount of time that an SIA process will take to identify these impacts is known as the efficiency of the process. South Africa is fast-tracking sustainable renewable projects, like solar and wind energy, placing increased focus on the efficiency of SIAs. The efficiency of SIA in the renewable energy sector has not received much attention in South Africa, presenting a research gap. Therefore, this study has aimed to investigate the efficiency of SIAs in the renewable energy sector of South Africa. To reach this aim, five research objectives were set: (i) To explore the practice of SIA in South Africa aiming to determine what constitutes good SIA; (ii) to determine the efficiency of SIAs by means of a timeline for conducting SIAs in both solar and wind energy projects; (iii) to evaluate the efficiency of a sample of SIA reports from renewable energy projects; (iv) to explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa; and (v) to provide recommendations for SIA practice and future research.

This study followed a mixed methods research approach by firstly conducting a literature review, and secondly through an empirical investigation of the efficiency of the SIA process in a sample of thirty EIA reports, followed by an online survey questionnaire that explored the perspectives of a sample of nineteen SIA practitioners. The literature review demonstrated an increase in the need for renewable energy resources worldwide. Because of the fast growing population, South Africa has been trying to move away from non-renewable ways to produce energy. Two of the most popular renewable energy sources for the country is solar and wind energy, due to the high radiation index as well as wind prospects. To involve communities, by using SIAs in the planning and development of these renewable energy projects, can create jobs as well as improve communities' quality of life. It was also revealed that there is a difference between good and best SIA practice, where good SIA practice indicates what is appropriate and expected and this provides a model for best SIA practice. Although there are guidelines to determine good SIA practice, it was clear from the literature that SIA practice in South Africa is in a neglected state due to several factors that have a negative influence on the process, including less focus on social aspects due to emphasis on biophysical aspects, a shortage of trained SIA specialists, and the insufficient timeframes allowed to conduct SIAs.

The empirical investigation revealed that, in the majority of the EIA reports investigated, the EIA process is not handled efficiently and that processes such as the public participation and scoping phases are often delayed. It was evident that if delays occur in these phases, the SIA process will also be inefficient. The responses of the SIA practitioners support the finding that the SIA process in South Africa is not performing efficiently because of problems preventing the process from reaching its purpose with maximum efficiency. Problems with efficiency include: the practitioners are untrained in SIA and lack experience; developers do not want to waste money or time on the SIA process because it is not explicitly regulated by law; and that the time allowed for an SIA process is not adequate. Recommendations on how the efficiency of SIA could improve include: improved training for practitioners; the SIA process should be seen as separate from the EIA process; more time allowed for bigger, more complex projects; and that it needs to be regulated more explicitly by law.

Keywords: Social Impact Assessment (SIA); Renewable energy; Sustainable Development; Efficiency; Perspectives; South Africa.

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LIST OF ABBREVIATIONS AND ACRONYMS

CO_2	Carbon Dioxide
DEA	Department of Environment Affairs
DEAT	Department of Environmental Affairs and Tourism
DFFE	Department of Forestry, Fisheries and the Environment
DMR	Department of Mineral Resources
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statements
EM	Environmental Management
IAIA	International Association for Impact Assessment
IRP	Integrated Resource Plan
IRP	Integrated Resource Plan
ISO	International Organisation of Standardisation
NEMA	National Environmental Management Act
NEPA	National Environmental Policy Act
PV	Photovoltaic
REDz	Renewable Energy Development Zones
RO	Research Objective
RO	Research Objective
RSA	Republic of South Africa

S&EIR	Scoping and Environmental Impact Report
SDGs	Sustainable Development Goals
SIA	Social Impact Assessment
UN	United Nations
UNCED	United Nations Conference on Environment and Development

CHAPTER 1: INTRODUCTION AND OVERVIEW

1.1 Introduction

In 1987 in the United States, the World Commission on Environmental and Development called for a "*Global agenda of change*" where they proposed strategies for long term environmental change and Sustainable Development by the year 2000 (Report of the World Commission of Environmental and Development, 1987). For any development project to be sustainable, it should meet the needs of the current generation without compromising the needs of future generations in a negative way (Report of the World Commission of Environmental and Development, 1987). Another important milestone that marked the importance of Sustainable Development was in 1992 through the principles of the Rio Declaration that highlighted the importance of addressing global problems that could negatively influence humans in the future (UN, 1992). This Declaration suggested a process called Environmental Management (EM) to achieve sustainable development (UN, 1992; Kruger *et al.,* 2020). The primary purpose of EM is to manage human behaviour in the environment and not to manage the environment (King *et al.*, 2018a). EM also aims to protect the natural resources of the environment by enhancing decision-making (King *et al.,* 2018a). In order to implement EM the International Organisation of Standardisation had implemented the ISO 14001 Management System. The aim of ISO 14001 is to give a framework and guidelines for the quality management of environmental issues and to ensure that companies adhere to these guidelines (Yin & Schmeidler, 2009). To fulfil the purpose of EM, several assessment tools were introduced, of which Environmental Impact Assessment (EIA) is one of the most important tools (King *et al*., 2018a).

The purpose of EIA is to ensure the protection of the environment through co-operative governance (South Africa, 2014a). "*EIA can be described as a precautionary, multidisciplinary environmental policy tool that is enforced by law*" (Williams & Dupuy, 2017:118). Furthermore, EIA can be considered as a vital evaluation tool to guide sustainable development and enhance the protection of the environment through co-operative governance (South Africa, 2014; King *et al*., 2018a). EIA will also guide decision-makers to make sound decisions on impacts affecting the environment and therefore aims to reduce the negative impacts on the environment by altering decision-making and contributing to sustainable development (South Africa, 2014; Williams & Dupuy, 2017).

It is generally accepted that EIA begun in 1969 with the promulgation of the United States National Environmental Policy Act (NEPA). Countries such as Australia, Canada, Eire, Sweden and New-Zealand followed shortly after by adopting the EIA policy (Andrews, 1976; Morgan, 2012; UN, 2015). NEPA aimed to prevent damage to the environment by improving harmony and sustainable

actions between the environment and humans (Council of Environmental Quality, 2007). Following the international principles of NEPA, South Africa adopted the EIA policy and it became mandatory in 1997 under the Environment Conservation Act (ECA) of 1989 which will be discussed next.

1.1.1 EIA in South Africa

In 1994 South Africa had adopted a new constitutional legal order and regulations were amended due to the changes South Africa had made after becoming a democratic country in 1994. The ripple effect that boosted environmental awareness worldwide through the Rio Declaration in 1992, also had a major influence on South Africa (Aucamp, 2003). Section 24 of the Constitution states that:

"Everyone has the right -

a) to an environment that is not harmful to their health and well-being; and

b) to have the environment protected, for the benefit of present and future generations, *through reasonable legislative and other measures that:*

i. Prevent pollution,

ii. Promote conservation, and

iii. *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*" (RSA, 1996:9).

To abide by the Constitution, the country had formally adopted the EIA policy in 1997 under the Environment Conservation Act No. 73 of 1989 (ECA) (South Africa, 1989). The Act aimed "*to provide for the effective protection and controlled utilization of the environment*", with limited focus on the social aspects of the EIA process (South Africa, 1989:2; Kruger *et al.,* 2020). Under sections 2.1, 2.2 and 2.6 of the ECA, the EIA regulations required a mandatory process in 1997 and these regulations were no longer voluntary as in the past (King *et al*., 2018). In 2006 new EIA regulations came into effect under the National Environmental Management Act No. 107 of 1998 (NEMA). Amendments to the EIA process were added in 2010, 2014 and 2017 (King *et al.,* 2018). To address the social impacts that proposed developments might hold, a Social Impact Assessment (SIA) was included as part of the EIA process, which will be discussed next.

1.2 Social Impact Assessment (SIA)

There is no universal definition for SIA (Barrow, 2010), however IAIA (2003:3) states that SIA is "*the process of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions and any social change process invoked by those interventions*". SIA can therefore be seen as a process focussing on only the social impacts that any development will have on the nearby community as well as the quality of life of those affected communities. An SIA should aim to mitigate these impacts and it should contribute to the positive well-being of the community.

These social consequences that a proposed development may have are determined through a SIA process. Burdge (2004), as well as Barrow (2010), states that social impacts include social aspects, cultural health and psychological impacts of a development that could alter people's lives. SIA can further be seen as an umbrella that analyses the impacts on the social, and cultural environment (Vanclay, 2003; IAIA, 2009; Hildebrandt & Sandham, 2014). A SIA will determine the social impacts that a development project may have and will attempt to mitigate these impacts, whether it affects the community positively or negatively (Kruger *et al*., 2020). Furthermore, a SIA will also aim that quality of life is not affected by proposed developments (Barrow, 2000; Vanclay, 2003; Du Pisani & Sandham, 2006; IAIA, 2009; Kruger *et al*., 2020; Hildebrandt & Sandham, 2014).

During developments, SIA remains the voice for the communities affected by developments, policies or plans (Vanclay, 2003; Du Pisani & Sandham, 2006; Aucamp & Lombard, 2018; Kruger *et al*., 2020). According to the International Association for Impact Assessment (IAIA), this instrument will ensure better outcomes for communities during and after developments, and will also help to develop sustainable management plans and support co-operative governance (Hildebrandt, 2012; Vanclay, 2015; Aucamp & Lombard, 2018). SIA follows a human rights-based approach that is a conceptual framework implemented to ensure that all human rights are being protected when policies, programmes, plans and projects are implemented (Wilson, 2017). It is important to analyse past activities and the impacts that they have had, for the practice of SIA to learn and grow (IAIA, 2009).

Developed and developing countries have adopted SIA intending to address social issues in development projects, but SIA has remained an integral component of the EIA process (Momtaz, 2005; Hildebrandt, 2012). It is important to understand that developing countries hold unique situations and challenges that developed countries will not necessarily understand; therefore, processes that are successful in some countries will not necessarily be successful in all countries

worldwide (Aucamp, 2003). This could be due to poverty and people not having adequate access to technology and knowledge in parts of developing countries.

1.2.1. History of SIA internationally

SIA has developed into a special impact assessment in the context of EIA in some countries, but from an international perspective it is clear that EIA and SIA have originated alongside each other (Esteves *et al*., 2012; Hildebrandt, 2012; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Kruger *et al*., 2020). In the 1960s NEPA had called for the integration of SIA in Environmental Impact Statements (EISs), after which SIA had emerged separately from natural sciences, since EIA could not fully address the social issues (Momtaz, 2005) and this can be seen today as one of the subfields of EIA (Becker, 2001). During the late 1970s, countries have adopted SIA to address social issues emerging from developments (Hildebrandt, 2012).

In 1970, after the NEPA had highlighted the importance of social issues being included in EISs, the Bureau of Land management in the United States (US) submitted a six page EIS statement to the Department. This EIS statement agreed in favour of the development of the Trans-Alaskan oil pipeline of eighty (80) miles, but the impacts of this pipeline raised a number of questions regarding the social effect it will have on the indigenous Inuit people. These unanswered questions lead to the term 'Social Impact Assessment' (SIA) first being used in 1973, after which the use of SIA had spread worldwide (Barrow, 2000; Vanclay, 2006; Aucamp, 2015).

Almost twenty-three (23) years after the implementation of NEPA, the United Nations Conference on Environment and Development (UNCED) hosted a revolutionary event in Rio de Janeiro and made it clear that economic and social development are integral parts of the environment (United Nations, 1992). This event took place in 1992 and The Rio Declaration consists of twenty-seven (27) fundamental principles that nations can use to ground all environmental decisions, policies, the implications on socio-economic development, and putting people first (United Nations, 1992; Keating, 1992; Hildebrandt, 2012). The UNCED made it clear that one cannot think of the environment, social and economic development as separate fields (Hildebrandt, 2012). There is a clear interconnectedness between the biological, economic, social and physical aspects of the environment that an EIA cannot treat separately; therefore these aspects should be linked (Hildebrandt, 2012). The Guidelines and Principles of SIA outline the first formal statement on what a SIA must consist of and was published in 1994 (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). Later on, in 2003, the IAIA had published international guidelines and principles for the SIA process, which were developed to be flexible to suit both developed and developing countries like South Africa (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994; Burge, 2004; Vanclay, 2006). SIA evolved rapidly in the last decade due to an international change in

understanding human rights around developmental projects (Vanclay 2020). The Guiding Principles on Business and Human Rights (UNGP) required endorsed organisations who would respect human rights when developing a project and they required organisations to avoid any harm to the social environment surrounding a development (Vanclay & Hanna, 2019). A major change came worldwide to reduce the feeling that social issues is seen as a nuisance but rather a critical issue that can cause delays if not managed properly (Vanclay & Hanna, 2019).

1.2.2. SIA in South Africa

The new NEMA regulations have highlighted the importance of Section 24 of the Constitution and in its preamble it stipulated that people are part of the definition of the environment (RSA, 1998). In NEMA (RSA, 1998:10) section 1(1) (xi) the 'environment' is defined as *"the surroundings within which humans exist*" and then further specified as not only the physical surroundings, but also their "*aesthetic and cultural properties that influence human health and well-being*". It is evident from this definition of the 'environment' in NEMA that humans are included, and by implication social impacts are inherent to this definition (Hildebrandt & Sandham, 2014). Therefore, the SIA process in South Africa forms part of the EIA process as a specialist study and has not developed as an assessment in its own right (Hildebrandt & Sandham, 2014). It is a process in which activities such as public consultations take into consideration the cultural and socio-economic impacts of a proposed intervention (Du Pisani, 2005, Aucamp & Woodborne, 2020).

1.3. Renewable energy

Due to an ever growing population, the need for sustainable actions has become essential in every walk of life. The Rio Declaration states that countries should strive to be more sustainable in their actions in protecting the environment for human well-being (CBD, 2006). In the year 2015 the UN has introduced Sustainable Development Goals (SDGs) that act as a universal call to all countries to reduce poverty and to protect the planet (UN, 2015). Goal 13 of the SDGs supports the Rio Declaration by stating that the world should act against climate change and decrease the emissions of carbon dioxide (CO_2) (UN, 2015).

Currently, globalisation processes are acting out on the environment, leaving it to be negatively affected (Esty *et al.,* 2017). This globalization is causing environmental problems all around the world, with the rise of CO_2 emissions and the detrimental effect that it has on surroundings through global warming (Shahbaz *et al*., 2018, Tung, 2018; Eastwood, 2018). Some of the most life and health threatening environmental problems have occurred in third-world cities of Asia, Latin America and Africa and millions of people have lost their lives due to environmental related diseases or injuries each year (Hardoy *et al*., 2013). Climate change can be seen as the most

prominent impact for the environment caused by globalisation and is one of this century's biggest problems (Pegels, 2010; Kellogg, 2019). Climate change has been putting further pressure on countries to become more sustainable in their actions (Pegels, 2010; Shahzad, 2012).

Knowing that non-renewable energy resources will eventually be depleted, the need for renewable energy sources has increased worldwide (Shahzad, 2012). As a developing country, South Africa has been struggling to promote sustainable low-carbon energy (Merven *et al*., 2019). This is due to people, making use of coal and wood to generate energy. Wood and coal is still the most popular option for energy for approximately 1.5 million households in South Africa (Pegels, 2010; Merven *et al*., 2019; Baruah & Enweremadu, 2019). This way of using energy has become one of the biggest concerns for environmental degradation (Jain & Jain, 2017). Therefore, countries like South Africa are implementing renewable energy resources in order to enhance sustainable development actions in the country, and to decrease CO_2 emissions.

In the last two decades South Africa has embarked on a journey of clean-energy production to eventually move away from the coal and wood based systems that are causing harm to the environment and climate, which is not sustainable for the future (IRP, 2019; Merven *et al*., 2019). This journey of clean energy production has been highlighted in the Integrated Resource Plan (IRP) of South Africa in 2019. Currently, renewable energy has been a focal point, since sustainable strategies are being enforced due to the current energy crisis that South Africa is facing (Lund, 2007; Department of Energy, 2019; Merven *et al*., 2019). Strategies for sustainable energy development include an improvement in energy production by using several sources of renewable energy to replace fossil fuel energy production (Department of Energy, 2019). The development of renewable energy projects is also leading to job creation, and an overall improvement of quality of life in the surrounding communities and sustainable energy production (IRP, 2019).

The need for renewable energy in South Africa has increased due to the high electricity demand that the country is facing. Two of the most popular renewable energy production methods in South Africa are solar and wind energy plants (Diabate *et al.,* 2004; Amankwah-Amoah, 2015; Jain & Jain, 2017; Juwi, 2020). The reason for this popularity is due to South Africa having an average of two thousand five hundred (2500) hours of sunshine per year, placing South Africa in one of the top three positions in the world for solar energy farms (Jain & Jain, 2017). The Wind Atlas, developed for South Africa, states that coastal areas of the country hold the most potential in the occurrence of wind energy plants, especially on the West Coast (IRP, 2019). The IRP of South Africa takes into account the environmental consequences that a renewable energy source may hold for communities and the environment, and therefore it is important that these projects must include an EIA and SIA (IRP, 2019).

1.4. Problem Statement

Each development must have a reasonable timeframe for the SIA process and all participants must be included in this timeframe management (Wilson, 2017). Even though there is no set timeframe for the process of conducting an SIA, the timeframe of a project will usually be led by the scoping phase of the EIA process (Wilson, 2017). During the scoping phase, inputs on all the possible impacts of the development will be stated by the Environmental Assessment Practitioner (EAP) and the community (Snell & Cowell, 2006; Wilson, 2017; King *et al*., 2018). Although the SIA process is declared as important in the scoping phase, this process is known as the 'lesser sibling' or the 'orphan' of the EIA process, due to questions raised about the effectiveness of this process (Du Pisani & Sandham, 2006; Urban, 2015; Kruger & Sandham, 2018). In a survey of SIA practice, practitioners have demonstrated that SIA is a costly and time-consuming process (Kruger & Sandham, 2018; Kruger *et al*., 2020a). The problems with effectiveness are mainly due to SIAs being undertaken by persons trained in other social science backgrounds and EAPs having a background in natural sciences (Du Pisani & Sandham, 2006; Hildebrandt, 2012). Other problems may include the narrowness of the size and focus of the SIA process and a lack of conceptual frameworks in South Africa regarding the SIA process (Hildebrandt, 2012). The process of SIA is not as effectively applied today due to the lack of understanding between the concepts of EIA and SIA.

SIA should be the voice of affected communities, especially in the rapidly expanding renewable energy projects that South Africa is prioritising. Although the renewable energy sector has been highlighted as important, previous research highlighted that the SIA process is not as effective as it should be, especially in the renewable energy sector, which will have an influence on the performance of the whole EIA process (Gagnon *et al*., 1993; Sandham *et al.,* 2005; Du Pisani & Sandham, 2006; Hildebrandt & Sandham, 2014; Vanclay, 2015; Urban, 2015; Wilson, 2017; Aucamp & Lombard, 2018; Kruger & Sandham, 2018; Aucamp *et al*., 2018).

The effectiveness of a process can be determined through the extent to which the process has reached its procedural and substantive purpose (Sandham *et al*., 2013; Loomis & Dziedzic, 2018, Kidd *et al*., 2018). It is vital to improve the effectiveness and performance of the SIA process, since these will enhance economic growth and sustainable development (Aucamp & Lombard, 2018), especially within the renewable energy sector.

One of the dimensions of effectiveness is efficiency (Pölönen *et al*., 2011; Zhang *et al*., 2013; Kidd *et al*., 2018). The DEAT (2010) explains that efficiency is a very important factor in the EIA process because it includes the amount of time and resources spent in each process. Kidd *et al*. (2018) elaborated that when a process is inefficient, it will waste time and money for all the parties involved and the process will not reach its intended purpose. It is also important to know how

efficient this process in the renewable sector of this country is, in order to promote sustainable development. Efficiency in the renewable energy sector is poorly researched in South Africa therefore this study aims to address this research gap by investigating the efficiency of Social Impact Assessment (SIA) in the renewable energy sector of South Africa.

1.5. Research aim and objectives

The main aim of this research study is to investigate the efficiency of Social Impact Assessment (SIA) in the renewable energy sector of South Africa. In reaching this aim the following research objectives are set:

1. To explore the practice of SIA in South Africa and to determine what constitutes good SIA.
2. To determine the efficiency of SIAs by means of a timeline for conducting SIAs in both solar and wind energy projects.
3. To evaluate the efficiency of a sample of SIA reports from renewable energy projects.
4. To explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa.
5. To provide recommendations for SIA practice and future research.

1.6. Methodology

This research study has followed a mixed methods research approach. The advantage of this research method is that it collects both quantitative data (measuring timelines) and qualitative data (perspectives on efficiency) (Steenkamp, 2009; De Vos *et al.,* 2011; Schoeman, 2017). This section will only provide a brief overview of the research methodology that was employed for this study. A detailed discussion will be presented later as Chapter 3.

