NOTTINGHAM BUSINESS SCHOOL

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HOW DO OIL AND GAS INDUSTRY SMEs CONTRACTUAL ARRANGEMENTS ENHANCE ECONOMIC SUSTAINABILITY - ECONOMIC, SOCIAL AND ENVIRONMENTAL IMPACTS

By

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Working on a book chapter on supply chain sustainability.

ABSTRACT

Over 70% of small and medium firms (SMEs) in South Africa's oil and gas industry (OAGI) struggle to continue operating five years after setting up, which impairs the effectiveness and efficiency of the supply chain. This fact served as the impetus for the research. This study discusses how contractual arrangements between OAGCs and SMEs affect SME sustainability.

To gain concrete in depth knowledge, a qualitative methodology which involved virtual interviews of a semi-structured nature was use. The data was collected and analysed by use of a step-by-step process which enhanced reliability and credibility. Data analysis was done by thematic coding using Nvivo software and grouping themes together using Gioia Methodology.

The findings suggest that contractual arrangements between SMEs and OAGCs could be grouped into compliance, operational risks, skills, institutional void, financial issues, green technology, and trust. Of these, technology and trust positively support SME sustainability while the rest provide negative effects. Supply chain (SC) efficiency is thus supported by trusting relationships, but operational risks such as delays in the completion of work result in negative SC efficiency. Business success is enhanced by better technology especially greening, while corruption results in failure. The second finding was that most SMEs in the OAGI implement the expected economic, environmental and social sustainability approaches together with partnerships, innovation, adoption of technology and compliance.

These findings can encourage SMEs to be sustainable with high efficiency to achieve success. Higher SME sustainability results in better income distribution, employability, and a reduction of poverty. In addition to enhancing economic growth, it is instrumental in reducing poverty and hunger as outlined in the United Nations Sustainability Development Goals (UN SDGs) 1 and 2 which outline how to eradicate poverty and attaining “no hunger” status respectively. It also helps to realize similar issues coined the ‘National Development Plan’ by 2030 in South Africa

Keywords: SME, contractual arrangement, Oil and Gas, sustainability

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ACRONYMS

BBBEE	Broad Based Black Economic Empowerment
EO	Entrepreneurial Orientation
GSCM	Green Supply Chain Management
HSSE	Health Safety Security and Environment
LC	Local Content
FIDIC	International Federation of Consulting Engineers
NTU	Nottingham Trent University
OAG	Oil and Gas
OAGC	Oil and Gas Company
OAGI	Oil and Gas Industry
OAGISC	Oil and Gas Industry Supply Chain
RQ	Research Question
PDREC	Professional Doctorates Research Ethics Committee
SME	Small and Medium Enterprise
SC	Supply Chain
SCM	Supply Chain Management
UN SDG	United Nations Sustainability Development Goal
3BL	Triple Bottom Line

CHAPTER 1: INTRODUCTION

1.1 INTRODUCTION

This introductory chapter provides information on how small to medium enterprises (SMEs) and oil and gas companies (OAGCs) form and manages contracts and how these contractual arrangements enhance SME sustainability. The background and rationale for the study are described in Section 1.2 of this chapter. The research problem is clarified in Section 1.3, while Section 1.4 outlines the aim, the research objectives, and the questions formulated. Section 1.5 discusses the contribution this research has made. A brief outline of what the reader could expect per chapter is summarized in Section 1.6. The researcher discusses their position in Section 1.7, and Section 1.8 summarizes the chapter.

1.2 BACKGROUND AND RELEVANCE OF THE STUDY

1.2.1 Setting the Scene

Small to medium enterprises (SMEs) are involved in alleviating poverty and providing approximately 60% of total employment, 40% of GDP, and innovation (Sheydai et al., 2021; Ahinful et al., 2022). According to the International Labour Office (ILO)'s World Employment and Social Outlook, 2017, about 95% of companies are SMEs.