1.6.1 Research Methodology

First, a literature review was done. The literature review focused on gathering information on previous research on the topic of EIA and SIA efficiency and what constitutes to good SIA practice in order to reach Research Objective 1. Steenkamp (2009) has explained that a case study approach is very appropriate to use for the mixed research approach in order to do detailed investigations of the project files. Yin (2003) added that in order to answer a ‘how’ or ‘why’ question of a set of events which the investigator has no control over, a case study method will be the most advantageous method to use. To answer Research Objectives two and three (RO2

and RO3) of the study, thirty (30) EIA reports were investigated, as a sample of renewable energy projects in South Africa. The reports were obtained through an online domain in the periods of 2015 to 2019. The reason for this timeframe was because there were amendments to the regulations of NEMA in 2014 (King *et al*., 2018) and this study will only work with the new amendments of NEMA. Samples from different consultancy firms (obtained online) were used in order to eliminate internal factors that may influence the process, which could include the firms' capacity to handle the workload, knowledge, and resistance to changing legislation. To analyse and interpret the data, the main focus was on the sections of the EIA report where a SIA was done. Thereafter, the amount of time was calculated that it took to complete the SIA process according to the days presented in the sample of EIA reports. The timeframes for the SIAs conducted in all of the EIA reports were assessed and deviations that may be found were explored to identify how efficient the SIA processes have been.

In order to achieve the fourth Research Objective (RO4), an online questionnaire survey was sent out to South African SIA specialists. The questionnaire survey consisted of open and close ended questions, which allowed for flexibility in the answers (Steenkamp 2009; De Vos *et al.,* 2011; Husselmann, 2016). A total of nineteen (19) SIA specialists participated in the survey. Although root causes for problems with the SIA process were stated in previous literature, these surveys have revealed more personal views on the performance of the SIA process that are still undocumented. Through the survey the study had also gathered recommendations on how SIA practice could improve for future practice, which contributed in achieving the last research objective (RO5). To analyse the data from the questionnaire an inductive approach was used and three themes had been pre-identified, namely (i) the demographics and experience of the participants; (ii) the efficiency of SIA in South Africa; and (iii) suggestions for improvement on the efficiency of the SIA process.

1.7. Division of chapters

This dissertation has five chapters. The chapter division is as follows:

Chapter 1 can be considered as the introductory chapter and the overview to the dissertation. This chapter has discussed the origin of EIA and SIA internationally and in South Africa, and the problem statement was explained. This chapter has also elaborated on the research aim and objectives. A brief overview of the research methodology was provided and the structure of the research study has been explained.

Chapter 2 can be considered as the literature review chapter to reach research objective one (1). This chapter has included a literature study of the evolution of SIA in South Africa, SIA practice

in South Africa, what constitutes good SIA practice, and the effectiveness of SIA in South Africa. This chapter has also elaborated on the background information on efficiency, EIA and renewable energy.

Chapter 3 has provided an introduction on the methodology that was used to conduct the study. Different data collection methods were used and each one of these methods had a different analysis technique that had been elaborated on in this chapter.

Chapter 4 has supported research objectives two to four (2 – 4). A number of thirty (30) EIA reports were gathered and analysed. During this chapter a detailed description of the data collected in the reports were given. Illustrations and timelines have also been shown and explained to determine the efficiency of the SIA process. During this chapter perceptions of the SIA practice were also explored through an online survey completed by nineteen (19) SIA specialists.

The final chapter (Chapter 5) has aimed to reach research objective five (RO5), recommendations for the SIA practice in South Africa were stated according to the results on the efficiency of the processes, as well as recommendations from the survey. This chapter has also expanded on recommendations for future research according to the results obtained in chapter four. This chapter was the final chapter in the dissertation and could be considered as the conclusion.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

Chapter 1 has demonstrated that the practice of Social Impact Assessment (SIA) is in a neglected state and that the efficiency of SIAs is poorly researched in South Africa. It is important to improve on this poor status of SIA in order to contribute to sustainable development. Sustainable development aims to protect the natural environment from degradation, as well as to manage the sustainable consumption of natural resources so that there would be enough to fulfil the needs of future generations (UN, 2017). Climate Change is posing a serious threat to natural resources and is the result of an ever growing population, pollution, and global warming that have a major impact on the natural environment (Hoegh-Guldberg *et al.,* 2019). Sustainable development became of high importance due to factors such as climate change that is negatively affecting environmental processes (Mugambiwa & Tirivangasi, 2017; Vanclay, 2020). Sustainable development is not only of importance in environmental processes, but it is also important for the social environment surrounding developments. This social sustainable balance in the social environment can be evaluated through the SIA process (UN, 2017).

Good SIA practice aims to encourage the interconnectedness of the social, economic and biophysical impacts surrounding proposed developments (Aucamp & Lombard, 2018; IAIA, 2020). In other words, all of these spheres must be in a sustainable balance and of the same importance in order to reach sustainable development within the environment (Zamani & Vanclay; 2009; Parsons *et al.,* 2019). It is important to acknowledge that a change in any of these domains will influence all of the other domains, therefore SIAs must develop and understand all of these impacts and pathways in order to address them correctly (IAIA, 2020).

Chapter 2 has aimed to achieve the first research objective (RO1), which is to explore the practice of SIA in South Africa and to determine what constitutes SIA good practice in South Africa. This chapter will shed light on some of the important literature involving SIA efficiency. Firstly, this chapter has explained the difference between the terms good and best practice and it also elaborated on the guidelines and principles of good SIA practice. Following these guidelines and principles there will be an evaluation of EIA efficiency moving the discussion on to SIA efficiency, since these two terms are interconnected with one another. Lastly, this chapter has explained the need for optimal SIA efficiency for renewable energy projects.

The process of Environmental Impact Assessment (EIA) is very important in order to maintain a balance between the social, environment and economic spheres. As a derivative of EIA, SIA has evolved as a process of setting rules in order to protect the social setting where a development will take place (Aucamp *et al*., 2011). To maintain this social sustainable balance, good SIA practice is very important because it will encourage practitioners to maintain a certain ethical standard when doing an SIA (Vanclay, 2003; Taylor & Vanclay, 2013).

With the purpose of maintaining this ethical standard, the difference between 'best practice' and 'good practice' must be clarified. Vanclay *et al.* (2015) have defined 'best practice' as a set of guidelines, ethics, ideas, procedures and methods that stand as the most appropriate way to act in a particular area of practice. It can also be referred to as an "*aspirational benchmark*" (Vanclay *et al.,* 2015:75). The aim of best practice is to promote consistency throughout the SIA process (IAIA, 2020).

On the other hand, the term 'good practice' can be considered as to what is "*appropriate and expected*" in a certain field of practice (Vanclay, 2003; Vanclay *et al.,* 2015:83). Good SIA practice involves the undertaking of the following tasks that comprise SIA:

- To analyse and predict all social impact pathways;
- To predict the direct social changes a development may hold;
- To predict all the indirect and direct social impacts and cumulative impacts of a development;
- To state the responses of affected parties in the SIA including the significant changes that the development may have on them; and
- To list alternatives in the SIA (Vanclay, 2003).

Vanclay *et al.* (2015) have stated that the benefits of good practice guidelines involve that the standard of SIAs worldwide would improve and it will increase the appeal of SIA with a number of audiences. These good practice guidelines will furthermore set a minimum standard for SIA practice and it will also serve as a model for best practice. It will also remove confusion over any SIA terminology and integrate SIA in all impact assessments. It is important to acknowledge these tasks so that they can guide a practitioner into good SIA practice and it can also assist in developing appropriate national legislation (Vanclay *et al.,* 2015).

As seen above, good practice and best practice are two terms that are used to support the process of SIA. It is clear that good practice provides a model for best practice in order to set minimum standards for SIA and to minimize confusion. Good practice can be seen as guidelines, ethics and procedures used in the SIA process that are nothing out of the ordinary. Best practice on the

other hand can be seen as clarified and improved standards that a SIA practitioner needs to adhere to. It is important to know how good practice is being maintained internationally and also in South Africa and how guidelines and tools are used to understand good SIA practice.

2.2.1 International 'good' SIA practice

When striving for sustainable development, human rights must be one of the core values implemented in the process (McGoldrick, 1997; Arts, 2017). The SIA process must therefore acknowledge equal human rights across cultures and between genders (Vanclay, 2003; IAIA, 2020). With the aim of protecting these rights Parsons *et al.* (2019) state that a SIA should also include the human emotions and social impacts that a project might have on communities. This will help the proposed project to gain recognition and support from the affected communities and it could avoid conflict between communities and the developers. These SIA processes also need to take into account the importance of sustainable social development, especially in the quality of life of communities (Vanclay, 2020). The quality of life of a community ought to improve with the development, instead of being negatively affected. The main aim of the SIA process is to have a positive outcome on the environment and it should empower and build human and social potential (IAIA, 2020; Vanclay, 2020). Everything related to the way communities make a living and their environment must be addressed in the SIA, but for this to happen the process of SIA must not be seen as only a checklist of potential impacts, but it should include human emotions and community inputs into the SIA report (Vanclay *et al*., 2015; Jones *et al.,* 2017).

Vanclay *et al.* (2015) have stated that in order to perform a good SIA, there must be a clear understanding of the core issues proposed by a development. People should therefore be adequately informed about these issues that potential developments could hold, whether positive or negative. After all the information is shared with the community, the adequate mitigation remedies should be in place to address these issues, and programs must be designed to mitigate these impacts (Vanclay, 2006; Vanclay *et al.,* 2015). People's cultural traditions and indigenous knowledge are also important factors that would contribute to good practice in a SIA and this knowledge must be welcomed, especially when considering mitigation measures (Barrow, 2000; Vanclay, 2003; Kemp & Vanclay, 2013; Götzmann *et al.,* 2016; Imperiale & Vanclay, 2016; Karami *et al.,* 2017; IAIA, 2020; Vanclay *et al.,* 2020). When involving these affected communities there must be no use of violence, harassment or intimidation played out on the communities. When planning this involvement of the community, the SIA process might make use of local knowledge and experience to add more value to the intervention process (Vanclay, 2003; IAIA, 2020). This local knowledge should also include indigenous knowledge because it will add more value to the SIA process due to the indigenous people having more local knowledge of the environment where

the proposed project will take place. The SIA process should create a safe and participatory space to facilitate discussions with the community. The discussions would include the impacts and benefits of a development as stated by the community and agreements on processes should be negotiated. The SIA process should further gain a good understanding, including the different needs and interests of the community affected (Esteves *et al.,* 2012; Imperiale & Vanclay, 2016). While collecting social data from the potentially affected community, impact equity should be very important especially in sensitive groups. Vanclay (2020) also states that a SIA has to ensure that the communities benefit from the proposed project and that the negative impacts are minimized as far as possible. Through a SIA, companies should develop a shared value with communities about impacts on the environment and not just a stakeholder value (Vanclay, 2020).

The SIA process has to collect baseline data and forecast social changes that the community will face, which could be the result of the development. The SIA process can then predict how communities would respond to change and it must examine other options of mitigating the impacts (Esteves *et al.,* 2012). This prediction must take into account that a particular community will respond differently to the impacts that the SIA was prepared for and these different responses would also be evaluated and stated in the SIA report. It might be difficult to collect baseline data, since in some cases, even before the SIA is conducted, communities would already be aware of a proposed development which might have an impact on the accuracy of the data. When considering all the impacts, fears, and suggestions from the community, the SIA process must facilitate an agreement between all the stakeholders and it must assist in drafting a social impact management plan (Esteves *et al.,* 2012).

While gathering information, the SIA practitioner should find the appropriate source of information and he / she must plan for any gaps in the data; this would contribute to good SIA practice (The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). Furthermore, companies will have to sustain a 'social licence to operate', meaning that a project will support the procedure of conducting a social study; it is therefore not an actual paper or licence (Dare *et al.,* 2014; Vanclay *et al.,* 2015; Jujelava & Vanclay, 2017*;* Vanclay, 2020a; Vanclay, 2020b). For a company to adhere to good SIA practice it should also involve a very broad diversity of data in order to make a conclusion about the impacts of a development (Parsons *et al.,* 2019) and for communities these data need to be transparent. Data included in the SIA process should also consist of aspects that could influence people's health and quality of life (IAIA, 2020) and these data must be shared with the affected communities.

After the SIA process is completed, feedback should be given to the project planners and to the community (The Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994). The SIA practitioner should then provide evidence behind the reasons for specific decisions after carefully considering all the predicted impacts and mitigation measures

that the communities have stated (Vanclay, 2006). There should be subsidiarity in decisions made and the decisions should involve the people closest affected by the project (O'Fairleallaigh, 2010; Vanclay, 2006; Vanclay, 2020b).

International Organisations such as the IFC (International Finance Corporation), also committed to sustainability especially in the social environment surrounding developments (Esteves, 2021). The IFC can be seen as a sister organisation of the World Bank. This organisation endorsed the acknowledgement of human and cultural rights especially in the private sector (Esteves, 2021). The IFC put together eight standards that an organisation needs to meet in order to gain investments from the IFC. These standards include: "*The assessment and Management of Environmental and Social Risks and Impacts; Labour and Working Conditions, Resource Efficient and Pollution Prevention, Communication Health, Safety and Security; Land Acquisition and Involuntary Resettlement; Biodiversity Conservation and Sustainable Management of Living Natural Resources; Indigenous People; Cultural Heritage*" (IFC, 2012:1). By stating these requirements to organisations, the IFC also plays their part in contributing to good and best practice and because most of these standards focusses on the social aspects of a development, the IFC plays a part in endorsing good and best practice in SIA.

2.2.2 Good SIA practice in South Africa

The Constitution of South Africa has highlighted the importance of human rights, but human rights within developments have gained bigger recognition in the last few years (RSA, 1996; Arts, 2017). In South Africa, there is a need for adequate guidance for the good practice of SIA within the holistic model of sustainable development (Hildebrandt & Sandham, 2014). Good SIA practice in South Africa forms part of sustainable development where impacts should include the economic and social impacts of a proposed development (Du Pisani & Sandham, 2006). The balance between standardisation and flexibility in SIA practice must be of high importance for a SIA practitioner, and to do this, the SIA practitioner should stay issue orientated by evaluating only the impacts on the social environment (Du Pisani & Sandham, 2006).

Earlier it was demonstrated by Esteves *et al.* (2012) that baseline data are important in order to evaluate all the impacts that a project may have on a community. In South Africa, this social baseline data is often neglected and treated as less important and this neglect could lead to the SIA process being less efficient (Du Pisani, 2005). It is very important to improve on this neglected state especially in a South African / African context because involving affected communities in the decision making also contributes to good SIA practice. When involving these communities in

decision making and in the developing process, it will decrease poverty in the surrounding areas of a development (Aucamp & Lombard, 2018).

When facilitating agreements and social impacts between a development and the affected communities, a checklist for monitoring social impacts was found to be very effective (Rossouw & Malan, 2007). The practitioner can put together his / her own checklist or he / she can follow guidelines on impacts that need to be considered when classifying people's social impacts as set out in Table 2-1 below.

Table 2-1: Classifying people's social impacts (Adapted from Vanclay, 2002:185 & Aucamp, 2003:23).

People's way of life	How they work, play and interact with one another on a daily basis.
Their culture	Their shared beliefs, customs, values and language or dialect.
Their community	Cohesion, stability, character, services and facilities.
Their political system	The extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place and the resources provided for this purpose.
Their environment	The quality of the air and water that people use; the availability and quality of the food that they eat; the level of hazard or risk, dust and noise which they are exposed to; the adequacy of sanitation, their physical safety, and their access to, and control over resources.
Their health and well-being	Where health is understood as a state of complete physical, mental and social well-being, not merely the absence of disease or infirmity.
Their personal and property rights	Particularly whether people are economically affected, or experience personal disadvantage, which may include a violation of their civil rights.
Their fears and aspirations	Their perceptions about their safety; fears about the future of the community; and their aspirations for their future and the future of their children.

Due to the definition of the 'environment' in NEMA, SIA has developed as an integral component of EIA where SIA forms part of specialist studies in an EIA report and it will be regulated by NEMA (South Africa, 2014; Kruger & Sandham, 2018). These regulations are not specific regulations for SIA, but rather focus on what all specialist studies in the EIA process should entail. Additionally, SIAs in South Africa are guided by two documents namely the "*Guideline for involving Social Assessment specialist in the EIA process*" and the "*Social Impact Assessment: Guidance for Assessing and managing the social impacts of projects*" (Barbour, 2007; Vanclay *et al.,* 2015;

Kruger, 2020). Barbour (2007) suggests that a social specialist should be consulted in the early project planning phase of a development, meaning in the scoping phase of the EIA process, in order to increase the efficiency and effectiveness of the process. A SIA specialist should furthermore be involved throughout the whole planning and implementation phases in order to add more value to the EIA process (Barbour, 2007). The scoping phase is where key issues should be identified in the EIA report and therefore a SIA process must be implemented here to have a proactive approach to the potential problems (Barbour, 2007). When comparing good SIA practice in South Africa to the international standard, it is clear that South Africa is not lagging behind in this process. To uphold this standard, practitioners must endorse the guidelines and principles of good and best SIA practice that would be discussed next.

2.3 Guidelines and principles that contribute to best SIA practice

In 1994 in the United States, SIA practice received a boost through the publication of guidelines and principles for SIA. This document was the first of its kind that had clearly stated what an SIA should consist of (Inter-organizational Committee on Guidelines and Principles of Social Impact Assessment, 1994; Burdge, 2004; Hildebrandt, 2012). Later on, in 2003, another milestone in the history of SIA was reached with the publication of the International guidelines and principles of SIA (Vanclay, 2003). This document has aimed to help practitioners to evaluate the SIA process against a set of guidelines and principles in order to maintain best practice.

Granting that practitioners could now follow core principles and guidelines of the SIA process, there are still a few guiding tools to help them adhere to SIA best practice. Guiding tools are known as fundamental principles and variables of SIA (Hildebrandt, 2012). In the last two decades there has been much focus on practitioners to assist in investigating impacts and alternatives for developments (Burdge & Vanclay, 2003; Hildebrandt, 2012). In order for practitioners to asses these alternatives they rely on the principles of SIA to fully understand the process (Hildebrandt, 2012).

In the process of developing these guidelines and principles of SIA, it became apparent that there is a different understanding of these two above mentioned terms (Vanclay, 2006). Vanclay (2006) has stated that through the process of defining guidelines and principles, it was clear that guidelines have been derived from principles. Therefore, not one of these terms could develop apart from each other. SIA principles are *"statements by which to plan a specific course of action and which clarify how it should (be) done (action-statements)"*, whereas guidelines are referred to as processes that would guide the practitioner on what the correct way of performing a SIA is

(Vanclay, 2003:8). These principles and guidelines for SIA can sometimes be confused with one another. Table 2-2 below provides the list of the guidelines and principles of SIA (Vanclay, 2003).

Table 2-2: Principles and guidelines for the SIA process (Vanclay, 2003:9; Aucamp, 2003:22).

Principles for SIA	Guidelines for SIA
Respect for human rights at all times.	SIA should focus on social sustainable development.
Promoting equity and democratisation should be the major drivers of development planning.	Local community's democratic processes need to be strengthened by social and human capital.
Impacts on the worst-off members of society should be a major consideration in all assessment.	Development processes that violate human rights should not be accepted.
The existence of diversity between cultures must be recognised and valued.	Potential mitigation measures for both social and environmental impacts need to be considered.
Decision making should be fair and transparent.	The knowledge and experience of cultures need to be incorporated into any assessment.
Development projects should be broadly acceptable to the members of those communities likely to benefit from these.	Violence, harassment, force and intimidation need to be avoided in development planning.
The opinions and views of experts should not be the sole consideration in decisions about planned interventions.	Proposed developments can be modified to enhance positive impacts and reduce negative impacts.
The primary focus of all development should be positive outcomes.	Equity should be the fundamental element in development planning and in impact assessment.
The term, 'the environment', should be defined broadly to include social and human dimensions.	Social impacts and environmental impacts can be predicted before a development starts.
	Beneficiaries need to be investigated.
	SIA should be an integral part of the development process.
	Alternatives should be considered in planned interventions.

These guidelines and principles set out a new way of understanding the SIA process, assessing the impacts and also identifying alternatives. However, it is difficult to implement them equally for all countries due to the differences in each country's cultural, social, economic and regulatory context (IAIA, 2003). Therefore, these guidelines and principles should only be used as a recommendation to perform activities and assess impacts.

Although guidelines and principles are very important in the SIA process, it is also important to take into account that there are different variables that could influence the SIA process. Variables should point out measurable change that could influence the assessment (Burdge, 2003). The

five SIA variables are suggested by the Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment that can be used as a starting point for SIA practitioners to obtain data (see Table 2-3 below).

Table 2-3: SIA variables (Interorganizational Committee on Guidelines and Principles for Social Impact Assessment, 1994:11)

SIA Variable	Definition
Population Characteristics	Present population and expected change, ethnic and racial diversity, and influxes and outflows of temporary residents, as well as the arrival of seasonal or leisure residents.
Community and Institutional Structures	The size, structure, and level of organization of local government including linkages to the larger political systems.
Political and Social Resources	The distribution of power authority, the interested and affected publics, and the leadership capability and capacity within the community or region.
Individual and Family Changes	Factors which influence the daily life of the individuals and families, including attitudes, perceptions, family characteristics and friendship networks.
Community Resources	Patterns of natural resource and land use; the availability of housing and community services to include health, police and fire protection and sanitation facilities.