In an effort to attain global prosperity and peace, the United Nations (UN) released the SDGs in 2015 (Hope Sr., 2020). These SDGs have influenced countries to develop their own plans. Most stakeholders have implemented SDGs in large enterprises. Recently, interest in implementing SDGs in SMEs has emerged, with 10% of sustainability reports registered in 2017 and 15% in 2018 (GRI Global Reporting Initiative, 2016; Kim and Jin, 2022). This figure has remained constant over the past 6 years, illustrating that SMEs do not practice or implement the SDGs fully. This affects the economy, such as by meeting goal 8, which talks about promoting sustainable economic growth and industrialization, enabling innovation (goal 9), and providing employment and decent work for all. In fact, about three-

quarters of multinational operations in the oil and gas industry (OAGI) are run and serviced by contractors (Richet and Wang, 2019).

1.2.2 Situating SMEs and Sustainability within the South African Oil and Gas Supply Chain

Despite their importance, South African SMEs have failed drastically, with five out of seven businesses failing within the first year (Stats SA, 2011). According to the South African University of the Western Cape, South Africa has a failure rate of 70–80% of SMEs in the first five years, which is higher than elsewhere in the world. This does not assist the South African economy, as SMEs are responsible for the survival of nations (UN, 2016), as they play a part in the sustainability of nations. South African SMEs must be sustainable in order to address poverty and unemployment. Yet, SME sustainability is very poor in South Africa, which can result in failure to reduce poverty and unemployment by 2030 (National Planning Commission, 2013). In addition, this poor sustainability can contribute to the failure to achieve UN poverty and hunger goals. This demands an understanding of why SME sustainability is very poor in South Africa.

1.2.3 Overview of Sustainability and Contractual Arrangements

Increasingly, OAGCs and governments now stipulate that SMEs who wish to secure contracts with them should be sustainable (Battistella et al., 2018). Supplier selection has traditionally been based on economic cost, while current contractual trends consider quality, flexibility, delivery time, service level, and reliability (Azadi et al., 2022; Beiranvand et al., 2021). However, sustainability has recently become an important selection criterion (Bai et al., 2020; Omair et al., 2021). Hence, SMEs also contribute to the sustainability of the OAGI supply chain and form relationships with oil and gas companies (OAGC) through contractual arrangements (Rentizelas et al., 2020).

About three-quarters of multinational operations in the OAGI are run and serviced by contractors (Richet and Wang, 2019). Sadly, of these anticipated huge revenues, only a small proportion is available to indigenous oil servicing firms operating as SMEs, alluding to the fact that local SMEs face the threat of collapse

(Heim et al., 2022). Industry experts believe that this unfair financial advantage of foreign contractors over local SMEs exists because of problems with the way contracts are established and run between OAGCs and SMEs (Nwankwo and Iyeke, 2022; Loots and Charrett, 2022).

Research on contract conditions and contractual arrangements between governments and OAGCs has been conducted (Loots and Charrett, 2022); however, limited literature is available on SME sustainability for meeting contractual requirements (Antoldi and Cerrato, 2020). Typical contractual issues include operational risk, skills, scope and completion of work, technology, finances, and government support (Oppong and Amoah-Awuah, 2021). This research study aimed to explore the contractual issues affecting sustainable relationships between SMEs and OAGCs in the Oil and Gas Supply Chain (OAGSC). Therefore, sustainability was studied from an economic, social, and environmental perspective.

After understanding how contracts are run between SMEs and OAGCs in relation to sustainability, it was prudent to investigate whether these contractual arrangements enhanced or negatively affected SME sustainability. This was the gap identified and the aim of this study.

It is well known that individual businesses work hard to attain success. However, recent global competition has resulted in significant paradigm shifts, where given businesses compete as an entire supply chain, but not on their own. In this regard, the OAGSC is no exception (Beiranvand et al., 2021). Stakeholders in the OAGSC are aware of the environmental pollution problems arising from fossil fuels and have reduced their impact by involving themselves in strategies to enhance sustainability.