Practitioners should implement the above guidelines, principles and variables in order to improve the effectiveness of the whole SIA process. If any set of these guidelines and principles that constitute good and best SIA practice, are missing or incomplete, then the process can be seen as not effective (O'Faircheallaigh, 2009). In order for a SIA practitioner to effectively assess and implement the SIA process they should understand the life-cycle of the process to thus implement the principles and variables in every stage of the cycle and to make the process more effective and successful. Figure 2-1 below illustrates the project life cycle of a SIA process, where the SIA process is demonstrated to be a continuous process and it would start long before the actual development (Hildebrandt, 2012).

Throughout the SIA lifecycle, the SIA practitioner should maintain good and best practice, in order to assess the social impacts that a development project could have, in the most efficient way possible. To maintain best practice through the life-cycle, the SIA practitioner should keep the public informed in all stages of decision-making, and consult with the public on the feedback and concerns that they might have (Vanclay *et al.,* 2015). To involve the community in this life-cycle, as well as implementing the guidelines and principles of good and best SIA practice, it can lead to an overall more efficient EIA process.

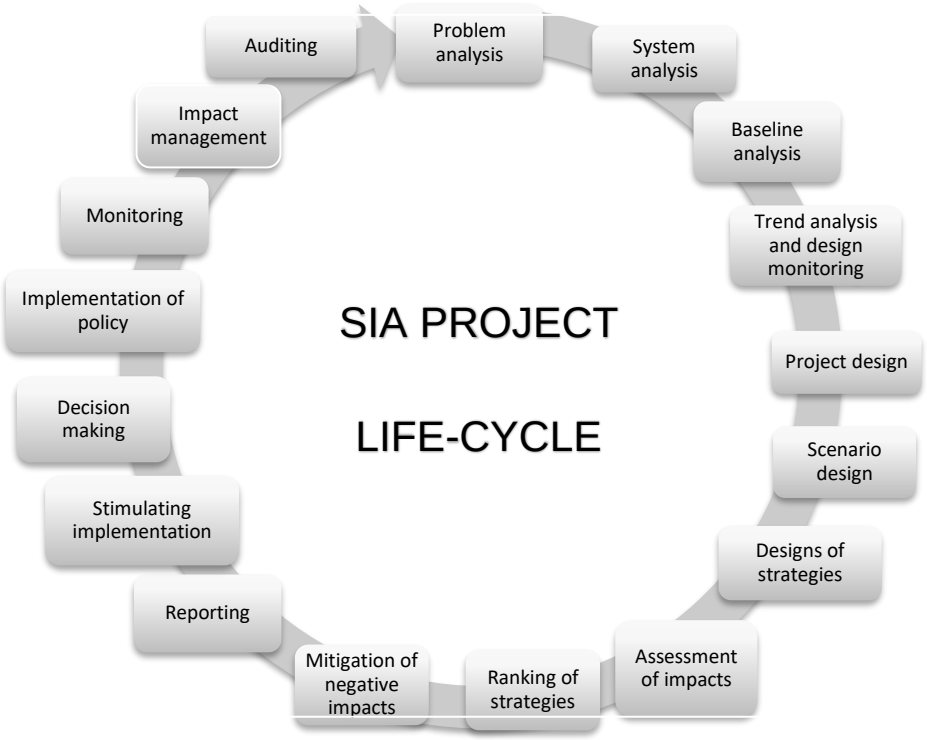

Figure 2-1: Project life-cycle of the SIA process (Becker, 2001:131; Becker & Vanclay, 2003).

2.4. EIA effectiveness and efficiency

The effectiveness of a project is determined through the quality and the performance of an EIA report (Loomis & Dziedzic, 2018; Kidd *et al.,* 2018). Sandler (1996) has introduced three dimensions that effectiveness could be divided into namely: (1) transactive effectiveness; (2) procedural effectiveness; and (3) substantive effectiveness. The first dimension of effectiveness, *transactive effectiveness*, is concerned with the financial costs of conducting an EIA (Loomis & Dziedzic, 2018). *Procedural effectiveness* is described as the extent to which the EIA process complies with the EIA principles and adheres to the structure of the EIA, whereas *substantive effectiveness* refers to the extent to which the EIA process has reached its set objectives such as to contribute to informed decision-making and whereby it reduces the negative impacts on the environment (Loomis & Dziedzic, 2018; Byambaa & De Vries, 2020). Baker and McLelland (2003) build upon these three dimensions and have introduced a fourth dimension namely, *normative efficiency*. Normative efficiency defines the extent to which the EIA process meets its ideal purpose (Baker & McLelland, 2003; Lommis & Dziedzic, 2018).

In addition to the dimensions of effectiveness above, there are also different facets of effectiveness, which include procedural compliance, report quality, duration of the process, accuracy, and costs (Pölönen *et al*., 2011; Zhang *et al*., 2013; Kidd *et al*., 2018). One of these facets consist of the duration and procedural compliance of the process which is known as efficiency (DEAT, 2005; Pölönen *et al*., 2011; Zhang *et al.,* 2013; Kidd *et al.,* 2018).

Although the efficiency of the EIA process is important, there are still countries that see the EIA process as a costly and time-consuming process due to unnecessary delays in the process (Hatting & Claassen, 2008; Steenkamp, 2009; King *et al.,* 2018; Botha, 2018). According to literature it is clear that when the EIA process is inefficient, it will cause delays which will constrict the process from achieving its purpose, which is to be cost effective and efficient (Fischer *et al*., 1994; Hattingh & Claassen, 2008; Retief & Chabalala, 2009; Steenkamp, 2009; Pölönen *et al.,* 2011; Botha, 2018; Myburgh, 2018; Kidd *et al.,* 2018). These delays are due to the fact that the decision-making process is a very long and expensive administrative process (Sandham *et al.,* 2013; King *et al.,* 2018). The biggest problem can be found in less developed countries which are inefficient in implementing the process, or they are implementing it incorrectly (Sutton-Pryce, 2015; Schoeman, 2017).

The causes of inefficiency in EIA are well researched and it is clear that different factors can influence the process (Steenkamp, 2009; Pölönen *et al.,* 2011; Zhang *et al.,* 2013; Botha, 2018; King *et al.,* 2018). Zhang *et al.* (2013) studied 24 articles and identified general factors that could contribute to inefficiency in EIA. They grouped all the contributing factors into four groups, i.e. communication, resources available, the timing of EIAs, and the attitudes of stakeholders (Zhang *et al*., 2013). Pölönen *et al*. (2011) also identified several weaknesses in the Finnish EIA system. These weaknesses include decision-making, insufficient follow-up, communication, and unforeseen reporting (Pölönen *et al.,* 2011). In addition, the overall conclusion is that the skills levels of officials are not up to standard due to high staff turnover (Steenkamp, 2009; King *et al.,* 2018). Another problem was found in the changing procedures and timeframes because practitioners and authorities struggle to keep up with these changes which lead to inefficiency (Alers, 2016). There is also a general feeling from consultants that if they had known how the different applications, like EIAs interact, the process would be more efficient (Botha, 2018).

The inefficiency of the EIA process can also be seen in South Africa because Steenkamp (2009:2) states that Minister Van Schalkwyk (Former Minister of Environmental Affairs and Tourism) said that "*Government is concerned about any delay, cost and associated impacts on economic growth and development. This is why we need to improve efficiency and effectiveness without compromising basic environmental rights and quality."* Steenkamp (2009) has divided the above-mentioned shortcomings for inefficiency into internal and external shortcomings. Firstly, intrinsic shortcomings, which include the lack of commitment, and secondly extrinsic shortcomings which

include capacity shortage and time delays (Steenkamp, 2009). King *et al.* (2010) have identified two important factors that are causing delays. Not all developments are of the same size and complexity. However, the regulating timeframe for all EIAs is the same, regardless of the size and complexity of a project (King *et al.,* 2018). This causes immense problems for EAPs because the timeframes are inadequate for bigger and more complex developments (King *et al.,* 2018). King *et al.* (2018) have also added that the legislative requirements are in conflict with one another and that they also need to be aligned to avoid confusion.

The Department of Forestry, Fisheries and the Environment (DFFE) has stated that there is a fixed three hundred-day (300-day) timeframe for issuing permits, and the EIA process must be concluded in this timeframe (South Africa, 2014). Within this three hundred day (300-day) timeframe there are several processes that need to be concluded within their own set timeframes. Table 2-4 below is a visual representation of the timeframe of the full Scoping and Environmental Impact Report (S&EIR) showing how this three hundred day (300-day) time period is made up.

Table 2-4: Timeframe for an S&EIR process (South Africa, 2014).

Action	Days	Responsibility
Application	1	EAP
Acknowledge receipt	10	DMR
Public Participation (PP)	30	EAP
Final Scoping Report submitted	14	EAP
Decision	43	DMR
Public Participation (PP)	30	EAP
Submit EIR and EMPr	46	EAP
Decision	107	DMR
Notification of decision	5	DMR
Notify I&APs	14	EAP
Total	300	

Compared to literature on EIA efficiency, limited research on SIA efficiency and effectiveness can be found, necessitating that the wider EIA literature must be drawn on in order to gain a better understanding of efficiency in the SIA process (O'Faircheallaigh, 2009; Hildebrandt & Sandham, 2014). If the EIA process is inefficient, it will also have a negative impact on the SIA process

because issues flagged by the community at a specific time may change if the EIA process is inefficient.

2.5 SIA effectiveness and efficiency

The effectiveness of SIA refers to whether or not the SIA process meets its intended purpose (Sandham & Pretorius, 2008; O'Faircheallaigh, 2009). The major purpose of SIA is to flag the social impacts that a development may have on a community as well as to obtain project approval in a timely and positive completion of the process, while ensuring that the social impacts do not influence the sustainability of future resources. If this is not done, then the SIA can be defined as not effective (Sandham & Pretorius, 2008; O'Faircheallaigh, 2009).

Even though SIA is meant to improve on the quality of life for communities, there are still some constraints around the effectiveness of the process. Most of these constraints are due to institutional and regulatory issues as well as government implementation and restricted social involvement from communities (Martinez & Komendantova, 2020). Further issues impacting on the effectiveness of the SIA process include, the failure of the government to acknowledge indigenous and cultural knowledge, the lack of financial resources, and the short periods of time that is allowed for submission of a SIA (O'Faircheallaigh, 2009).

When narrowing it down to the effectiveness of SIA in South Africa, previous research has indicated that the SIA process of South Africa is also in a neglected state. Hildebrandt and Sandham (2014) used the Lee and Colley review package to evaluate the quality of SIA reports and they have found that the performance of the SIA practice is not on standard. This neglected state is not only due to insufficient focus in the social aspects but rather the biophysical aspects, and also the economic impacts that the projects might have (Du Pisani, 2005; Sandham *et al.,* 2005; Aucamp & Woodborne, 2020). Literature has revealed that the following contributes to the poor performance of the SIA process (Barrow, 2000; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Matlakala, 2020):

- Practitioners from bio-physical backgrounds, unqualified personnel and SIA conducted without proper follow-up;
- Shortage of SIA specialists, and no professional regulatory body to monitor practitioners and improve on the ethics and standards of the SIA process; and
- A lack of understanding for the need of SIA by proponents.

Kruger and Sandham (2018) have also studied the poor performance of the SIA process through perspectives of practitioners in South Africa, and suggested the following reasons that could influence the efficacy of the SIA process: *Firstly*, there is confusion on the difference between SIA and public participation, due to the fact that in the early period of mandatory EIA in South Africa, it was suggested that public participation constituted the SIA component (Kruger & Sandham, 2018). These two processes should in fact be considered as separate assessments. Public participation still needs to play a key role in doing more effective SIAs (Matlakala, 2020). *Secondly*, another factor resulting in the SIA process not being effective is the changing regulatory requirements (Kruger & Sandham, 2018). Amendments to the mandatory EIA practice were implemented in 2006, 2010, 2014 and in 2017 and some practitioners have stated that they were not even aware of these changes in the regulations (Kruger & Sandham, 2018). The timeframes for conducting specialist studies are stricter under the new NEMA regulation of 2014, and these timeframes are detrimental for SIA in larger projects (Kruger & Sandham, 2018). According to Kruger *et al.* (2020:10) "*poor inclusion of SIAs in legislative frameworks and the lack of unique guidelines for South Africa's social context*", could also be listed as a problem with the efficacy of SIA in South Africa. *Lastly*, Kruger *et al.* (2020), have pointed out another challenge pertaining to SIA, i.e. that it takes a lot of time to do a proper assessment and specialists or EAPs do not always have the time or money to do it. Specialists conducting a SIA are of the opinion that in order to get the public to efficiently participate in a public participation process, is not always easy, and this process can be the reason why some SIAs are seen as inefficient. The efficiency of SIA is further constricted due to a lack of understanding, by the EAP or specialist, around the social impacts that a development can hold (Martinez & Komendantova, 2020).

Although previous research addressed some of the challenges that constrict the efficiency of a SIA, it is clear that a lot more research has been done on the effectiveness of the SIA process, rather than on the efficiency of the process. This shortage of research on SIA efficiency has identified a research gap for this study to develop from. While looking at the previous research it is clear that there is concern amongst practitioners that the focus should be more on improving the efficiency of the SIA process.

The focus now turns to the consideration of SIA in the Renewable Energy sector, since the expansion of renewable projects has been fast tracked by the South African government in the past few years (Caboz, 2020). If the SIA processes are not being handled in a timely and efficient manner, it could negatively influence the surrounding social environments around renewable energy projects. When involving the community, the EIA projects tend to be more inclusive and socially sound by minimizing the social impacts (Vanclay, 1999; Francis & Jacobs, 1999; Matlakala, 2020). More positive effects of involving the communities in a project, are that it will

lead to the EIA process being more transparent and equal opportunities for comments will be given for communities (Vanclay, 1999; Francis & Jacobs, 1999; Matlakala, 2020).

2.6. Renewable energy

The production of energy through the use of fossil fuels poses a serious threat to the shared biosphere of the earth (Burke & Stephens, 2018). This threat is due to fossil fuels contributing to CO_2 production which affects climate change (Gielen, 2019). For the world to become sustainable, energy production should shift to more renewable energy sources which will also have a positive effect on climate change (García-Olivares *et al.,* 2018). There are several forms of renewable energy sources that can be used. First and most popular is the Photovoltaic (PV) Solar power system that absorbs PV photons through the use of PV to generate energy (Jain & Jain, 2017; IRP, 2019). Secondly, there is wind energy that is considered the most reliable form of energy production due to the consistency of the wind used to produce energy each year (Jain & Jain, 2017; IRP, 2019). Next is landfill power, using waste and landfill gas to produce energy (Jain & Jani, 2017; IRP, 2019). Biomass power is also another source used to generate energy. Biomass power is using organic materials by converting them into energy, for example: biofuels, biodiesel, and the burning of wood (Jain & Jani, 2017; IRP, 2019). Lastly, energy can be produced through fast running water and this process is called hydropower (Jain & Jani, 2017; IRP, 2019).

In 1997 South Africa has also started the journey for adopting sustainable energy production through the Constitution, which set a foundation for the development of renewable energy sources in South Africa (Department of Energy, 2015). In 2014 South Africa was ranked among the top 10 countries world-wide who have invested in renewable energy sources (Department of Energy, 2015). South Africa makes use of several different energy sources to produce electricity. South Africa generates "*38 GW electricity from coal, 1.8 GW from nuclear, 2.7 GW from pump storage, 1.7 GW from hydro, 3.8 GW from diesel and 3.7 GW from renewable energy*" (IRP, 2019:11). Some of the most popular renewable energy production methods in South Africa are solar and wind. The reason for this is the two thousand five hundred (2500) hours of sunshine that the country has per year (Jain & Jain, 2017). South Africa also generates an estimate of 6,7 GW from wind, resulting in wind energy production being just as competitive as solar energy production (Jain & Jain, 2017). Biomass and hydropower are some of the less popular forms of energy production in South Africa (Jain & Jain, 2017). For this reason, this study will therefore only focus on solar and wind energy resources as renewable energy production.

The National Infrastructure Development Plan has introduced Renewable Energy Development Zones (REDZs) in 2012, with the aim to promote green energy in South Africa (DEA, 2016). The optimal location for REDZs has been identified all over South Africa by the Department of

Forestry, Fisheries and the Environment (DFFE) for the efficient and effective rollout of wind and solar photovoltaic (PV) energy zones (DEA, 2016; McEwan, 2017). Table 2-5 below identifies the eight main REDZs currently identified in terms of section 24(3) of the NEMA for large scale wind and PV solar facilities.

Table 2-5: Eight REDZs identified in South Africa (DEA, 2021).

REDZs number	Location	Applicability of REDZs
REDZs 1	Overberg	Wind and PV facility
REDZs 2	Komsberg	Wind and PV facility
REDZs 3	Cookhouse	Wind and PV facility
REDZs 4	Stormberg	Wind and PV facility
REDZs 5	Kimberley	PV Facility
REDZs 6	Vryburg	PV Facility
REDZs 7	Upington	PV Facility
REDZs 8	Springbok	Wind and PV facility
REDZs 9	Emalahleni	PV Facility
REDZs 10	Klerksdorp	PV Facility
REDZs 11	Beaufort West	Wind and PV facility

These eleven (11) renewable energy development zones make it easier for the EIA process to evolve from, however it still is important to handle the SIA component of the process in such a manner that it will improve not only the renewable energy sector, but the social environment surrounding these zones.

2.6.1. SIA and Renewable energy

Countries have implemented SIA in order to effectively analyse the social impacts of renewable energy developments (Wolsink, 2010; Martinez & Komendantova, 2020). Martinez and Komendantova (2020) further argue that a SIA has become limited to problem fixing processes and this has impacted the effectiveness of SIAs in the planning of renewable energy developments. Wolsink (2010) stated that seeing that the SIA process is integral to the regulations of EIA, stakeholders seem to rush the process and important concerns from the public get lost in the whole EIA process.

The South African government has used its Integrated Resource Plan 2010-2030 through Eskom, by implementing a program named: Energy Independent Power Producer Procurement Program (REIPPP). This program was implemented in 2013 and aimed to successfully introduce

independent power producers and early adopters of renewable energy in South Africa (Consulting, 2020). This program fast tracked renewable energy projects through South Africa and independent companies could now be involved in the development of these projects in order to bring additional megawatts onto the country's electricity system (Republic of South Africa, 2022). This program brought positive changes for the social environment around renewable projects because it lead to job creation (Republic of South Africa, 2022). Although this program contributed to job security for communities an efficient SIA is also important in order to improve on the long term sustainability in the livelihoods of such communities and to ensure that the negative effects of the renewable energy project is minimised.

Schumacher (2019) has stated that the environmental process is a major barrier for renewable energy projects around the world. The reason for this is because the right balance needs to be considered between the ecological, sociological and economic factors that are involved in a renewable energy project (Schumacher, 2019). A SIA will also be a barrier in these projects because the impacts on a society must be distributed in a fair and equal manner (Schumacher, 2019). Larsen *et al.* (2016) have explained that there is a lot of friction regarding renewable energy projects and the community especially with the installation of wind turbines, and also if the electricity grid must be extended. Another renewable energy source that is well researched and that holds the most social impacts, is hydro power (Egré & Milewski, 2002; Cernea, 2004; Sivongxay *et al.,* 2017; Kelly, 2019). Indigenous knowledge is often neglected in the assessment of the social impacts of these hydro power systems (Kelly, 2019). Another negative impact for communities downstream include riverine fishery, because when the river flow is interfered with, it will have an influence on the natural habitat of fishes (Sivongxay *et al.,* 2017).

These conflicts usually lead to negative impacts on the distribution of economic activities, they cause harm to social relationships and this will cause a division between communities and developers of renewable energy projects (Vanclay, 2002; Larsen *et al.,* 2016). All of these frictions can furthermore increase the risk of violence in communities and it will negatively influence trust between developers and communities (Larsen *et al.,* 2016). If the process of an EIA as well as a SIA is more efficient, these frictions would be handled in a timelier and more effective manner and the possibility of these frictions leading to unnecessary unrest would be minimised. Communities would also feel that they were involved in decision making and that they have equal right toward a safe and sustainable environment, although a renewable energy plant will be developed.

As seen above, research has already been done on SIA effectiveness in renewable energy projects and especially on the social impacts of hydro-electricity. The research on the efficiency of renewable energy generation is very limited in South Africa, therefore, this study's focus will be on identifying Renewable Energy Projects (REPs), specifically focusing on PV solar and wind

energy projects, in order to get a reliable picture of the current status of SIA efficiency in South Africa.

2.7 Conclusion

SIA can be seen as a specialist impact assessment under the process of EIA, which serves as an important process in South Africa that contributes to sustainable development. The process of EIA in South Africa has evolved rapidly since its inception in 1997 under the ECA and it is now being regulated under the NEMA regulations where amendments were made in 2010, 2014 and 2017. The history of SIA is very rich and even if this process has improved over time, there still is a lack of research in this field. The aim of this chapter has been to critically review previous literature about SIA efficiency in general and particular for renewable energy projects in South Africa. Firstly, the difference between good and best practice was explained along with guidelines and principles contributing to good SIA practice. This chapter had then explained the need for the SIA process to be efficient, as well as the need for an effective SIA to minimize friction between renewable energy projects and communities.