The recent UN Climate Change Conference (COP26) in the UK (2021) attests to the massive problems brought about by the OAGI. This includes global warming, ozone depletion, and many other climate changes and environmental-related maladies. Members of this OAGSC, such as OAGCs, are well known for their

efforts on this front and publish impressive sustainability reports. However, SMEs are generally considered insignificant contributors to sustainability programs.

Thus, while individual SMEs contribute insignificant economic, social and environmental impacts, the cumulative impact of many SMEs is significant, and it was important to explore what affected SME sustainability in the OAGSC. While extant literature abounds on issues affecting sustainability in the OAGI, such as global climatic pressure and greening, financial issues, top management commitment, compliance and standardization, strategic arrangements, and government regulations (Piya et al., 2020; Raut et al., 2017), there is limited literature on how contractual arrangements between OAGCs and SMEs affect SME sustainability in the OAGSC.

1.2.4 Locational choice

South Africa retains a significant number of downstream OAG infrastructure assets, including six refineries, storage facilities, and distribution networks. Hence, this provides a pragmatic and relevant setting for studying sustainability within the context of the country's specific downstream operations. South Africa has an advanced downstream industry that imports, manufactures and distributes petrol, diesel and the rest of the petroleum products to its local market and surrounding region. The South African Petroleum Industry Association, SAPIA, (2021) highlighted that the country uses 30 billion litres while exporting 5 billion litres to Namibia, Lesotho and Botswana. The country has six refineries and 3,800 km of pipeline. It has an array of pipes for jet fuel transportation to South Africa’s main airports. There are 4,027 service stations and coastal cities have establishment to store as well as import and export fuels. The stakeholders in this supply chain include refineries, blenders, transporters, commercial and retail marketers, contractors and suppliers.

The downstream OAGI is important in the country’s economy since it contributes to job creation, revenue generation, and energy security. Researching sustainability in this sector can potentially identify opportunities for simultaneously improving environmental performance, social responsibility, and economic

benefits. For example, 3.2% of the country's GDP and over 1.5% of labour in 2019 was due to oil (SAPIA, 2021).

South Africa has a well-defined policy and regulatory framework for the OAGI. For example, the Forestry, Fisheries, and Environment Department of South Africa has published policies supporting the country's efforts to become green such as the "2009 Framework Response to the International Economic Crisis." Therefore, the researcher found it prudent to study the effectiveness of these policies and give recommendations to ensure that the downstream OAGI is sustainable. South Africa, through its research centers and excellent academic institutions, has established itself as a regional leader in research and development and can disseminate this information in sustainability, energy, and environmental studies to the region. Choosing South Africa as a location for downstream oil and gas research ensures excellent collaboration between academia, industry, and government in addressing sustainability challenges.

This geographical location was chosen because the researcher works in and is familiar with the industry, and the prompt to study this gap in knowledge was discovered in South Africa (how contractual arrangements between SMEs and OAGCs enhance SME sustainability and the sustainability approaches implemented by SMEs). At the time of embarking on this research, it was assumed that the researcher would visit the participants at their workplaces to conduct interviews and collect data. Issues of travel time for participants and related costs were critical. This consideration then limited the research location to South Africa. Using many different locations would cloud the results, as findings would relate not only to the parameters under investigation but to the location as well. The South African OAGI is big enough to give reliable findings. Hence, choosing a site for research was molded by my research questions and area of interest (OAGSC), time, cost, and knowledge of the industry. Some considerations, such as time and cost, were not so important during the COVID-19 lockdowns, when interviews had to be performed virtually and the researcher did not visit participants.

1.2.5 Choice and the Need for Research

After being in the OAGI for over twenty years, the researcher was fascinated by analyzing their market share and, in turn, their competitor base and rate of new entrants. When discussing with other industry players such as contractors (mainly SMEs), OAGCs, and the Department of Energy, the researcher did not gain clear and universal knowledge about this issue, though it was common knowledge that the survival rate for new entrants was very low. It was observed that a few competitors had been in the industry for over ten years, but the majority seemed to disappear after about five years or less, and new players came along.