The next chapter will present the methodology that was used to conduct this study and it will elaborate on the different methods used to collect data.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

The preceding chapters (Chapters 1 and 2) have aimed to address RO1 which was "*To explore the practice of SIA in South Africa and to determine what constitutes to good SIA*". Chapter 3 therefore describes the research design and methods that have been used to reach the remaining four research objectives, namely to determine the efficiency of SIAs by means of a timeline for conducting SIAs in both solar and wind energy projects (RO2); to evaluate the efficiency of a sample of SIA reports from renewable energy projects (RO3); to explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa (RO4) and to provide recommendations for SIA practice and future research (RO5). Data was collected through a literature review, through thirty (30) EIA reports from an online domain, as well as through an online survey where nineteen (19) SIA specialists were involved.

3.2 Literature review

A literature review was done in Chapter 2 in order to reach research objective one (RO1), i.e. *To explore the practice of SIA in South Africa and to determine what constitutes good SIA*. A literature study has several benefits for research. Some of these benefits includes, getting a general overview on what had been done in the past, it will also provide the researcher with new ideas for their own research and it will help the research determine where the problem is in existing research (Knopf, 2006). During this literature review international and national peer reviewed academic articles theses and dissertations and relevant legislation were the primary sources of electronic literature for this dissertation in order to gain a better understanding of SIA and what constitutes good practice and best practice. Literature was also used to determine if the process of SIA is as efficient as it should be, and it was evident that there still is room for improvement. The different articles were found through an online search and the following keywords have been used: Efficiency, SIA, Solar energy, Wind energy, NEMA, policies, South Africa, and implementation. Following from the literature review an empirical investigation was conducted which will be discussed next.

3.3 Empirical Investigation

The research design and approach will be discussed first, then the different sampling methods will be stated, followed by the type of data analysis used. The aim of the empirical investigation was to reach research objectives two, three and four (RO 2, 3 and 4). The last chapter of this research will reach RO 5 where recommendations will be provided for further research.

3.3.1 Research approach and design

This study has followed a mixed methods research approach that made use of both qualitative and quantitative methods. Creswell and Clark (2011) have stated that a mixed methods research approach is needed when data were gathered from more than one research method, because using only one will be insufficient. Using different methods also complement each other (Botha, 2018) and it will give a more comprehensive understanding (Kruger, 2020) in order to solve the problem more effectively. The advantage of a mixed method research approach is that it collects both quantitative data (measuring timelines) and qualitative data (perspectives and views on efficiency) that this study will need to develop from (Steenkamp, 2009; De Vos *et al.,* 2011; Schoeman, 2017).

However, in order to identify a research design, the research process must be kept in mind. This study is built on the research process identified by Havenga (2018) and is demonstrated in Table 3-1 below. Table 3-1 will demonstrate how the research process was used to build this study, it will also elaborate on the research objectives that were used in some of the phases, as well as the chapters applicable.

Table 3-1: The research proses used for this study (adapted from Havenga, 2018).

Phases in the research process	Chapter of this research	Research objective (RO) addressed	How it was addressed
1. Planning	Chapter 1		*It is clear that SIA practice in South Africa is in a neglected state and it is therefore important to know how efficient this process in the renewable sector of this country is, in order to promote sustainable development.*
			The main aim of this research study is to investigate the efficiency of Social Impact Assessment (SIA) in the renewable energy sector of South Africa.
	Chapter 2	RO1: To explore the practice of SIA in South Africa and to determine what constitutes good SIA.	The whole of this chapter covers the literature supporting this study
	Chapter 3		Mixed methods
			Literature review, case study and a survey.
2. Implementation	Chapter 4	RO2: To determine the efficiency of SIAs by means of a timeline for conducting SIAs in both solar and wind energy projects.	Was done through the use of 30 case files followed with an online survey
		RO3: To evaluate the efficiency of a sample of SIA reports from renewable energy projects.	Was done through the use of excel

		RO4: To explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa.	
3. Conclusion	Chapter 1-5	RO5: To provide recommendations for SIA practice and future research.	

A mixed method research approach consists of mainly four research designs: *Exploratory-, Explanatory-, Triangulation- and Embedded mixed methods design* (Ivankova *et al.,* 2007; Delport & Fouché, 2011; Kruger 2020). This method will have the most advantages considering the research because it will collect data through the use of both quantitative and qualitative methods. An explanatory mixed methods research design was chosen to support this study because this study has firstly used quantitative data to, in depth, explore a phenomenon (the EIA reports) and the results used by this phenomenon were then followed by conducting a timeline conducted from the EIA reports (Delport & Fouché, 2011; Kruger 2020). After the quantitative data were gathered, the qualitative data (survey questionnaire) were collected. An explanatory research design can be described as an approach that will discover the detail to why something occurs and this design is also used as the starting point for in-depth studies (Ivankova *et al.,* 2007). Therefore, an in-depth literature review, as well as case studies will be investigated if the explanatory research design was chosen.

3.3.2. Sampling

This study has utilised mainly two sampling methods, i.e. availability and purposive sampling. Firstly, a sample of thirty (30) renewable energy project EIA report files were investigated from an online availability sample of both solar and wind energy projects in South Africa. According to Delport and Fouché (2011) an availability sample consists of only aimlessly selected case files that were readily available. This method is also referred to as accidental sampling where the easiest, most readily available samples will be used. Because not all the EIA report files have sections explicitly for the SIA process, the whole EIA report was analysed according to dates mentioned in the files and special attention was given to where in the EIA process the SIA was conducted. The reason for this high number of EIA report files was to eliminate inconsistencies and to reach an overall perspective of the SIA process. The EIA report files were obtained through an online domain that consists of case files from various private Environmental Consultancy firms between the period of 2011 and 2020. Samples from different firms were used in order to eliminate internal factors that may influence the process. Internal factors could include the firms' capacity to handle the workload, knowledge and resilience, to changing legislation. The names of the firms and descriptions of the projects are kept anonymous due to ethical compliance.

Secondly, after the EIA report files were collected, a survey questionnaire was distributed to a sample of South African SIA practitioners, where nineteen (19) SIA specialists have responded to the survey. These practitioners were purposefully selected because only SIA specialists or practitioners with experience in the social field of EIA, were needed for this study. Purposive sampling according to Delport and Fouché (2011) is based completely on the judgement of the researcher and the participants would be chosen according to their specific characteristics and attributions to the population.

3.3.3. Research instruments

In order to collect data to evaluate the efficiency of the SIA process, the instrument used was 30 EIA files that were collected also through an online data base from different renewable energy projects all after the year 2014 because of the new regulations on EIA. Purposeful sampling was used in order to collect only EIA files from PV solar and Wind energy. All of the data was collected through well-known organisations that had the data publicly available to ensure the reliability, validity and trustworthiness of the data. The reason why this method was used is because a previous study successfully made use of the same method to determine the efficiency of EIA projects (Steenkamp, 2009).

In order to collect data from the interviews, a google forms sheet was utilised that could be sent to the different SIA practitioners to collect data on their perspectives of the SIA process. Only SIA specialists were identified because this research only wanted to focus on opinions from SIA practitioners especially in the renewable energy sector of South Africa. All of the questions were set up from information in the literature review. The survey was first piloted through the study leaders before it was sent out to the SIA practitioners to conduct the interview. More information regarding the data collection will be elaborated on in the next section.

3.3.4. Methods of data collection

The following paragraphs will explain what research methods have been chosen in order to complete this study; it has made use of similar methods to those in a study by Steenkamp (2009) that also aimed at evaluating the efficiency of the EIA process.

Steenkamp (2009) has explained that a case study approach is very appropriate to use for the mixed research approach. Yin (2003) has added that in order to answer a ‘how’ or ‘why’ question of a set of events which the investigator has no control over, then a case study method will be the

most advantageous to use. As stated in Chapter 2, it is clear that there had not been much research done on the efficiency of SIA and this created various challenges for this study and therefore two research methods were chosen in order to effectively address the research problem.

Firstly, in order to reach Research Objective 2 that was *to determine the efficiency of SIAs by means of a timeline for conducting SIAs in both solar and wind energy projects*, and Research Objective 3 that was *to evaluate the efficiency of a sample of SIA reports from renewable energy projects,* a quantitative research approach was followed. Quantitative research uses fixed procedures to conduct research in a standardised manner (De Vos *et al.,* 2011). A quantitative research method was used in this research by the use of the timeline that was made after the thirty EIA reports have been examined. The location of the EIA reports has been analysed as well as the timeframe for each file was read into an excel sheet. The data for the timeline were first read into an excel spreadsheet and then the data were analysed into a line graph that formed the timeline. However, a quantitative research design differs from a qualitative research design, because the former will make use of timeframes to determine a specific problem (De Vos *et al.,* 2011).

Secondly, in order to reach Research Objective 4, i.e. *to explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa,* a qualitative research method was chosen. A qualitative research design mainly focusses on understanding the meaning of the problem (Kothari, 2004; De Vos *et al.,* 2011). A qualitative research design is not set on fixed steps to conduct research (De Vos *et al.,* 2011). This research design further aims to answer a question from the "*participants' point of view*" (De Vos *et al.,* 2011:64). For this research, a qualitative research design was used through the use of a questionnaire survey that had been sent out to a sample of SIA practitioners in order to gain information around the efficiency of the SIA process, from their perspectives.

The questionnaire survey consisted of a structured questionnaire, meaning that it had open and closed ended questions (Archarya, 2010). All of the consultants were approached through email, stating what the study contains and giving an outline of the questions that could be expected. After this an electronic link was sent which took the participant to a Google Forms survey that they could follow. The complete questionnaire survey that was sent to SIA specialists, can be seen in Annexure A. However, a compact version of the survey is presented below as Table 3-2. The questionnaire consists of three (3) sections which include the demographics and experience of the participant, the participant's opinion on the SIA efficiency in South Africa, as well as suggestions on improvements on the SIA process. Within these three sections a total of nineteen (19) questions were asked.

Table 3-2: Compact version of the survey sent to SIA practitioners.

Section of Questionnaire	Contributing Questions	
Section 1: **Demographics and experience of the specialist**	1.1	What is your highest level of qualification? *A) Diploma; B) BSc / BA / BTech; C) Hons; D) MSc / MA / MTech; E) PhD. (Kindly elaborate).*
	1.2	How many years of work experience do you have in your occupational field? *A) Less than one year; B) 1-5 Years; C) 6-10 Years; D) 11-15 Years; E) More than 15 years. (Kindly elaborate).*
	1.3	How often do you work on renewable energy projects? *A) Never; B) Seldom (1-2 times per year); C) Often (3-6 times per year); D) Frequently / always; E) Other.*
Section 2: **Efficiency of SIA in South Africa**	2.1	In your professional opinion, what constitutes good SIA practice in South Africa?
	2.2	Previous literature demonstrates that there are many problems surrounding SIA (O'Faircheallaigh, 2009; Hildebrandt & Sandham, 2014; Martinez & Komendantova, 2020). One of these problems is that there are not enough specialists in the social field which might have an impact on the efficiency of SIA. Do you: *A) Strongly disagree; B); Slightly disagree; C) Slightly agree; D) Strongly agree? (Kindly elaborate).*
	2.3	How often is the timeframe given to SIA specialists by EAPs, sufficient to perform an adequate SIA study*? A) Never; B) Seldom; C) Sometimes; D) Always. (Kindly elaborate).*
	2.4	According to your own experience, what is the sufficient amount of time that a SIA practitioner needs in order to perform an adequate SIA? *A) 0-10 days; B) 11-20 days; C) 21-30 days; D) 31-40 days; E) More than 40 days (Kindly elaborate)*
	2.5	Literature suggests that there should be a regulated timeframe that practitioners can follow to conduct a SIA (O'Faircheallaigh, 2009; Kruger 2020). To what extent do you agree with this statement? *A) Strongly disagree; B) Disagree; C) Agree; D) Strongly agree.*
	2.6	How would you classify the performance of SIA in South Africa in terms of efficiency*? A) Weak; B) Acceptable; C) Good; D) Outstanding (Kindly elaborate).*
	2.7	In your opinion which of the following can contribute to a SIA process being inefficient. *A) Skills level of practitioners are not up to standard; B) Capacity shortage of SIA practitioners; C)Specialists not given enough time to perform a specialist study; D)Amendments to the regulations and practitioners not being aware of these amendments; E) Lack of understanding of the SIA process; F) No clear timeframe in the regulations; G) Insufficient follow up procedures; H) Poor communication with stakeholders; I) All of the above; J) Other. (Kindly elaborate).*
Section 3: **Suggestions for improvement on the efficiency of the SIA process**	3.1	Please read through the following phrase taken from Kruger and Sandham (2018) and indicate to what extent you agree that there is still room for improvement on the efficiency of the SIA process in South Africa: *"*Kruger and Sandham (2018:8) studied the poor performance of the SIA process through perspectives of practitioners in South Africa. It was found (that) the SIA process is in a neglected state due to some of the following reasons. There is confusion between the difference between SIA and public participation. This confusion is due to the fact that decades ago the EIA practice in South Africa (has) suggested that public participation was presented as the SIA component (Kruger & Sandham, 2018:8). These two processes should in fact be considered as separate assessments. Furthermore, there is not enough SIA specialists to conduct these studies in South Africa (Kruger & Sandham, 2018:9)*" A) Strongly disagree; B) Disagree; B) Agree; C) Strongly agree.*
	3.2	In your opinion, how do you suggest/recommend that the EIA process can change in order to improve efficiency of the SIA process?

3.3.5. Data Analysis

To analyse the data of the EIA reports, an excel sheet was used. Only the exact dates to where the public participation; final scoping report submission; and the submission of the EIR and EMPr were submitted, could be used for this study. The reason why only these phases were used is because these were the only phases in all of the thirty (30) EIA reports that had the exact dates of each of these phases given in the EIA, these are also the phases where the SIA process would be performed. These four phases were also regarded as sufficient to use to conduct a timeline. After the data had been read into the excel sheet, a line graph was drawn from the data in the excel sheet, in order to visually present the efficiency of the SIA data collected in the thirty (30) EIA reports. This line graph serves as a template for the EIA process according to the amount of time stated in the NEMA regulations (300 days) for an EIA process. All of the thirty (30) EIA reports were then drawn into this template, also through the use of the excel sheet, and the sections where the SIA process had been involved were identified.

After the data had been converted into the line graph, the data were analysed in two subsections. Section 1 consists of the date, location, and where in the EIA process did the SIA fit in. This was important in order to see whether or not a SIA process was still implemented where the regulation suggested that it should be (in the scoping phase) and if specialists had still been involved in the process. After this, Section 2 starts where the exact dates of each phase in the EIA process have been read into an excel spreadsheet as stated above.

After the line graph and timeframes had been analysed, an online survey was sent out and nineteen (19) SIA specialists responded to this. A generic inductive approach was used to analyse the data of the survey. A generic inductive approach consists of identifying a pattern from the data and forming themes to analyse the data (Thomas, 2006; Kruger, 2020). These themes will be the framework for the raw data to develop from (Thomas, 2006; Liu, 2016). These themes were not drawn from the data, they only corresponded with the survey and were determined before the investigation of the data. The three themes that were used are: (i) The demographics and experience of the SIA specialists; (ii) the efficiency of SIA in South Africa; and (iii) suggestions for improvement on the efficiency of the SIA process. The data for these three themes will be illustrated by using bar graphs for closed ended questions and the open ended questions will be discussed in paragraph format.

Validity is very important in order contribute to the “goodness” of the data (LeCompte, 2000). In order to contribute to the validity of qualitative data LeCompte (2000) suggested five steps to follow. The first step is to tidy up the data that you want to research. The second step is to find items that needs to be researched. These items can be identified as specific things that needs to be counted or assembled in order to do research. The third step is to create a stable set of items

an organising the data into groups. The second last step is to create patterns and putting data together with the same links of information. The last step is to assemble structures from these related links in the data (LeCompte, 2000).

3.4. Ethical considerations

Throughout the online survey, the ethical considerations of each participant were kept to a high standard. Before the participant could open the survey he / she had to give consent to continue — this was stated on the cover page of the survey — to the questions and it was made clear that they could withdraw at any time should they feel uncomfortable. The SIA specialists also anonymously participated in the survey; no name was needed on the questionnaire. Because the names of the SIA specialists cannot be shown, the specialists who participated will be referred to as SIA 1 – SIA19 for the discussion the data in Chapter 4. Secondly the emails were send privately to each participant so that their identity would still be kept private. Thirdly, no personal questions that could harm participants were asked, questions were focused on the participants' experience of the SIA process. On 25 May 2020 the proposal for this research was cleared by the Faculty of Natural and Agricultural Sciences Research Ethics Committee (FNAS-REC) as a minimal / low risk study with ethics number: NWU-01461-20-A9.

3.5. Limitations

One of the first challenges of this research was the availability of literature on this specific topic. As seen in Chapter 2, not much research on the efficiency of SIA in South Africa had been done, which made it difficult to identify articles that could be used. This challenge was overcome by using literature in EIA efficiency and then drawing a conclusion on SIA efficiency. Another challenge was the availability of data and incomplete administrative records of the EIA reports. Complete EIA records were very hard to come by. A lot of environmental companies had been contacted through email to enquire if they would want to participate in this study and were asked to release their records, but very few had replied to this. When files did become available, the next challenge was incomplete records and dates on when what step in the EIA process had been concluded. To overcome this challenge, a wide online search was done to find EIA reports on the public domain. Those reports with too many incomplete dates were disregarded and only reports with the important dates have been used to construct a timeline. Limitations regarding the survey consist of not many responses received after sending out the survey. Due to the COVID-19 pandemic arising in 2020, personal interviews with SIA practitioners could no longer be held and a link to an online survey had to be send out. The link was send to eighty-seven (87) practitioners

whereby only nineteen (19) responded. The responses from these nineteen (19) SIA specialists were sufficient enough to use because a saturation level was reached in the responses.

3.6. Conclusion

As seen above, the availability of literature and research on the efficiency of SIA was very narrow, and it became evident that more than one research design needed to be used. The main research design decided upon was an explanatory mixed methods research design that included an in-depth review of the quantitative (case studies) and qualitative (surveys) data methods. Some of the main research methods used to answer Research Objectives 2, 3 and 4 where literature reviews, case studies and structured survey questionnaires to overhear the opinion of nineteen (19) specialists in the field of SIA. After these methods were used to collect the data an analysis of all the collected data needed to take place. All of the data analysis was done through the use of electronic sources and an excel spreadsheet. The next section will give illustrations of the data collected and will expand on the information retrieved through all of these sources.

CHAPTER 4: RESULTS AND FINDINGS

4.1. Introduction

As seen in Chapter 3, a mixed methods research approach was used where data were collected through the use of quantitative (EIA reports) and qualitative (survey questionnaire) research methods. Before the data could be collected for the research a literature review was done. Following the problem statement presented earlier in Chapter 1, and the literature review presented as Chapter 2, the research gap regarding the efficiency of the Social Impact Assessment (SIA) process in South Africa was demonstrated. Chapter 4 will therefore aim to address this research gap. This chapter aims to address Research Objectives 2 to 4 i.e. to determine the efficiency of SIAs using a timeline for conducting SIAs in Renewable Energy Projects (REPs); to evaluate the efficiency of a sample of SIA reports from REPs; and to explore the perspectives of SIA practitioners on the efficiency of SIA in South Africa. The results and findings will be presented in mainly two parts. Firstly, this chapter elaborates on the results and findings obtained from the investigation of the timelines in the EIA reports. The optimal location for renewable energy plants across South Africa will be given as well as the provinces applicable to the thirty (30) EIA reports under investigation. After this, the evaluation of efficiency in South Africa through the use of these thirty (30) EIA reports will be presented. Secondly, this chapter will elaborate on the findings from the survey questionnaire that demonstrate the efficiency of SIAs from the practitioners' perspectives.

4.2. EIA reports: sampling

The growing demand for renewable energy in South Africa has been discussed earlier in Chapter 1 and 2. Although the demand for renewable energy is increasing, South Africa's energy sector is still dominated by Eskom, which is a state-owned project with much focus on coal (Pegels, 2010). Most of the energy used in South Africa is being generated through the national transmission system owned by Eskom and only two percent (2%) of the country's electricity is produced through private companies (Pegels, 2010). The possibility of renewable energy in South Africa has shown much potential in the last decade. Figure 4-1 indicates the amount of solar radiation that South Africa receives throughout the year and it is clear that the Northern Cape has proven to be a hot spot when it comes to solar radiation (Pegels, 2010). This is the main reason why the Northern Cape is popular for the construction of PV solar plants as demonstrated in Figure 4-1. Wind energy is another popular form of renewable energy in South Africa because the country has one of the highest wind prospects in Sub-Sahara Africa with wind speeds ranging from 7.29 to 9.70m/s especially in the Cape Agulhas district (Aliyu *et al.,* 2018). Provinces such as the Western Cape and Northern Cape are popular for the construction of wind energy farms.