Out of curiosity and to learn more and establish the correct facts, the researcher decided to research this issue. In addition to gathering knowledge on SME sustainability in the OAGI, the researcher did not want to close their business in the future and researched staying in the business as a survival strategy as well as building a competitive edge over competitors. The researcher has always loved reading and gaining new knowledge about issues in their immediate environment as well as globally. This inquisitive characteristic was intended to exercise the mind. Hence, this research aimed to gather knowledge and learn more about sustainability in the OAGI, specifically SME sustainability.

After an initial literature review, the researcher found that some factors affected SME sustainability, such as skills, access to finance, a degree of awareness of technology, and delays in project completion. One issue that was very pertinent to the researcher was the way contracts were established and managed between contractors and OAGCs. This then formed the basis of this research. The researcher aims to be sustainable as well as disseminate accurate information to other parties in the industry so that no contractor closes down.

The researcher looks forward to the Department of Energy playing a more active role in ensuring sustainability for all in this industry by monitoring OAGCs and supporting SMEs. This is very pragmatic issue, as positive SME sustainability results in the success of individual SMEs, their clients (OAGCs), and the whole supply chain. In addition, SMEs provide 60% of the workforce for the OAGI.

Thriving SMEs result in better salaries for employees, which reduces poverty and hunger (one of the UN SDGs and country vision 2030 outlined above) and positively affects GDP. The significance of the research in contributing to knowledge in this field of study is to be commended. As a business owner, the researcher anticipated meeting potential investors through targeted marketing as they understood the business better. Without research, this and other industries would die. For example, all technological developments, such as the electric car, came about through research. Hence, this research provides knowledge and assists decision-makers in running their businesses sustainably.

The downstream OAGI has an important function in the South Africa's economy as it contributes to job creation, revenue generation, and energy security. Researching how contracts are run and managed between SMEs and OAGCs ensures that SMEs remain viable and profitable. Ensuring their survival and continued operations while sustaining their communities and utilizing environmental factors such as greening. This research hinges on the economic sustainability of SMEs, which ensures that SMEs increase their competitiveness, which results in success and longevity.

1.3 RESEARCH PROBLEM

It is essential for SMEs to realize the implementation of the UN SDGs as well as the National Sustainability Development Goals to arrest poverty and achieve prosperity and peace. Nevertheless, SMEs in the South African OAGI are failing to survive beyond five years; therefore, this research set out to investigate one factor that affects sustainability, which is contractual arrangements between SMEs and OAGCs.

This research aimed to gain understanding from an academic, economic, and environmental perspective, as well as the types of relationships that are developed when SMEs become part of oil and gas supply chains. Such appreciation may encourage OAGCs to develop contracts that better suit local requirements. OAGCs recognize the sustainability imperative and allocate resources to support it. Contrastingly, SMEs have historically not been explicitly involved in

sustainability issues, although these contractors contribute to about 60% of this industry's workforce. Oppong and Amoah-Awuah (2021) posit that SMEs can easily implement sustainability and benefit from the effort. This research investigated sustainability approaches that have been introduced in the OAGI in South Africa.

1.4 RESEARCH AIM, OBJECTIVES, AND RESEARCH QUESTIONS

1.4.1 The aim of the study

The primary aim of this research is to establish how the contractual arrangement of SMEs in the OAGI will enhance economic sustainability by examining the economic, social, and environmental impacts of industry operations on sustainability.

1.4.2 Objectives

To achieve this, the following objectives have been formulated:

- To identify the contractual arrangements of SMEs in theOAGI.
- To assess the type of sustainability approaches implemented in South Africa in the OAGI.
- To study the economic, legal, and environmental impacts on sustainability in the OAGI in South Africa.
- To develop an understanding of how the contractual arrangements of SMEs in the OAGI will enhance SME Sustainability.