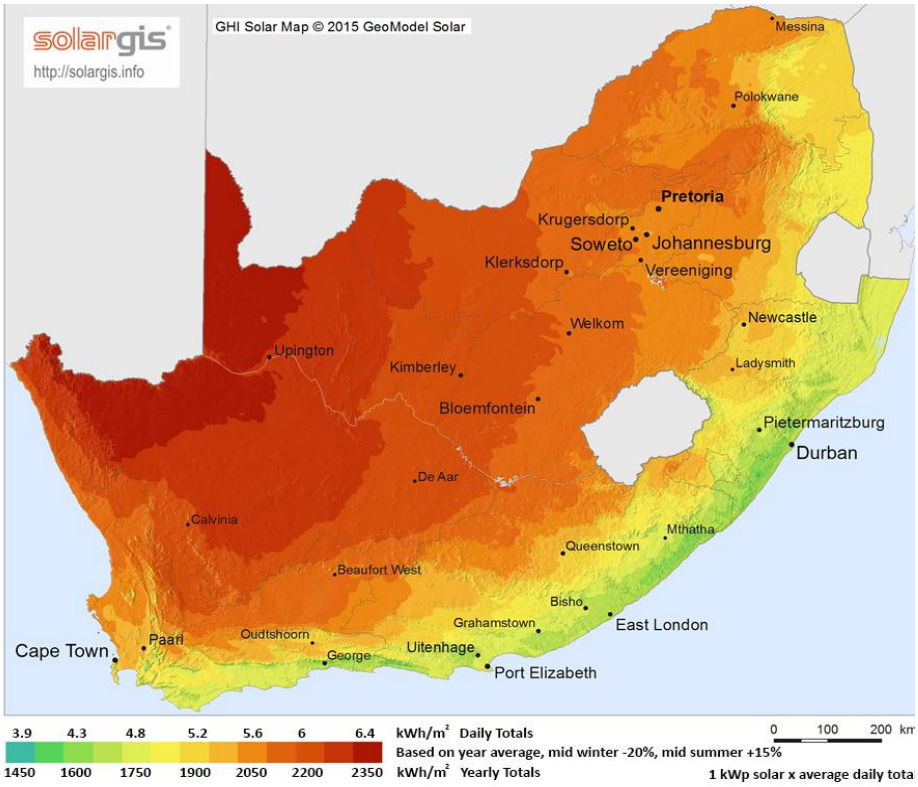

Figure 4-1: Annual solar radiation in South Africa (Pegels, 2010; Aliyu *et al.,* 2018).

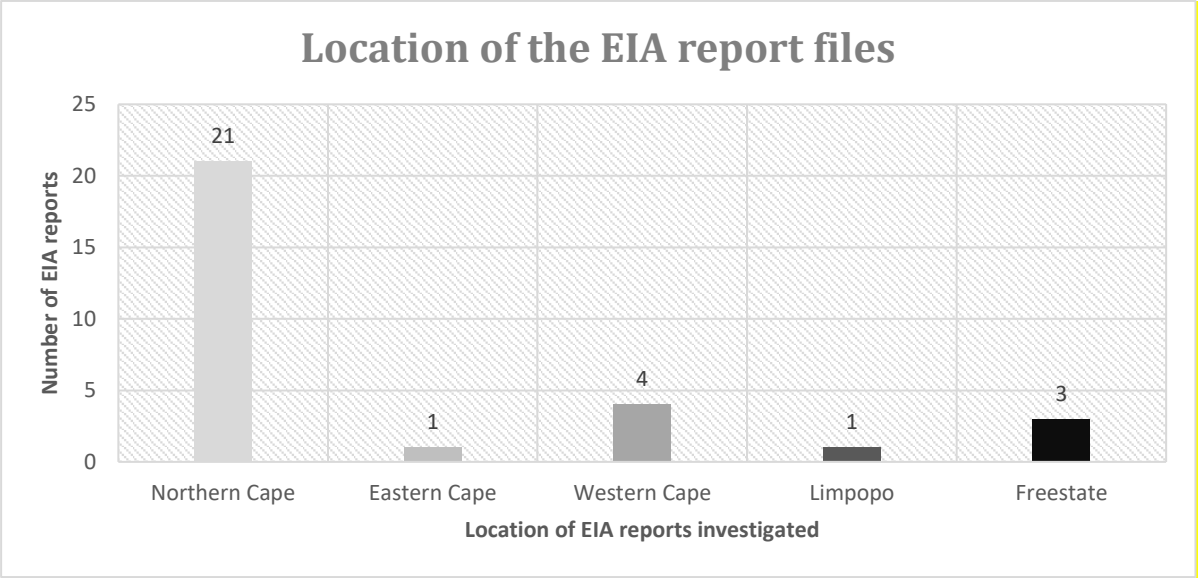

Figure 4-2: Location of the 30 EIA reports investigated.

For the purpose of this study and in addressing Research Objectives 2 and 3, a total of thirty (30) EIA reports were investigated. From Figure 4-2 above, it can be seen that the majority of the EIA reports investigated were located in the Northern Cape Province (21 of 30; 70%). This was followed by the Western Cape Province (4 of 30; 13%), and the Free State making up three of thirty (3 of 30) (10%) of the EIA reports investigated. Only one of thirty (1 of 30; 3%) of the EIA

reports investigated were located within the Eastern Cape and Limpopo Provinces respectively. Due to the confidentiality of the EIA reports, the exact location for each report could not be stated. All thirty (30) of the EIA reports were located in five of the nine provinces in South Africa that gave a good representative of the SIA processes. In the next section, the focus will move to the efficiency of the SIA reports contained in the thirty (30) EIA reports investigated.

4.2.1. SIA Efficiency: EIA reports

All of the thirty (30) EIA reports that were looked into, consisted of the complete EIR reports between the years 2014 – 2020 which were obtained from the public domain. After each report was explored, three themes were identified that applied to SIA and specialists' studies contained in each report (see Table 4-1). The purpose of these themes was to take all the social impact information contained in each of the EIA reports and give a compact illustration and description of these data.

Table 4-1: Themes identified in the EIA reports.

Highlighted themes	The extent to which the SIA was done
Theme 1: To what extent was an SIA done?	Unattempted/ Slightly attempted/ Detailed
Theme 2: Where was the SIA specialist involved in the process?	No specialists involved / Scoping Phase / EIA phase / Scoping and EIA phase
Theme 3: To what extent have socio-economic impacts been addressed?	Unattempted / Slightly attempted / Detailed

To categorise information for the first and the third theme (i.e. to what extent was an SIA done?; and to what extent have socio-economic impacts been addressed?); if there had been no attempt to identify social impacts then the EIA report would be classified as *unattempted*. *Slightly attempted* referred to the fact that the EIA report mentioned the social impacts either briefly or as part of the socio-economic impacts, whereas if there had been a part in the EIA report where an SIA was conducted in *detail,* it meant that a social specialist was appointed to identify the social impacts pertaining to the REP as well as possible solutions or mitigation measures were given. Therefore, if the EIA report had been classified as an SIA done *in detail*, a lot of focus was given to the social impacts in the EIA report.

The second theme (i.e. where was the SIA specialist involved in the process?) gathered data on where the social specialists became involved in the EIA process with four options. In a few cases,

no specialist was involved. In a small number of the reports the specialists could have been involved only in the *EIA phases* that were at the beginning of the process, or they could have been involved only in the *scoping phase* of the EIA and then they were no longer needed. In some cases, the specialists were involved throughout the whole *scoping and EIA phase* of the whole project. A summary of the data can be seen in Figure 4-3.

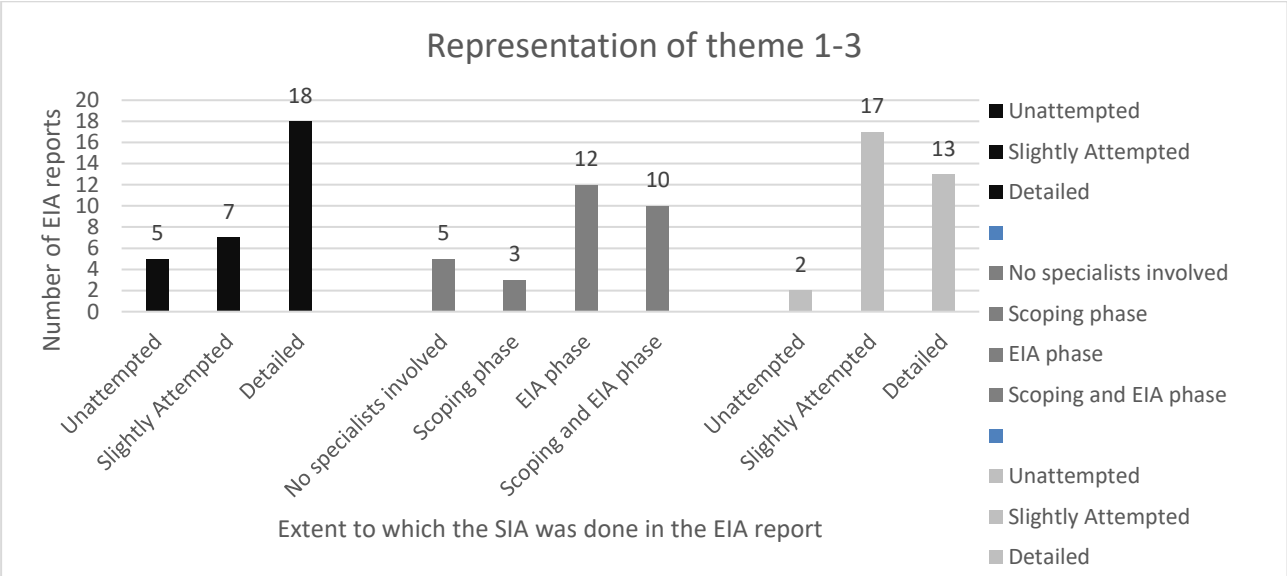

Figure 4-3: Representation of findings from Themes 1-3 on the extent to which SIAs was conducted in the EIA reports.

The findings for the first theme representing the extent to what an SIA was done, demonstrated that in eighteen of thirty (18 of 30; 60%) of the EIA reports an SIA was conducted in detail, meaning that there was a section dedicated in the EIA report specifically focusing on the assessment of social impacts of the proposed project (Figure 4-3). Furthermore, in seven of thirty (7 of 30; 23.3%) of the EIA reports it was found that social impacts were only slightly attempted. These reports demonstrated that although attention was given to the social impacts, it was only slightly mentioned without a proper detailed assessment. In five (5 of 30; 16.6%) of the EIA reports no evidence of social impacts was found.

The second theme represents the involvement of specialists in the EIA process. Not all the EIA reports made use of a SIA specialist, but most of them made use of other specialists to identify not only social impacts but other important impacts as well. The literature stated that specialists has to be involved in the scoping phase of the EIA process (Wilson, 2017), but this was not the case for some of the EIA reports. In twelve of thirty (12 of 30; 40%) of the EIA reports, the specialists only came on board in the EIA phase after the scoping phase was completed. Furthermore, in three (3 of 30; 10%) of the EIA reports the specialists were only involved in the scoping phase as stated in the regulations, but in ten of thirty (10 of 30; 33%) of the reports

specialists were involved throughout the scoping phase into the EIA phase and in five (5 of 30; 16.6%) of the reports no social specialist was involved. This was important information because it is evident that in most of the reports an SIA was still performed and the social impacts could still be identified. In some of the EIA reports, it was clear that the social impacts were not regarded as an assessment or section in its own right. It was mostly combined with socio-economic impacts.

The last theme (Theme 3) investigated the extent to which socio-economic impacts have been addressed. According to Reaser *et al.* (2007), socio-economic impacts can be described as factors such as climate, resource availability and demand for certain goods and services meaning that socio-economic impacts not only focus on only the social impacts. Although this section not only focused on the social impacts, these were however identified to some extent. When looking at the EIA reports, thirteen of thirty (13 of 30; 43%) of the reports have suggested that the socio-economic impacts were discussed in detail. Together with this detailed description, some subsections have described a few of the social impacts that needs to be considered. A further seventeen of thirty (17 of 30; 56.6%) reports only touched on the subject of socio-economic impacts and two (2 of 30; 6.6%) of the reports left this out. Although the socio-economic impacts not only focussed on the social impacts this was still important to identify because where this impact was discussed in detail, attention was also paid to the social impacts. After the three themes had been explored, the timeframes for each process were identified and these will be discussed in the second part of the data.

4.2.2 SIA Efficiency: Findings from timeframes

The first part of the preliminary data that were explored above was of importance for this study to evaluate the detail to which the SIA process still received attention in the EIA process. This section will now discuss the second part of the data to answer Research Objective 2 (To determine the efficiency of SIAs using a timeline for conducting SIAs in both solar and wind energy projects) and Research Objective 3 (to evaluate the efficiency of a sample of SIA reports from renewable energy projects). As stated earlier in Chapter 2 the NEMA issued a three hundred-day (300-day) timeframe for conducting an EIA. This will not be discussed again in detail; however Figure 4-4 below demonstrates this timeframe as presented earlier in Chapter 2. From Figure 4-4 it can be seen that from the first day of application, the department has ten (10) days to acknowledge the application of a proposed project. Then there will be a thirty-day (30-day) public participation period where interested and affected parties (I&APs) can raise concerns over the proposed project. The final scoping report needs to be submitted fourteen (14) days after the public participation, whereby an SIA must also be done. This whole process then has a timeframe of forty-four (44) days. After the scoping phase, there will be a forty-three-day (43) day timeframe

for the department to decide on whether or not the project may proceed. The second public participation phase then starts and could last up to thirty (30) days. After this, the submission of the final EIR and EMPr needs to be sent to the department within forty-six (46) days. This can be seen as the EIA phase of the project. The department then has one hundred and seven (107) days to notify the environmental assessment practitioner (EAP) of a final decision on the project and the EAP will then have fourteen (14) days to notify the I&APs on the department's decision.

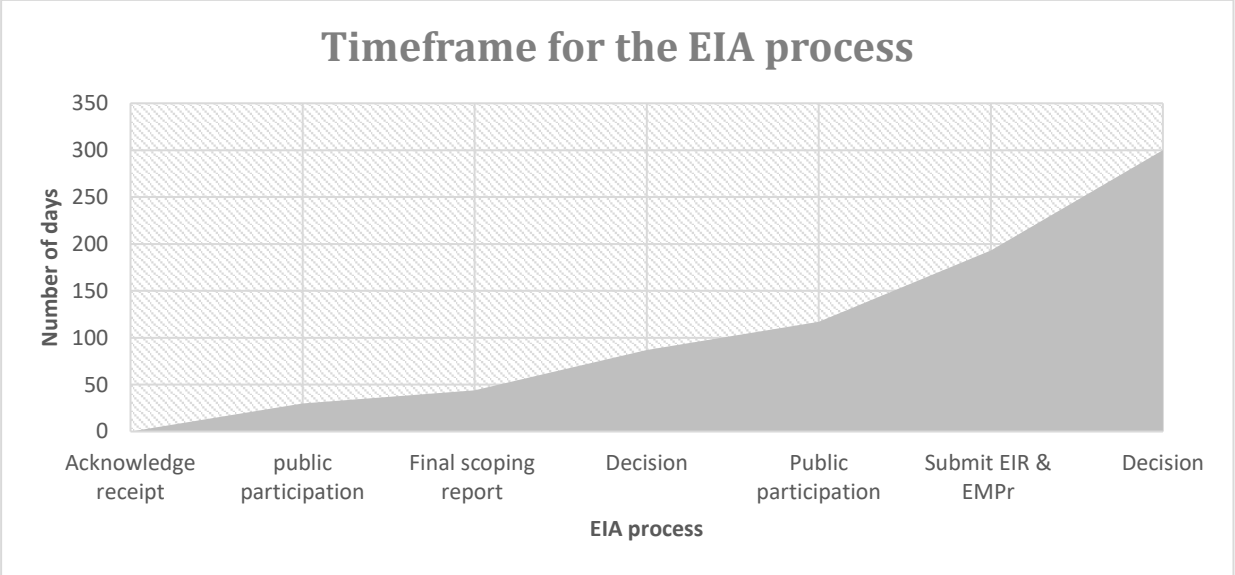

Figure 4-4: Timeframes according to the NEMA regulations for the EIA process.

Figure 4-4 represents all the phases in the EIA process, but because the thirty (30) EIA reports were found on an online domain and not from private consultancy firms, not all the timeframes for each of the processes stated above could be found in the EIA reports. All of the EIA processes were mentioned in the report, but the exact date for some of the processes were missing. Although the exact date was missing, the timeframe in which the exact process occurred was however mentioned. Some of the phases in the EIA process were left out due to this and the following phases were identified as sufficient enough to use for this study. These phases are the first public participation process; the submission of the final scoping report, the second public participation process and the submission of the EIR and EMPr. After all of these reports were explored, all of the timeframes mentioned above were captured onto an Excel spreadsheet to start analysing the data. The data were then analysed through the use of a line graph that was drawn for each of the EIA reports. This line graph can be seen in Figure 4-5.

A classification system needed to be made to classify each of the reports according to its efficiency. Table 4-2 demonstrates the three different classifications and their descriptions, namely *very inefficient*, *slightly inefficient* and *efficient*. In Figure 4-6, very inefficient is represented in the red block, slightly inefficient in the orange block, and the last classification

(efficient) is represented in the green block. The EIA reports investigated will further be referred to as case studies (CS) to describe the data in the analysis as well as in the key of the line graph, and regulated days will be referred to as RD.

Table 4-2: Classification of efficiency.

Very inefficient (Red)	More than 50 days over the prescribed timeframe.
Slightly inefficient (Orange)	Less than 50 days over the prescribed timeframe.
Efficient (Green)	Concluded within the prescribed timeframe.

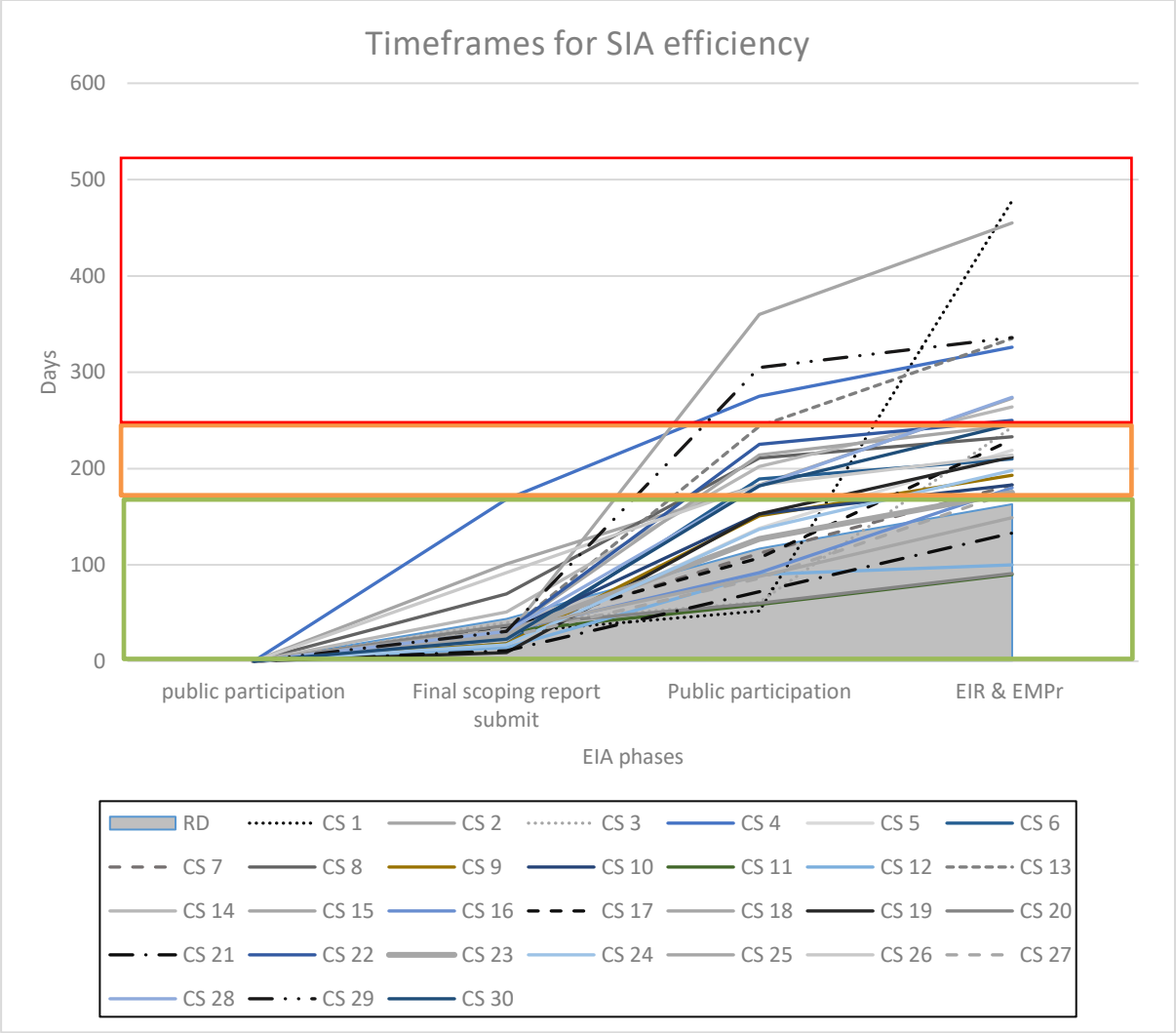

Figure 4-5: Visual representation of the evaluation of efficiency of SIA in all 30 EIA reports.