1.4.3 Research Questions (RQs)

- What are the contractual arrangements of SMEs in the oil and gas industry in South Africa?
- What are the types of sustainability strategies implemented in the South African oil and gas industry?
- What are the economic, social, and environmental impacts on sustainability in the oil and gas industry in South Africa?

- How are the contractual arrangements related to economic, environmental and social sustainability?

1.5 OVERVIEW OF RESEARCH DESIGN AND METHODOLOGY

When choosing the most ideal study method to use during the research, some issues are worth considering. Firstly, there is a challenge in deciding which method to use to address the purpose of the research. Once the methodology is established, the researchers decide what needs to be researched. Is it people's experiences with many realities (qualitative research based on interpretivism) or beliefs that there exists one truth from an experiment (quantitative research based on positivist approaches)? In this study, we expected diverse subjective experiences by the people, but with some similar observations, culminating in many realities, and we thus opted for qualitative research based on Interpretivist methodology, grounded theory, ethnography, and phenomenology are the most commonly used qualitative methods.

The researcher had to make a decision as to whether the study was exploratory or whether new findings advanced what was already known about the topic. In this study, the researcher spent time understanding participants' views and perceptions about contractual arrangements and sustainability issues in the OAGI, and no new theories were expected to be developed.

A qualitative research design was adopted to adequately answer the chosen research questions. It consisted of interviews with key industry experts who owned SMEs as well as procurement managers and depot managers of OAGCs. This generated a deep understanding of contractual arrangements and sustainability approaches employed by SMEs in the OAGI, as well as the resultant impacts of industry activities. The results were then analyzed using Nvivo and the Gioia methodology (Gioia, 2021). A pilot study was undertaken before the main research, and in-depth explanations are given in chapters six and seven.

1.6 CONTRIBUTION OF THE STUDY

1.6.1Contribution to the Academic World

Contribution 1: The theoretical contribution of the researcher is the understanding that the contractual arrangement between SMEs and OAGCs could be adequately described in seven clear sub-groups: compliance, operational risks, financial issues, skills, institutional void, green technology, and trust. This information extended the known contractual arrangements in this industry between the government and OAGCs (Dirani and Ponomarenko, 2021). This is discussed further in Conclusion and Contribution, Chapter 8, Section 8.3.1.

Contribution 2: Our study showed that SMEs contribute to the sustainability of the OAGI as active players. Moreover, SMEs implemented sustainability approaches that are classified as environmental, social, and economic. Furthermore, this study contributed to new knowledge by adding categories of sustainability approaches (as discussed extensively in Discussion Chapter 8, Section 8.3.2). These sustainability approaches are classified as adoption, partnership, compliance, and innovation.

Contribution 3: As discussed in Chapter 8, Section 8.3.3, the industry has resulted in environmental, social, and economic impacts. Furthermore, the study revealed two additional impacts, identified as compliance and innovation. These findings are the writer's contribution.

Contribution 4: Positive SME sustainability is experienced when the degree of technology and trust between SMEs and OAGCs is high. In contrast, high incidences of compliance, financial problems, operational risk, institutional void, and lack of skills result in negative SME sustainability. This then answers our main research question: do OAGI SMEs contractual arrangements positively or negatively enhance sustainability?

1.6.2 Contribution to Policy Makers

From an environmental perspective, the research outcomes revealed how SMEs can reduce pollution, improve waste disposal, and avoid spills. This can ensure that South Africa meets its 2030 plan (National Planning Commission, 2013) and UN SDGs. This study has practical implications for enhancing the sustainability of SMEs so that they thrive beyond five years of inception. One practical implication of this research is that local SMEs can be incorporated into the supply chains of OAG multinationals. This is a very welcome development, as the impact assessment of the multinational sourcing strategy results in SMEs getting involved in more projects and contracts with the entire OAGSC.

Moreover, this research provides governments with knowledge about the poor monitoring of LC. This should encourage governments to monitor the operations of the OAGI and to promote sustainability among local entrepreneurs more effectively.