According to the timeframes given in NEMA, there are one hundred and sixty-three (163) days allocated from the first public participation process to the submission of the final EIR & EMPr

(demonstrated in the grey shaded area in Figure 4-5). This was also identified as the phases where the SIA process will take place. When looking at the line graph above it is clear that there is still a problem with the efficiency of these phases, where the SIA process will occur, in South Africa because only four of thirty (4 of 30; 13.3%) of the reports submitted the EIR & EMPr within the regulated days and can be classified as 'efficient' as seen in the green block (CS 11, 20, 21 and 25). Of these reports only thirteen (13 of 30; 43.3%) were about fifty (50) days over the regulated one hundred and sixty-three (163) days and can be classified as 'slightly inefficient' (CS 5, 6, 7, 9, 10, 16, 17, 19, 23, 24, 26 and 27). The DEA (2017) states that a practitioner has to refrain from conducting public participation within the periods of 15 December and 5 January due to most people being on vacation during this time. This will add twenty-two (22) days to the process of public participation that still needs to be held during this time. This was the case in five (5) of the EIA reports (CS 7, 9, 10, 23 and 27). These five (5) EIA reports can be seen in the orange block on the line graph. This being said, the reports will still exceed the prescribed timeframe but it cannot be classified as 'slightly inefficient'. These reports will now fall under the term efficient due to regulations stating the delay of twenty-two (22) days over the holiday period. Therefore, nine (9 out of 30; 30%) of the reports can now be classified as 'efficient'. The remaining twelve of thirty (12 of 30; 40 %) of the reports can all be classified as 'very inefficient' due to all of them submitting the final EIR & EMPr over fifty (50) days late, with some taking up to four hundred and fifty (450) days for the process to be completed. This is also an indication that the SIA process is not as efficient as the process aims to be because the phases where a SIA process will occur, can be regarded as inefficient. These files are in red and include CS 1, 2, 3, 4, 13, 14, 15, 18, 22, 28, 29 and 30.

When looking at the above timeline it can be seen that the phase between the first public participation and the submission of the final scoping phase, for almost all the reports, is efficient and within the regulated timeframes. It is after the submission of the final scoping phase that a delay occurs in most of the reports. The delay in these phases are not clear within the EIA files, but this delay is important to acknowledge because the SIA process will most likely be performed in the scoping phase. If there is a delay between the final scoping phase and the second public participation process it could influence the efficiency of the SIA process. Now that it is clear that the SIA process was not as efficient in the thirty (30) EIA reports as the process aims to be, the question of how do the SIA specialists feel about this inefficiency, was asked. After investigating the efficiency of SIA, the next section shifts the focus to the perspectives of SIA practitioners on SIA efficiency.

4.3. SIA efficiency: Practitioner Perspectives

As discussed earlier in Chapter 3 an online survey questionnaire was sent out to a sample of SIA practitioners and in the end a sample of nineteen (19) responses were received. A generic inductive approach was followed in order to analyse the data and three themes were pre-determined: (1) demographics and experience of the specialist, (2) efficiency of SIA in South Africa, and (3) suggestions for improvement on the efficiency of the SIA process. The discussion of the findings from the questionnaire will be discussed separately below according to these three themes.

4.3.1 Theme 1: Demographics and experience of the specialist

The first theme revealed the SIA specialists demographic background and experience (Questions 1.1–1.3). The first question asked the specialists to indicate their highest level of qualification (Q1.1) (see Figure 4-6). Most of the specialists (8 of 19; 42.1%) holds an MSc/MA/MTech degree and six (6 of 19; 31%) demonstrated that they have a PhD degree. Three (3 of 19; 15%) indicated that they have an honours degree and two (2 of 19; 10.5%) only had a diploma. In their elaborations to this question a lot of the specialists demonstrated that they did their post-graduate degree with a background in Geography, but specialised in Environmental Management, Research Psychology and Social Science. This information is important because most of the specialists have some kind of specialisation in the social fields of impact assessments and therefore they will give representative opinions on their perspective of the social side of the EIA process in South Africa.

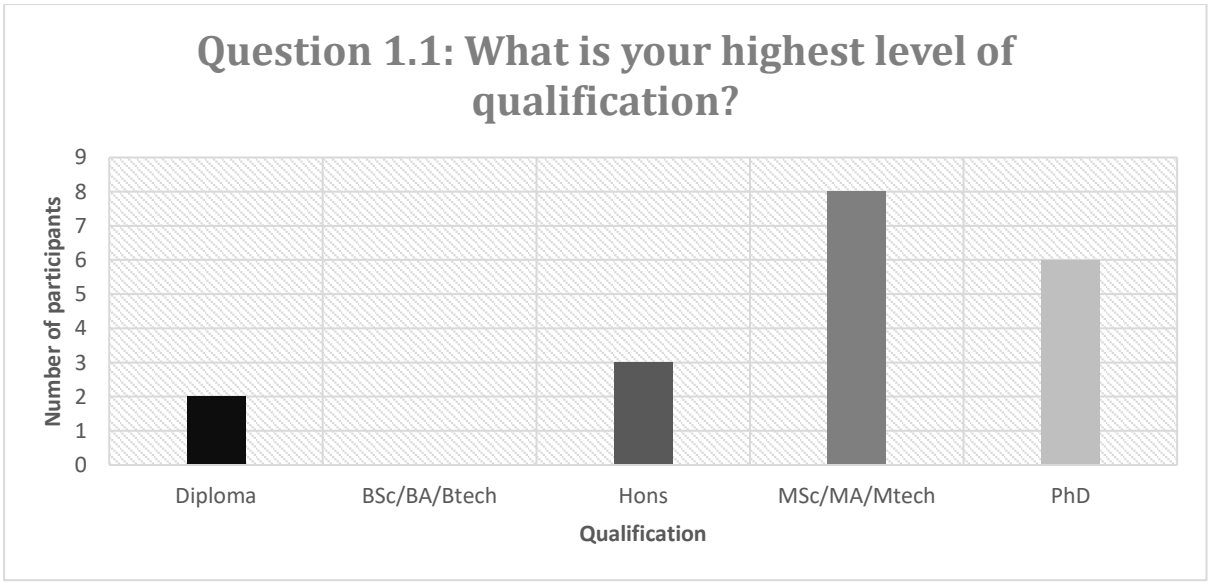

Figure 4-6: What is your highest level of qualification? (Question 1.1).

The second question was about the amount of work experience (in number of years) that the participants had (Q1.2). As seen in Figure 4-7, thirteen of the specialists (13 of 19; 68%) demonstrated that they had more than fifteen (15) years of experience. This aided the study because the opinions of these professionals would not only be in the last few years, it will also include opinions before the regulation had changed in 2014 and these would be opinions of specialists with years of experience. The remaining specialists (6 of 19; 31.6%) revealed that they have between six and ten (6-10) years' and eleven to fifteen (11-15) years' experience in their occupational field. They were also asked to expand on their experiences in certain sectors and this revealed quite extensive areas of expertise in the survey. Most of them had mostly worked in the mining sector, but some also have done research and worked in the higher education sector. The energy, water and waste sector were also listed amongst the specialists. Many have also worked in the infrastructure and development sector.

Figure 4-7: How many years of work experience do you have in your occupational field? (Question 1.2).

The last question in this section (Q1.3) was on how often they work on renewable energy projects (see Figure 4-8). This was an important question for this research because it is the main focus of this research. Of these participants, four (4 of 19; 21.1%) stated that they have never worked on renewable energy projects, but most of the specialists (7 of 19) have worked in this sector about once or twice (1 – 2 times) per year which is classified as seldom. Two (2 of 19; 10.5%) have indicated that they work with renewable energy projects quite often which is three to six (3-6) times per year. A total of three (3 of 19; 15.8%) of the specialists have said that they always work with renewable energy projects and four (4 of 19; 21.1%) stated that they had never worked on renewable energy projects. Another three (3 of 19; 15.8%) of the specialists chose the "other" option that was also available to them, because they either viewed that they only work with

renewable energy projects either once in two years or they have worked on various projects in the past, but since a while ago it has only been one project (SIA1; SIA2; SIA3).

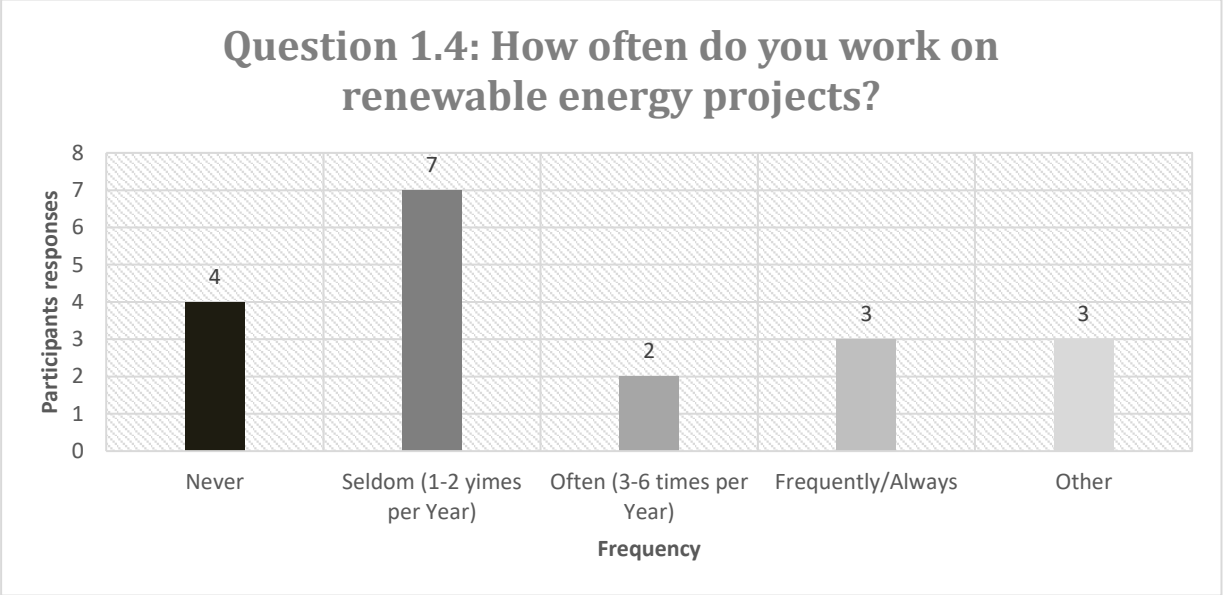

Figure 4-8: How often do you work on renewable energy projects? (Question 1.4).

4.3.2 Theme 2: Efficiency of SIA in South Africa

This theme (Section 2: Efficiency of SIA in South Africa) started with an explanation that the SIA process would mostly be conducted in the scoping phase of the EIA process and within a forty-four-day (44-day) timeframe from the first day of application. The SIA specialists had to give their professional opinion on the SIA process in South Africa and the prescribed timeframe linked thereto. The first question that formed part of this theme consists of their opinion on what constituted good SIA practice in South Africa (Q2.1). It was clear that most of the participants revealed that public participation, ethics, consultation with affected communities, alternatives or mitigation measures and flexibility are some of the most important aspects contributing to good SIA practice. Among these terms there is also a feeling that the SIA process needs more time for a proper assessment as said by SIA 1 that "*often it is difficult to do proper impact assessment due to time and costs from the developers",* and SIA 2 that a *"challenge in terms of SIA is that to assess impacts one must engage with affected stakeholders and for affected stakeholders to engage effectively, they need to be informed of have knowledge about the project. In terms of the current process, they often only get informed when the Scoping Report is made available for comment. Not the job of the SIA consultant to inform people of the project*, *however, under the current regulations, it would require the SIA consultant to contact stakeholders who in many cases are not even aware of the project*". SIA 3 and SIA 4 have also supported the challenges around

time by stating that "*The specialist should be given sufficient time and resources to conduct the study*" and "*Sufficient time to undertake the study, have consultation with Interested and Affected Parties from different sectors*". From SIA 5 it was made clear that not only the timeframe of the SIA process was important, but that the SIA process should stretch through the whole EIA process by stating "*SIA follow-ups should be done further down project life cycle as well (in order) to validate findings".* From SIA 6 it was clear that there was a negative feeling around good SIA practice with the following statement "*Does not exist. Unqualified and inexperienced people parading around as social impact assessors. It is a mess*". This comment is significant because the literature stated that many problems surrounding the SIA process still persist (Barrow, 2000; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Matlakala, 2020). One of the problems included that there are not enough specialists in the field as stated by SIA 6 above, and this might have an impact on the efficiency of SIA (Barrow, 2000; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Matlakala, 2020).

The second question in the theme (Q2.2) started off by giving the following statement: "*Previous literature demonstrates that there are many problems surrounding SIA (O'Faircheallaigh, 2009; Hildebrandt & Sandham, 2014; Martinez & Komendantova, 2020). One of these problems is that there are not enough specialists in the social field which might have an impact on the efficiency of SIA*". For question 2.2 the specialists had to state to what extent they agree / disagree with the above statement and they also had the chance to elaborate; the results for question 2.2 is represented in Figure 4-9. A total of seven of the specialists (7 of 19; 36.8%) disagreed with the statement and one (1 of 19; 5.3%) slightly disagree with this stating that "*The SIA field is growing and there is support from fellow practitioners"* (SIA 4)*.* SIA 15 has also indicated that the numbers of SIA practitioners are growing but said that "*there are still some specialists that do SIAs without a social sciences background".* Although there was a feeling by some of the respondents that although the number of SIA practitioners are growing, the majority still agrees with the statement. Of these seven specialists (7 of 19; 36.84%) agrees / slightly agrees with the above statement. It became clear that there is a shortage of skilled practitioners in the field whereby the following comments stood out: "*the number of social issues on various infrastructure projects is an indication that we don't have enough resources to deal with that*" (SIA 19), and "*There are too limited opportunities for young SIA practitioners to join consultancies and learn the ropes"* (SIA 2) i.e. the opportunities are limited*.* Furthermore, four specialists (4 of 19; 21.1%) strongly agree with the above statement and commented that *"Poor SIA (is) done by unqualified practitioners" (*SIA 5)*,* "*Legislation is not enforced and clients expect consultants to cut corners by paying lip service to the minimum requirements"* (SIA 7)*,* "*There are enough people, but not all are suitably qualified or have sufficient experience. So perhaps there are not enough appropriately qualified people"* (SIA 11), *and "It is not about the number of specialists - but it is their experience and exposure which are lacking"* (SIA 16)*.*

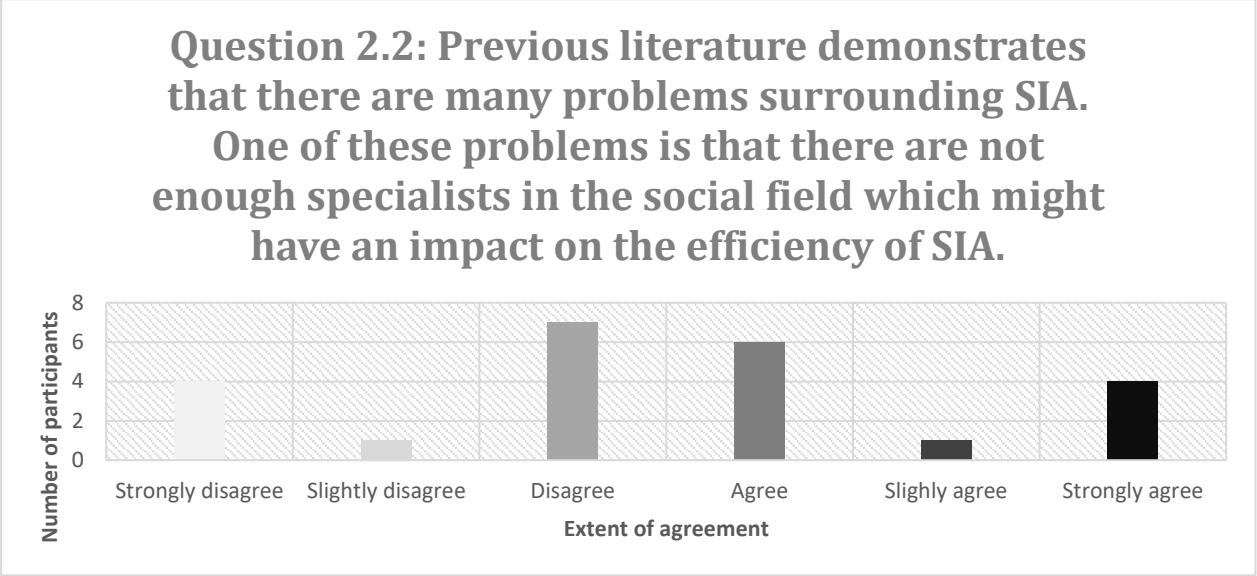

Figure 4-9: Previous literature demonstrates that there are many problems surrounding SIA. One of these problems is that there are not enough specialists in the social field which might have an impact on the efficiency of SIA (Question 2.2).

The next question (Q2.3) was important for this study because previous literature indicated that one of the problems with the SIA process is that there is not enough time for the SIA specialists to perform an adequate SIA study (Barrow, 2000; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Matlakala, 2020). Therefore, Question 2.3 asked "*How often is the timeframe given to SIA specialists by EAPs, sufficient to perform an adequate SIA study?*", and respondents also had a chance to elaborate on their answer. Figure 4-10 below displays the results from this question and demonstrates that eleven (11 of 19; 57.9%) of the specialists agreed that the timeframe for an SIA is sometimes adequate to complete the process. Some suggested that "*most specialist studies, including SIA, commence before the EIA application is submitted to allow enough time for the study before the clock starts ticking"* (SIA 11) and "*Large, and well-managed EIA processes have provided me with sufficient time to provide a good quality SIA*" (SIA 3). SIA 6 also added that "*The EAPs familiar with SIA tend to give sufficient time*". From these responses, it is clear that if the planning phase of the EIA project is done well then there is enough time for the SIA specialist to conduct an adequate investigation. However, some other practitioners did not agree with the statement in Question 2.3 and stated that "*usually there is not enough time to do a proper SIA. No time for participatory approaches that require time to gain the trust of the communities, establish focus groups, etc."* (SIA 1) and the "*time to conduct a proper SIA is limited*" (SIA 2). It became clear that time plays an important role in the SIA process because "*time is money*" (SIA 4) and developers do not want to waste time on unnecessary processes.

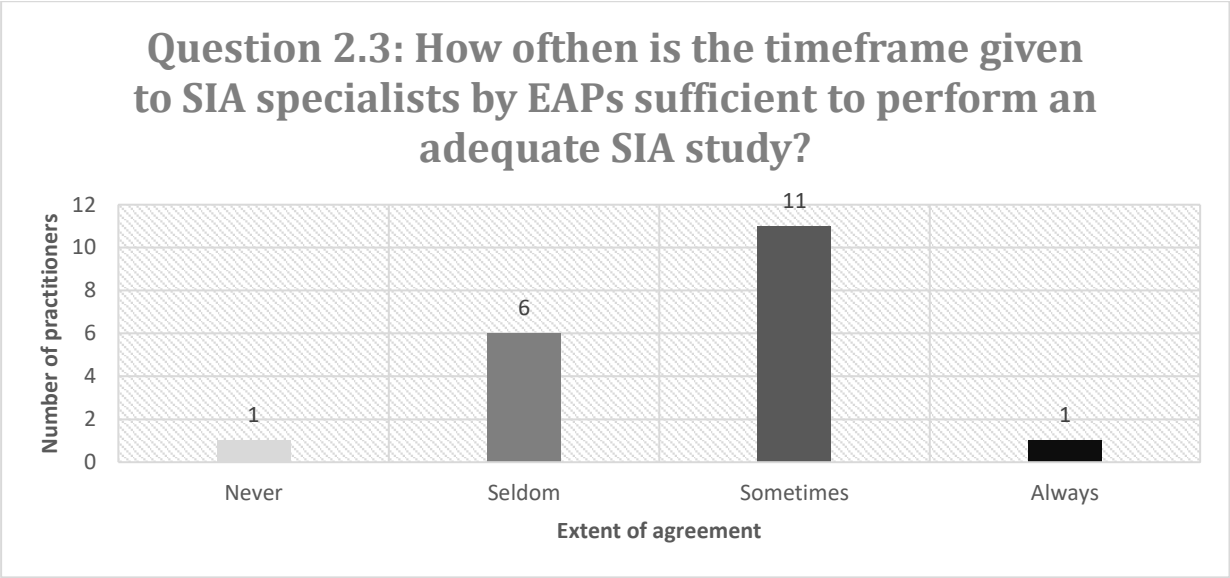

Figure 4-10: How often is the timeframe given by EAPs to SIA specialists, sufficient to perform an adequate SIA study? (Question 2.3).