1.6.3 Contribution to the Industry and Company

The sustainability of SMEs in the OAGI can guarantee that contractual arrangements are efficient and lead to SME success. OAGCs can now understand their suppliers' SMEs; the supply chain becomes more efficient, which results in a flourishing industry. This can assist OAGCs and other industries to overcome the complacency of the assumption that if they go 'green, then all stakeholders are sustainable. This research has also helped to understand, from an academic, environmental, social, and economic perspective, the types of relationships that are developed when SMEs become part of the OAGSC. Such appreciation can encourage OAGCs to develop contracts that better suit local requirements. SMEs can also benefit from knowing their contractual obligations and strengthening their dispute-resolution capabilities. Therefore, higher SME sustainability results in better income distribution, employability, and a reduction in poverty.

1.7 ORGANIZATION OF CHAPTERS

This study is presented in eight chapters. Chapter one focuses on the introduction. The literature review and a conceptual framework constitute Chapter 2. Chapter 3 outlines the research methodology, while Chapters 4 and 5 discusses collection and analysis respectively. The research findings are discussed in Chapter 6. Chapter 7 discusses the findings and their implications. The final chapter then states the contribution and any potential future areas of research that follow from this study.

1.7.1 Chapter 1: Introduction

The chapter introduces how OAGI SMEs contractual arrangements enhance economic sustainability and their economic, environmental and social impacts. The background and rationale for the study, and the aim of the study have been presented. The research objectives and questions formulated are presented, and the contributions of the study are described.

1.7.2 Chapter 2: Literature Review

Chapter 2 discusses literature review by exploring existing research on the OAGISC to understand the way contracts are established and managed between SMEs and OAGCs to ensure sustainability. The discussion highlights the problems and benefits experienced by both the SMEs and the OAGC arising from this relationship. Oils and gases are expensive commodities that usually contribute significantly to the overall GDP of a given country (Sharma and Shrivastava, 2021). Consequently, the industry is normally under the jurisdiction of the government in which it operates. Therefore, the function that the government played is examined as a foundation for research. Finally, the global buzzword sustainability is investigated from the theoretical definition to the practical application with 'green' and climatic change implications (Ruggerio, 2021). The sustainability approaches that SMEs have embarked on and OAGSC impacts are discussed. Finally, the position of SMEs in this energized and green world and a resultant conceptual framework are discussed.

1.7.3 Chapter 3: Methodology

The chapter expounds on the study epistemological and ontological philosophies used and, in this instance, an Interpretivist paradigm. The justification of the chosen research approach (inductive in this research) and eminent data collection strategy is presented.

1.7.4 Chapter 4: Data Collection and Data Recording

The chapter discusses the data collection method, including sampling techniques used. After that, methods for data analysis are taken into account, making sure they are appropriate and in accordance with Nottingham Trent University's ethical standards. The preliminary results of a pilot study are analyzed.

1.7.5 Chapter 5: Data Analysis

The chapter discusses how data is analysed using Nvivo and the application of the Gioia Methodology.

1.7.6 *Chapter 6: Findings*

The findings of the research are presented in four parts, in accordance with the four research objectives. Part one reported on the findings of identified contractual issues that determine the relationship between SMEs and OAGCs in the OAGISC. Findings indicated issues ranging from financial constraints, operational risks, skills shortages, compliance, technological challenges, poor government support, and sustainability. Part two answered questions relating to the second objective, which sought an understanding of the types of sustainability approaches implemented by SMEs in the South African OAGI.

The findings were that SMEs are involved in sustainability approaches, though this is limited compared to the industry. The approaches covered all aspects of sustainability. They included environmental approaches (waste disposal, spillage control, implementation of environmental policies, pollution reduction, product

recycling efforts, fire prevention, minimizing water usage, contamination in rivers and streams, and use of cleaner energy sources).

Social sustainability approaches adopted included training employees on sustainability and upskilling, providing employment and ideal retention schemes, assisting communities through donations, and supporting communities affected by COVID-19. Economic sustainability approaches were few and centered on improved quality, increased revenue, improved cash flow management, improved profitability, and financial support for people infected with COVID-19. Part three is related to the impacts of economic, social and environmental issues on the industry. The environmental impacts obtained were improved use of cleaner energy sources, increased efforts to encourage government rural electrification, reductions in degradation, stricter pollution laws, oil purification, and improved quality of service.

The social impacts found were improved HSSE, improved fuel handling, and storage, improved social responsibility, the creation of new jobs, low staff turnover, and improved awareness and training Economic impacts were very limited, as SMEs are not financially capable of sponsoring expensive sustainability approaches. The resultant economic impacts were the use of alternative sources of fuel (OAG); this is initially expensive while sourcing the new technology but becomes cheaper with time and higher revenues. Ultimately, part four concluded the chapter by establishing a conceptual framework of the linkp between contractual arrangements and sustainability impacts between SMEs and OAGCs in the OAGI supply chain.

1.7.7 Chapter 7: Discussion

The research findings are discussed while comparing them with previous research and available literature on the study's research themes. The discussion hinged on individual perceptions as well as the varied views of OAGI players on SME the sustainability in the OAGISC.

1.7.8 Chapter 8: Conclusion and Contribution

Chapter 8 concludes the study and outlines its contribution to theory. In addition, it discusses the limitations of the research and future research initiatives following this study. In addition, the chapter provided an opportunity to discuss how the aim and purpose of the study was realised. The impact of the research on the researcher, the organization, the industry, and the academic field is discussed. The research addition to the body of knowledge on SME contractual agreements, SME sustainability approaches undertaken, and subsequent sustainability impacts are then presented. The major contributions centered on SME initiatives to become sustainable from an environmental, social, and economic perspective. In addition, the study offered new knowledge on contractual issues that affect SME sustainability in the OAGI supply chain and provided deeper insight into the impact of sustainability approaches. Future research could investigate an understanding of the barriers that SMEs face when attempting to become sustainable.

1.8 RESEARCHER'S POSITION

The normative stance the researcher took emanated from their interest in the OAGI and the sustainability of SMEs. The researcher is the owner of an engineering service SME in the OAGI, has a technical background, and has worked in this industry for the past 20 years. The researcher has teenage daughters, of whom one is at university studying to become an engineer and aspiring to take over the business in the future. Hence, the sustainability of this SME (and other SMEs) in this industry is a very personal and critical issue that the researcher is keen on understanding and implementing to make this business competitive and successful and pass it on to the next generation.

The researcher lives in Johannesburg and works in all provinces in South Africa. This made South Africa an ideal location for the study, as acquiring information and conducting interviews were both within driving and flying distance. This was true only before COVID-19; therefore, the actual data gathering and interviews took place virtually due to the limitations of the pandemic. In addition, information from similar environments was needed so that the analysis would be easier.

As an industrialist, the researcher had very limited experience in research but became comfortable doing it and attained better research skills after conducting this investigation. The complexity of the research has allowed the researcher to develop a voice and build confidence while identifying inconsistencies or gaps.

1.9 SUMMARY

Chapter one clarifies the problem, which gave rise to the need to further investigate the economic, social and environmental effects of the contractual arrangements between SMEs and OAGCs. It further shows how this could enhance sustainability concerning the environmental, social, and economic impacts of the OAGI. The chapter presents the importance of undertaking this study and its possible contribution to theory.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

This literature review explores current research on OAGISC to understand the way contracts are established and managed between SMEs and OAGCs. This throws light on the relationships between contractual arrangements and sustainability within SMEs in the OAGI. This discussion considers economic sustainability from the survival perspective of SMEs (contractors) once they adopt green technology and are involved in contractual arrangements with OAGCs. It emphasizes SME business operations that are environmentally accountable, socially comprehensive, and profitable from an economic perspective. Hence, in the OAGI, economic sustainability involves attempts to attain an equilibrium position when financial viability, environmental efforts, and social responsibility lead to long-term success.