From previous research (King *et al.,* 2018), it was clear that there is not enough time given to complete an SIA. The NEMA regulations set aside forty-four (44) days to conduct any specialists study during the scoping phase. There is an opinion amongst practitioners that this timeframe is not sufficient and therefore Question 2.4. was asked: *What is the sufficient amount of time that an SIA practitioner needs to perform an adequate SIA?* The specialists had to indicate the amount of time that they perceived is sufficient and they also had to elaborate on this. The results of Question 2.4 are illustrated in Figure 4-11 below. The majority of the specialists (13 of 19; 68.4%) have indicated that more than forty (40) days should be allowed to perform an adequate / quality SIA, meaning that the current timeframe for the SIA process is not adequate. SIA 1 argued that "t*he consultation process can be enhanced"* if more time is allowed for an SIA and some others (SIA 2; SIA 15; SIA 13 and SIA 16) further argued that an even longer timeframe is needed to interact more effectively with the public. One of the specialists even suggested that "*six weeks is a minimum. Conducting a desktop assessment and a site visit, is not always sufficient to conduct and SIA*" (SIA 9). Another four (4 of 19; 21.1%) indicated that between twenty-one to forty (21-40) days will be enough to conclude an SIA process, and the remaining two participants (2 of 19; 10.5%) demonstrated that twenty-one to thirty (21-30) days can be seen as sufficient time to conclude an SIA study. The reason why some specialists viewed that less than forty (40) days are sufficient to perform the SIA process was that they perceived that some SIAs are "*pretty straightforward*" (SIA 6) and this timeframe would be sufficient for smaller, less complex projects and that some impacts are "*seasonal*" (SIA 4).

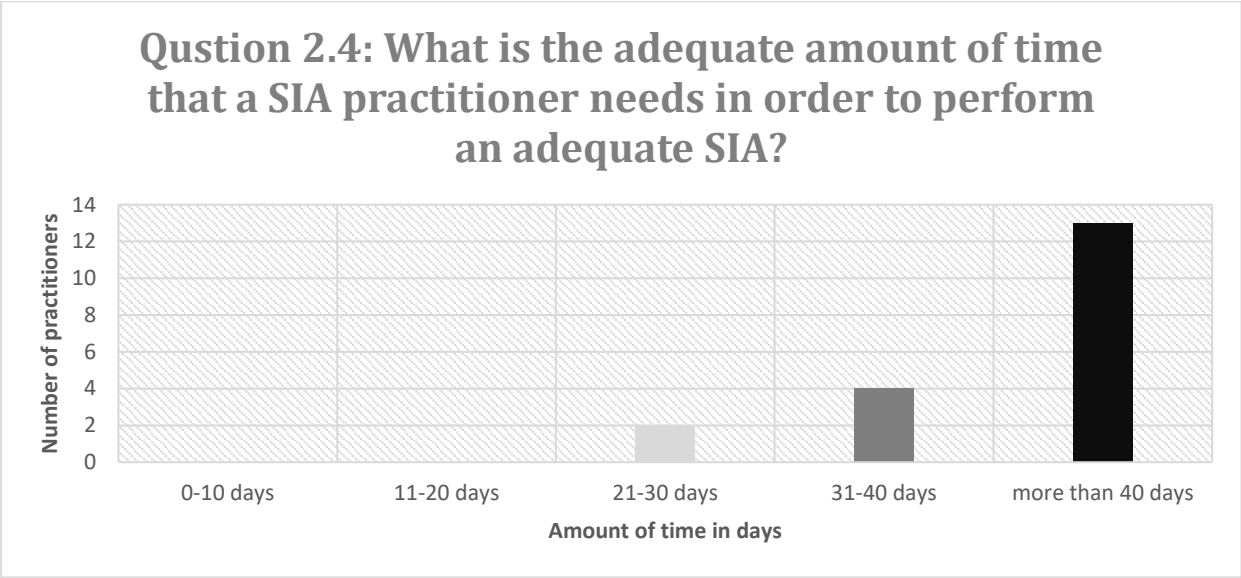

Figure 4-11: What is the sufficient amount of time that a SIA practitioner needs in order to perform an adequate SIA? (Question 2.4).

Although the NEMA regulations stipulate that a specialist's study should be done within the forty-four (44) days prescribed for the scoping phase, there is no clear timeframe only applicable to an SIA study anywhere in the regulations. For Question 2.5 in Theme 2, the specialists had to state to what extent they agreed with the following phrase: "*Literature suggests that there should be a regulated timeframe that practitioners can follow to conduct an SIA (O'Faircheallaigh, 2009; Kruger, 2020)".* Figure 4-12 below represents the answers to this question. From this, it is clear that the majority (11 of 19; 57.8%) of the specialists have agreed to strongly agreed with this statement, but some of them (8 of 19; 42.1%) disagreed to strongly disagreed with this statement. From the previous question, it was clear from the answers that the majority of the specialists had given (13 of 19; 68.4%) that they suggested that more time (more than 40 days) is needed to conduct an SIA so it is unclear why so many of them still feel that there should not be a regulated timeframe for the SIA process.

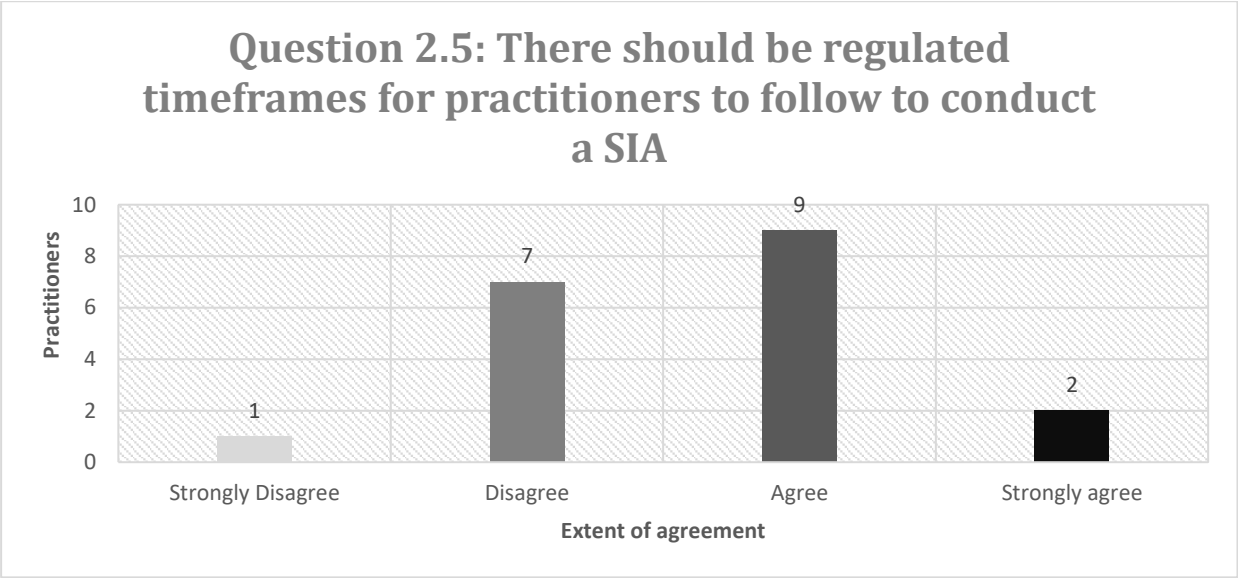

Figure 4-12: Literature suggests that there should be a regulated timeframe that practitioners can follow to conduct an SIA (O'Faircheallaigh, 2009; Kruger 2020). To what extent do you agree with this statement? (Question 2.5).

The second last question that formed part of Theme 2 (Q2.6) asked how the practitioners would classify the performance of SIA in South Africa in terms of efficiency and they also had the opportunity to elaborate on their reasoning. Figure 4-13 represents the results gained from the specialists. The majority (9 of 19; 47.4%) of the specialists classified it as acceptable with only one (1 of 19; 5.3%) indicating that it is outstanding; three (3 of 19; 15.8%) specialists stated that the performance could be classified as good. These specialists elaborated on their answers and SIA 1 suggested that there is "*room for improvement*". SIA 15 added that an "*SIA is increasingly important to the decision-making process. International funding agencies and investors require SIA reports that meet international best practice requirements*". Furthermore, most SIAs conducted in South Africa are proven to be acceptable to international standards (SIA 16) and the "*SIA practitioners all align with currently legislated timeframes*" (SIA 18). Although some had a positive classification of the performance of the SIA process, six (6 of 19; 31.6%) have indicated that the performance is weak. Some reasons for this were that due to a lack of time the SIA process became "*superficial*" (SIA 2), not enough trained personnel (SIA 14); and legislation is not strongly enforced (SIA 5). There also was a concern that the recommendation made by SIA specialists are not always taken seriously by the EAP as well as by developers (SIA 7; SIA 15; SIA 17 and 19).

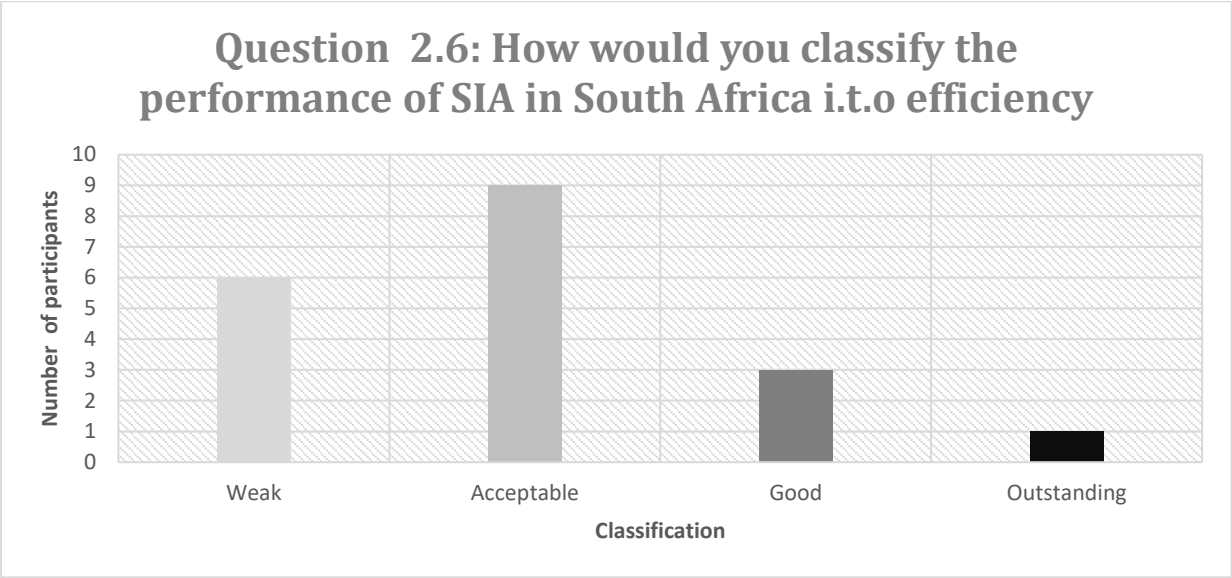

Figure 4-13: How would you classify the performance of SIA in South Africa in terms of efficiency? (Question 2.6).

The last question that formed part of this theme (Question 2.7) consists of several reasons or options that have been derived from previous literature, as to why the SIA process might be inefficient. The specialists had to select from the options given below in Table 4-3 to which ones they agree most. The results from Question 2.7 can be seen in Figure 4-14 below.

Table 4-3: In your opinion which of the following can contribute to an SIA process is inefficient (Question 2.7).

A	The skills level of practitioners are not up to standard.
B	Capacity shortage of SIA practitioners.
C	Specialists are not given enough time to perform a specialists study.
D	Amendments to the regulations and practitioners not being aware of these amendments.
E	Lack of understanding of the SIA process.
F	No clear timeframe in the regulations.
G	Insufficient follow-up procedures.
H	Poor communication with stakeholders.
I	All of the above.
J	Other.

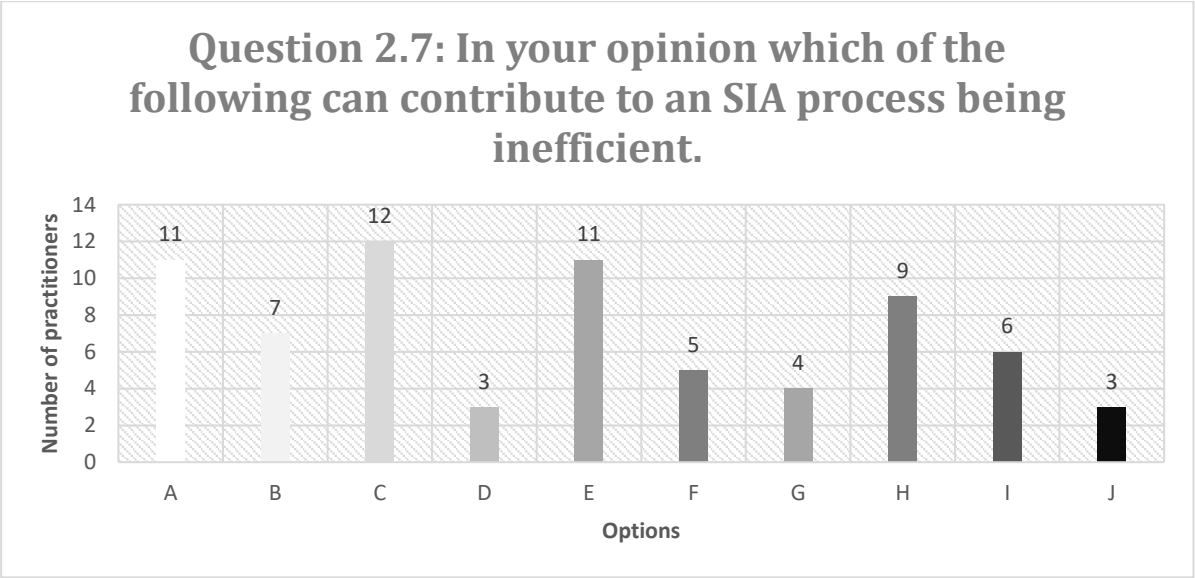

Figure 4-14: In your opinion which of the following can contribute to an SIA process being inefficient (Kindly select all that have the most influence) (Question 2-7).

One of the popular answers were that the specialists were not given enough time to conduct an SIA study (C) (12 of 19; 63.2%). From the practitioners taking part, eleven (11 of 19; 57.9%) have agreed that the skills levels of practitioners are not on standard (A), as well as that they feel that there is a lack of understanding of the importance of the SIA process (E). The third most popular answer was the fact that they perceived that there is poor communication from the EAP to the specialists (H), where nine (9 of 19; 47.4%) have indicated that this is a problem and that this problem could lead to important information getting lost in the process. Answer B was important whereby seven (7 of 19; 36.8%) have indicated that there is a capacity shortage of SIA practitioners and six (6 of 19; 31.6%) of the specialists have indicated that all of the answers lead to the SIA process being inefficient (I) followed by five (5 of 19; 26.3%) agreeing that there is no clear timeframe (F) given to the specialists to conduct an in-depth SIA study. The rest (4 of 19; 21.1%) of the specialists have settled that there is insufficient follow-up procedures (G) in the SIA process, meaning that specialists would be involved in the scoping phase and then never again through the EIA process and three (3 of 19; 15.8%) have also indicated that some practitioners are not aware when new amendments are implemented to the SIA process (D) and this could also be linked to the skills levels of practitioners that are not on the standard (A); that was popular with eleven (11 of 19; 57.9%) of the specialists. Three (3 of 9; 15.8%) of the specialists have also selected the option “J. Other” and some of the answers elaborated on here were that “*time and capacity are the main issues*” (SIA1); “*Clients always chasing completion time and not taking social issue serious(ly)*” (SIA 2); and “*South Africa has a very complex social environment, and community politics and the socio-political environment can also render SIA process inefficient*” (SIA5). It is also clear that the fact that SIA specialists had no decision-making power in the EIA

process although communities have high expectations of new developments (SIA 5), also led to the process not reaching its intended purpose and being inefficient.

4.3.3 Theme 3: Suggestions for improvement on the efficiency of the SIA process.

The last theme (Section 3) consisted of mainly two questions that provided the SIA specialists the chance to make suggestions on the improvement of the efficiency of the SIA process in South Africa. For Question 3.1 the following statement was given and practitioners had to state to what extent they agreed with the statement and whether there still is room for improvement on the SIA process. The statement was as follows: "*Kruger and Sandham (2018:8) studied the poor performance of the SIA process through perspectives of practitioners in South Africa. It was found the SIA process is in a neglected state due to some of the following reasons: There is confusion about the difference between SIA and Public participation. This confusion was recognised decades ago (in) the EIA practice in South Africa (and it is) suggested that public participation has to be presented as the SIA component (Kruger & Sandham, 2018:8). These two processes should be considered as separate assessments. Furthermore, there are not enough SIA specialists to conduct these studies in South Africa (Kruger & Sandham, 2018:9).* Figure 4-15 below represents the answers to this question and it is clear that the specialists, to a larger extent, agreed that the SIA process could still improve (5 of 19; 26.3% strongly agreed; 7 of 19 agreed; 36.8%). The remaining specialists disagreed (4 of 19; 21.1%) or strongly disagreed (3 of 19; 15.8%) with the statement demonstrating that there is not much room for improvement on the SIA process needed and that it is efficient the way it is.

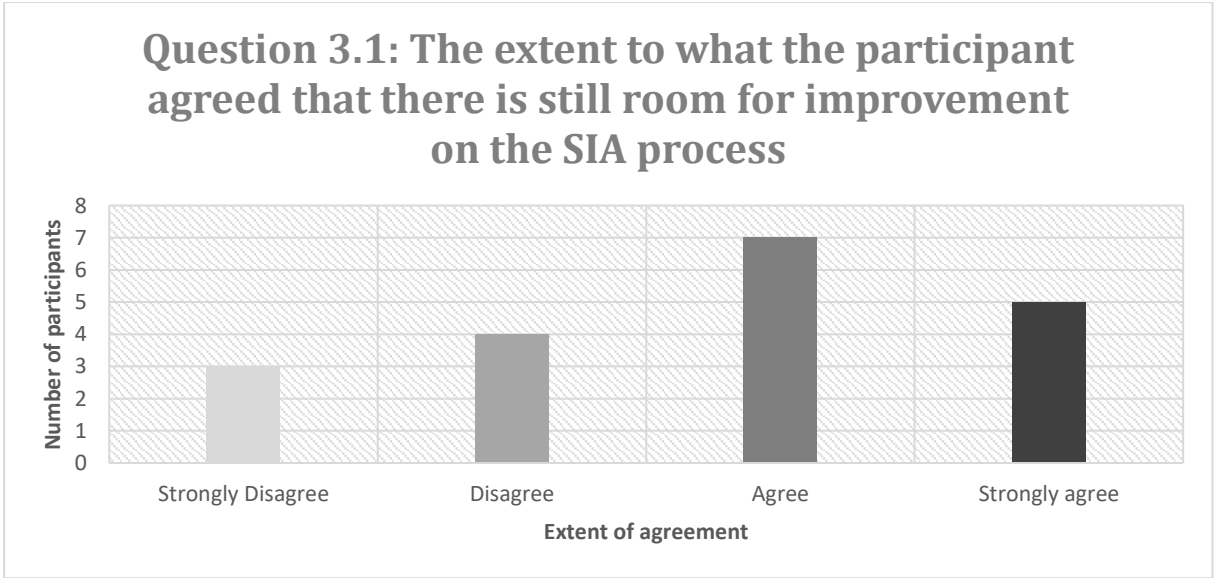

Figure 4-15: The extent that the specialists agreed that there is still room for improvement of the SIA process (Question 3.1).

From Figure 4-15 it is evident that the majority of the practitioners have indicated that the SIA process needs to improve to be more efficient. The second question that formed part of this theme (Q3.2) has provided the specialists with the opportunity to suggest or recommend how the EIA process could change to improve the efficiency of the SIA process. It was clear that the specialists have demonstrated in their responses that an SIA practitioner needs more time to perform an SIA and that the process should start earlier (SIA1 and SIA6), and that more training is needed to improve the efficiency of the process (SIA2; SIA4 and SIA17). Many of the specialists (SIA3; SIA10; SIA5; SIA9; SIA11; SIA12 and SIA 19) have agreed by suggesting that an SIA should form part of the EIA process and it should be seen as a comprehensive process being *"parallel*" to the EIA process (SIA3 and SIA10). The specialists have also indicated that it should be made clear that the SIA is not the same as public participation (SIA9) and that an SIA should "*stand on its own two feet*" (SIA4; SIA 8; SIA12 and SIA16). Two of the specialists have also stated that the saying of "an *SIA will open a can of worms*" should be discarded (SIA7; SIA19) and that the SIA process should be seen in a more positive light in order to improve the efficiency of the SIA process.

4.4 Discussion of findings

It was clear from the investigation / analysis of the EIA reports that an SIA was not regarded as an assessment in its own right but rather as an integral part of the EIA process. This was stated as a problem identified by the specialists / participants because they have suggested that the SIA process should stand on its own, apart from the EIA process, but still parallel to the EIA process. They have also indicated that important social impacts could be missed if the process fades away from other processes.

From the line graph in Figure 4-5, it is noticeable that in the majority of the renewable energy EIA reports that the phases where the SIA process occurs, were classified as either slightly inefficient (more than 50 days late) or very inefficient (less than 50 days late). This gave a strong indication that the SIA process was not efficiently handled and delays had occurred. From the answers and suggestions obtained from the survey, it was clear that this inefficacy can be ascribed to various reasons, including: the inexperience of practitioners; specialists getting involved too late; not enough time for practitioners to conduct an SIA study; capacity shortage; not enough focus on the social aspects; the SIA process forming part of the EIA process; recommendations not taken as seriously by EAPs; legislation not strongly enforced; poor communication with specialists and also insufficient follow-up procedures. All of these arguments are leading to the SIA process in South Africa not being as efficient as it should be. These answers have corresponded well with the same complaints that were stated in the literature by Barrow (2010), Du Pisani (2005), Sandham *et al.* (2005), Steenkamp (2009), O'Faircheallaigh (2009), Hildebrandt and Sandham

(2014), Kruger and Sandham (2018), Matlakala (2020), and King *et al.* (2018). From these problems obtained from the literature review conducted in Chapter 2, it is clear that some of these problems have been raised as concerns for the past twenty-one years. The studies over the past two decades were slightly different but they all had the same conclusion and problems as to why the EIA and SIA processes are inefficient. This has a major impact on the REPs because the SIA processes for these projects will also be inefficient if the EIAs are inefficient. From the answers gained in the survey by practitioners, it was evident that there are still a lot of negative feelings around the SIA process and this would be applicable to REPs as well. The government has fast tracked the development of REPs in South Africa through the REPs classification zones in Chapter 2, but if there is still a negative feeling around the SIA process for these projects then the projects will not be handled in an efficient way and this would eventually lead to social areas around REPs being negatively affected and communities not supporting these types of projects. Sustainable development is important in South Africa because of the rapidly growing population. This population growth has increased the need for sustainable and clean energy and therefore the efficient conclusion of processes such as an SIA process within the EIA process is very important.

Suggestions needed to be made on how the efficiency of the SIA process can be improved upon. Some suggestions where they had to improve upon this was the fact that a specialist should be involved much earlier in the EIA process and that they should be involved throughout the whole EIA process. Participants also suggested that the EIA process should be a stand-alone process and should be parallel to the EIA process and it was also found important that more training and time was required to improve the SIA efficiency in South Africa.

4.5 Conclusion

This chapter firstly aimed to reach Research Objective 2 (to determine the efficiency of SIAs using a timeline for conducting SIAs in RE projects), and Research Objective 3 (to evaluate the efficiency of a sample of SIA reports from renewable energy projects). When all of these EIA reports were analysed and a line graph was prepared, it was determined that most of the reports were slightly inefficient (less than 50 days over the prescribed timeframe) or very inefficient (more than 50 days over the prescribed timeframe). This inefficiency occurred in the phases where the SIA process was controlled and therefore the SIA process was also classified as inefficient. This was evident because, from the literature and the responses in the survey, it was clear that the SIA process was not up to standard and that the process could be more efficient. When the inefficiency of SIAs in South Africa were determined (RO 2 and RO 3), the next research objective (RO 4) was reached (to explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in SA). Data for this objective were collected in the form of an online survey that nineteen

(19) specialists had responded to. From their responses it was noticeable that practitioners agreed that there still is room for improvement on the SIA process. They suggested that the SIA process could improve by providing more training for selected personnel. They also have perceived that more time was needed to conduct an SIA and a strict follow-up routine was also needed. In order to improve the efficiency of the SIA process the suggestions were clear cut: EAPs need to take the SIA process more seriously.

The participants further viewed that the SIA process should be seen as a separate process, but it should align with EIA. All of these suggestions would eventually lead to the whole SIA process being more efficient for all the parties involved, especially in the renewable energy sector of South Africa. It was clear that when the SIA process is more efficient, it will have an impact on sustainable development which is one of South Africa's main priorities in protecting the environment.

The next chapter will provide a brief summary of the research done on the efficiency of the SIA process. It will also provide a brief summary of every chapter.

CHAPTER 5: CONCLUSION AND RECOMMENDATIONS

5.1. Introduction

Chapter 4 demonstrated the importance of improving the efficiency of SIA and explaining why it will contribute to sustainable development. The final chapter (Chapter 5) will provide a summary of the main findings and conclusions. Dating back to 1987, long term strategies have already been proposed in order to be able to achieve Sustainable Development by the year 2000. Sustainable development aims to improve the needs of the current generation without negatively affecting the needs of future generations (Report of the World Commission of Environmental and Development, 1987). The principles in the Rio Declaration in 1992 marked an important turning point in the process of sustainable development by requiring that Environmental Management (EM) processes be implemented to improve human behaviour in the environment (UN, 1992; Kruger *et al.,* 2020). One such EM process is Environmental Impact Assessment (EIA) which was already being implemented in many countries around the world as a voluntary action to improve sustainable development. The EIA process aims to enhance decision making to minimize negative impacts on the environment (South Africa, 2014; King *et al*., 2018a). In 1996, Section 24 of the Constitution of South Africa enshrined the human right of all South Africans to a protected environment that is not harmful to their health as well as to their well-being (RSA, 1996:9).

In order to give effect to Section 24 of the Constitution, EIA policy and regulations were adopted in 1997 in terms of Section 21 of the Environment Conservation Act. These EIA regulations remained in force until 2006 when new EIA regulations were promulgated in terms of the National Environmental Management Act (NEMA) of 1998. Further amendments to the NEMA regulations were made in 2010, 2014 and 2017. Because the very broad definition of the 'environment' in NEMA included humans, the Social Impact Assessment (SIA) process developed parallel to the EIA process whereby specialists have to be involved in the process of identifying the impacts on the social environment surrounding new developments (Hildebrandt & Sandham, 2014). The definition of SIA is discussed in Chapters 1 and 2 where it was clear that a SIA process is very important in development projects such as Renewable Energy Projects (REPs) where indigenous knowledge could contribute to identifying impacts that such projects could have on the environment (Barrow, 2000; Vanclay, 2003; Kemp & Vanclay, 2013; Götzmann *et al.,* 2016; Imperiale & Vanclay, 2016; Karami *et al.,* 2017; IAIA, 2020; Vanclay *et al.,* 2020). These projects can also have a big effect on job creation and could improve the quality of life for the surrounding communities (IRP, 2019).

With the ever growing populations and the ever growing threat of human induced climate change, the implementation of sustainable renewable energy is important because other forms of energy

production, such as coal based energy production, is a non-renewable form of energy production that will no longer be sufficient to use as a sustainable source of energy (Department of Energy, 2015). In South Africa, the two most popular forms of renewable energy production are Wind and Solar energy, because of the high radiation index and wind prospects (Jain & Jain, 2017). With the construction of renewable energy projects, the SIA process is important to improve the sustainability of the environment surrounding the project.

The NEMA regulations state that the EIA process must be conducted in a three hundred-day (300-day) timeframe to be classified as efficient (South Africa, 2014). At the beginning of the EIA phase, the scoping phase must occur, which is normally the phase where specialists will be involved to identify possible impacts on the environment and to give suggestions on mitigation measures. From previous literature, it was found that the EIA process is not performing as effectively as it aims to, which may lead to the SIA process not achieving its purpose (effectiveness) and not being conducted within the timeframe required by NEMA (efficiency) (Fischer *et al*., 1994; Hattingh & Claassen, 2008; Retief & Chabalala, 2009; Steenkamp, 2009; Pölönen *et al.,* 2011; Botha, 2018; Myburgh, 2018; Kidd *et al.,* 2018). Previous research has indicated that the SIA process is in a neglected state due to insufficient focus on the social aspects which can be because of a shortage of trained specialists as well as not enough time given by EAPs for specialists to perform an effective SIA (Barrow, 2000; Hildebrandt & Sandham, 2014; Kruger & Sandham, 2018; Matlakala, 2020). These impacts contributed only to the effectiveness of the SIA process and therefore a research gap was identified especially for SIAs in the renewable energy sector of South Africa. Therefore, this research study has aimed to investigate the efficiency of SIA in the renewable energy sector of South Africa.

5.2. Summary of findings

To achieve the aim of this research, five research objectives (ROs) were set and presented in Chapter 1. The findings of each RO are discussed separately in the subsections below. Each subsection provides a brief summary of the findings and conclusions for each RO as well as in what chapter the RO was discussed.

5.2.1. RO 1: To explore the practice of SIA in South Africa and to determine what constitutes good SIA.

Chapter 2 has aimed to achieve the first RO by means of a literature review. The literature review showed that the SIA process has developed alongside the EIA process, but this is not a mandatory process like EIA. The process of SIA aims to create a social balance, and to create

this balance, a definition for good and / or best practice SIA needs to be formulated. Hence, a differentiation is made between *'best practice'* and '*good practice'*. In Chapter 2 a clear definition was given for both these terms and is briefly stated again here:

- *Best practice:* guidelines and ethics that are set as the appropriate way to perform an SIA.
- *Good practice:* behaviour that is appropriate and expected in the SIA practice, and will set a model for best practice to develop from.

In South Africa, good practice forms part of sustainable development where the SIA practitioner should stay issue-orientated and there should be a balance between flexibility and standardisation. Good practice further states that the SIA practitioner should be involved throughout the whole EIA process and sufficient follow-up measures should be in place. It was also suggested that the specialists should become involved earlier in the process and they should have a proactive approach to identifying problems.

Although there are guidelines on what constitutes good SIA practice, the EIA process in South Africa often treats social data as less important and this can lead to the process being less efficient. It was also clear that there are delays in the EIA process that constrict the process of reaching its intended purpose. These delays will also lead to the SIA process being inefficient because the SIA process is integrated with the EIA process. These delays included communication, available resources, the timing of EIAs, the attitudes of stakeholders, decision-making, insufficient follow-up, skill levels of officials and EAPs, high staff turnover, size and complexity of projects, time delays, and unforeseen reporting. All of these reasons for delays are indications that the SIA process is also not performing as it is required to do. Some of the reasons for the inefficiency of the SIA process includes the failure of the government to acknowledge indigenous and cultural knowledge, the lack of financial resources, not enough skilled practitioners and the short periods that are allowed for submission of an SIA. Resulting from the literature review that was conducted, it was necessary to investigate the efficiency of SIA in solar and wind energy projects that lead to the second and third research objectives that will be discussed next.

5.2.2. RO 2: To determine the efficiency of SIAs using a timeline for conducting SIAs in both solar and wind energy projects.

The second research objective, i.e. to determine the efficiency of SIAs by using a timeline for conducting SIAs in both solar and wind energy projects, is presented in Chapter 4 and the summary of the findings is included here. The NEMA regulations provide a prescribed timeframe that all EIA processes in South Africa have to follow. This timeframe was discussed in Chapter 2

and allows three hundred (300) days for the entire EIA process. Within this timeframe, different processes need to be conducted in a timely and efficient manner, including the SIA process. The template for these three hundred (300) days was illustrated in Chapter 4 as Figure 4-4 and this template was also the one used to evaluate the efficiency of the thirty (30) EIA reports that were looked into.

In the literature review it was evident that practitioners have felt that there were some problems leading to the inefficiency of the EIA process because of this timeframe. The practitioners were of opinion that these timeframes were not sufficient for bigger and more complex projects and they highlighted that the continuous changing of regulations around the EIA timeframe might also contribute to the lack of efficiency because practitioners were not always educated regarding the latest timeframes (King *et al.,* 2018). It was clear that there is a problem with the timeframes for EIAs in South Africa that may lead to the efficiency of the process being jeopardised but, as stated earlier, not enough research could be found to state the efficacy of SIA in South Africa. This led to the third research objective that had aimed to measure the efficiency of SIAs in the renewable energy rector of South Africa.

5.2.3. RO 3: To evaluate the efficiency of a sample of SIA reports from renewable energy projects.

Since it was clear (from RO1 in Chapter 2) that there is a problem with the efficiency of SIAs in South Africa, data were needed on the current state of the process. To achieve the third research objective (i.e. to evaluate the efficiency of a sample of SIA reports from REPs), thirty (30) EIA reports were sampled from different provinces and duly analysed. The EIA reports were obtained through an online domain and therefore an availability sample was used. The data were analysed in two parts. Firstly, three themes were identified in order to evaluate the extent of detail given to SIAs in EIA reports and it was clear that SIAs still receives a lot of detail in reports. Although the regulation suggests that the SIA process has to be done in the scoping phase of the EIA process, the data demonstrated that the SIA process was mostly done in the EIA phase as well as throughout the whole scoping phase and EIA phase.

After the data from the three themes had been analysed, the second part of the data analysis began. The data from the reports were read into a spreadsheet and then the timeframe for each report was measured against the three hundred-day (300-day) template as required by NEMA. Most of the reports were classified as slightly inefficient (less than fifty days over the prescribed timeframe) or very inefficient (more than fifty days over the prescribed timeframe) with most of the delays being between the submission of the final scoping report and the second public

participation process. These are also the phases in the EIA report where an SIA process is most popular to occur. For these thirty (30) EIA reports, it was clear that the phase where the SIA process was involved, was classified as inefficient with delays constricting the process to stay within the regulated timeframes as stated in NEMA. It was clear that the data suggested that the SIA process may not be as efficient as the process aims to be and data had to be gathered from a practitioner's perspective on their opinion on the efficiency of SIAs in South Africa.

5.2.4. RO 4: To explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa.

The fourth objective was also discussed in Chapter 4 where data were collected through the use of an online survey of a sample of nineteen (19) SIA practitioners. A generic inductive approach was used to analyse the data from the survey whereby three themes had been pre-identified. The first theme included data on the participant's demographic background and experience; from this it was evident that the majority of the participants have had many years of experience in different fields of practice so the data gathered from the survey gained opinions from experienced practitioners.

The next theme consists of the participants stating their professional opinion on the efficiency of SIAs in South Africa. They revealed that there is a problem with the efficiency of the SIA process in South Africa due to underqualified practitioners and not enough opportunities to train young practitioners on how to perform an efficient SIA study. Another problem that was mentioned, was the fact that the SIA process is not efficient because it is not enforced by law and developers do not want to spend money on a process that they feel is unnecessary. They also demonstrated in their responses that the timeframe for conducting an SIA is not adequate and they need more than the forty-four (44) days that are allowed for the SIA process if it is conducted in the scoping phase. It was observed from the perspectives that SIA practitioners had on the efficiency of SIA in South Africa, that they felt that the process still needs to improve to be more efficient. For the last theme, the specialists had to provide recommendations on how the SIA process could improve. These recommendations formed part of the last research objective (RO 5) and will follow next.

5.2.5. RO 5: To provide recommendations for SIA practice and future research.

Research Objective 5 aimed to provide recommendations on how SIA practice could improve (discussed in Chapter 4) as well as to make suggestions for future research. To achieve the first

part of this objective, a section was provided in the survey where the practitioners could make recommendations on how the process could be improved. Their responses have indicated that more time had to be allowed for the specialists to conduct an SIA process or to provide a regulated timeframe for all specialists to work from. More training also needs to be done to improve the efficiency of the process. The participants also suggested that the SIA process should be parallel with the EIA process and people should see it as separate from the public participation processes. Future research can also include expanding this investigation to other sectors beyond energy e.g. agriculture, infrastructure, housing and transport. Because limited research has been done on the efficiency of SIAs in South Africa, future research should also focus on this topic to a greater extent, especially in the renewable energy sector of South Africa. Future research can also investigate the optimal timeframe for the SIA process that is parallel with the EIA process, and research can be done on ways to provide more training in this field.

In conclusion, future research needs to pay more attention to providing suggestions on how to improve on the efficiency of the SIA process because more pressure will be placed on equality and human rights. If communities feel that their voices are being heard in developments, especially in the fast-developing renewable energy sector, then they will more likely be in favour of the development and more eager to get involved and participate in the development phase, as well as the operating phase of the project because it will lead to job creation.

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ANNEXURE A

Dear respondent.

My name is Yolandie Engelbrecht and I am doing my Masters study in Geography and Environmental Management at the North-West University (Ethics number: NWU-01461-20-A9). The main aim of my research is to investigate the efficiency of Social Impact Assessments (SIAs) in the renewable energy sector of South Africa. In reaching this aim one of my research objectives is to explore the perceptions of SIA practitioners and EAPs on the efficiency of SIA in South Africa.

Your professional opinion on the efficiency of the SIA process is important in reaching this research objective. Very little research has been done in this field, therefore the voice of practitioners such as yourself will assist in contributing to this research gap. Your answers will also help me to make recommendations on how the SIA process can improve.

This structured questionnaire consists of three sections with 18 open- and closed-ended questions respectively, and will take approximately 30 minutes to complete. Your participation in this survey is completely voluntary and you can withdraw from the survey at any time. The data obtained from the questionnaire will be dealt with anonymously.

Thank you for your willingness to participate in this study. Feel free to contact me anytime during the questionnaire: engelbrechtyolandie@gmail.com or 083 466 8923.

Informed consent: By signing below I understand the purpose of this study and hereby consent to willingly participate in this study.

Section 1: Demographics and experience of the specialist
This section focuses on the background information of the specialists and their work experience which will assist the research to gain insight into the sample group.

1.1. What is your highest level of qualification?

A) Diploma	B) BSc/ BA/ BTech	C) Hons	D) MSc/ MA/ MTech	E) PhD

Kindly elaborate on the details of your qualification:

1.2. How many years of work experience do you have in your occupational field?

A) Less than one year	B) 1-5 Years	C) 6-10 Years	D) 11-15 Years	E) More than 15 Years

Kindly indicate and elaborate in which sectors you have worked in (e.g. mining, energy, etc.).

1.3. How often do you work on renewable energy projects?

A) Never	B) Seldom (1-2 times per year)	C) Often (3-6 times per year)	D) Frequently/always	E) Other

If your answer is “E) Other”, kindly elaborate on your answer:

Section 2: Efficiency of SIA in South Africa

My study found that SIA will mostly be conducted within the scoping phase of the EIA process. The timeframe for the scoping phase according to the NEMA is 44 days from the first day of application. This section aims to determine your professional opinion on the SIA process in South Africa and the prescribed timeframe linked thereto.

The understanding of efficiency in this research study is that it includes the amount of time and resources spent in each process (DEAT, 2010). The questions in this section will be focusing on efficiency of SIA in South Africa. Please note that all of the questions in this section are only applicable to South Africa.

2.1. In your professional opinion, what constitutes good SIA practice in South Africa?

2.2. Previous literature demonstrates that there are many problems surrounding SIA (O'Faircheallaigh, 2009; Hildebrandt & Sandham, 2014; Martinez & Komendantova, 2020). One of these problems is that there are not enough specialists in the social field which might have an impact on the efficiency of SIA. Do you?

A) Strongly disagree	B) Slightly disagree	C) Slightly agree	D) Strongly agree

Kindly elaborate on your reasoning for your answer above.

2.3. How often is the timeframe given to SIA specialists by EAPs, sufficient to perform an adequate SIA study?

A) Never	B) Seldom	C) Sometimes	D) Always

Kindly elaborate on your reasoning for your answer above.

2.4. According to your own experience, what is the sufficient amount of time that an SIA practitioner needs in order to perform an adequate SIA?

A) 0-10 days	B) 11-20 days	C) 21-30 days	D) 31-40 days	E) More than 40 days

Kindly elaborate on your reasoning for your answer above.

2.5. Literature suggests that there should be a regulated timeframe that practitioners can follow to conduct an SIA (O'Faircheallaigh, 2009; Kruger 2020). To what extent do you agree with this statement?

A) Strongly disagree	B) Disagree	C) Agree	D) Strongly agree

2.6. How would you classify the performance of SIA in South Africa in terms of efficiency?

A) Weak	B) Acceptable	C) Good	D) Outstanding

Kindly elaborate on your reasoning for your answer above.

2.7. In your opinion which of the following can contribute to a SIA process being inefficient.

A) Skills level of practitioners are not up to standard
B) Capacity shortage of SIA practitioners
C) Specialists not given enough time to perform a specialist study
D) Amendments to the regulations and practitioners not being aware of these amendments
E) Lack of understanding of the SIA process
F) No clear timeframe in the regulations
G) Insufficient follow up procedures
H) Poor communication with stakeholders
I) All of the above
J) Other

Kindly elaborate if you have chosen “J) Other” in your answer.

Section 3: Suggestions for improvement on the efficiency of the SIA process

This section aims to explore the perceptions of SIA practitioners and EAPs on whether there is room for improvement of the efficiency of the SIA process in South Africa.

3.1. Please read through the following phrase taken from Kruger and Sandham (2018) and indicate to what extent you agree that there is still room for improvement on the efficiency of the SIA process in South Africa:

"Kruger and Sandham (2018:8) studied the poor performance of the SIA process through perspectives of practitioners in South Africa. It was found the SIA process is in a neglected state due to some of the following reasons. There is confusion between the difference between SIA and Public participation. This confusion is due to the fact that decades ago the EIA practice in South Africa suggested that public participation was presented as the SIA component (Kruger & Sandham, 2018:8). These two processes should in fact be considered as separate assessments. Furthermore, there is not enough SIA specialist to conduct these studies in South Africa (Kruger & Sandham, 2018:9)"

A) Strongly disagree	B) Disagree	B) Agree	C) Strongly agree

3.2. In your opinion, how do you suggest/recommend that the EIA process can change in order to improve efficiency of the SIA process?