The chapter begins with definitions of SMEs and the constituents of contractual arrangements between SMEs and OAGCs in the OAGI, and the discussion highlights the problems and benefits experienced by both the SMEs and the OAGCs arising from this relationship. Since both oil and gas are valuable commodities, they have significant impacts on the overall GDP of a country (Thomas et al., 2022). However, the industry is normally under the jurisdiction of the government in which it operates, which is the custodian of the resources, and consequently, the role of the government is analyzed in this chapter as a platform for this research. Finally, the global buzzword sustainability is addressed from its theoretical definition to practical application with 'green' and climatic change implications (Hermundsdottir and Aspelund, 2022). The position of SMEs in this "energized and green" world is discussed within the literature review, and a link between contractual arrangements and sustainability is presented.The chapter sections start with Section 2.1 which gives an introduction of the chapter. SMEs and OAGSCs are discussed in Section 2.2 an outline of the contractual arrangements is found in Section 2.3. Section 2.4 discusses the issue of sustainability from a social, environmental, and economic perspective. Section 2.5 discusses sustainability approaches implemented by SMEs, while Section 2.6 discusses the economic, social and environmental impacts of the OAGI. This is

followed by Section 2.7, which discusses the initial conceptual framework. The chapter is summarized in Section 2.8.

2.2 OIL AND GAS SUPPLY CHAIN (OAGSC) AND SMES

2.2.1 Oil and Gas Supply Chain

To establish the contractual relationship between OAGCs and SMEs, there is a need to understand the function of the OAGSC. Supply chain management (SCM definitions can clarify how it operates. Literature is rich with definitions of SCM, and a few of these are discussed. For example, Harland and Roehrich (2022) define SCM as the control of interlinked companies involved in providing services or products to end users, while Gomes (2022) considers it a distribution channel between suppliers and end customers.

More inclusive definitions include the management of relationships, goods, services, and information between suppliers and customers with attendant value addition (Waters, 2021). SCM can also be defined as a strategic system, with its main responsibility being the linking of suppliers and customers (Waters, 2021). Hence, a supply chain is made up of a series of companies where products or items are moved from possibly initial suppliers to final consumers (Roy et al., 2020); Waters, 2021. Wang and Feng (2022) define a supply chain as consisting of an interlocked system of retailers, product and service suppliers, distributers manufacturers, and contractors who collaborate in becoming competitive and to consequently create value for end-users.

Furthermore, global competition results in significant paradigm shifts where the entire supply chain and not single businesses compete (Amirian et al., 2022). Despite the importance of the OAGI, the literature is largely silent on the sustainability issues that affect the management of supply chains (Difrancesco et al., 2022). Nevertheless, business success depends largely on an efficient SCM, and it follows that the sustainability considerations of players should be considered (Roy et al., 2020). Realizing that SMEs relationships with OAGCs are mainly through contracts, this researcher decided to investigate the contractual issues between SMEs and OAGCs that affect sustainability.

2.2.2 Small to Medium Enterprises (SMEs) in South Africa

SMEs are small to medium-sized organizations that fall within a specified number of employees, assets, or other financial measurements. The definition is specific to the country or industry, and in South Africa, SMEs are classified as shown in Appendix 10 (Government Gazette, South Africa, 2021) as:

1. Micro Enterprises: Businesses with an annual turnover of less than or equal to 10 million rand and 0 to 10.
2. Small Enterprises: Businesses with an annual turnover of less than or equal to 60 million rand and 11 to 50.
3. Medium Enterprises: Businesses with an annual turnover of less than or equal to 180 million rand and 51 to 250.

SMEs are very important in driving economic performance. In South Africa, they provide at least 60% of the nation's employment, economic stability, innovative measurements, and competition. (Stats SA, 2021) SMEs are the main source of jobs and provide opportunities for people to emulate them and become entrepreneurs. Resilience and economic stability are provided when economic practices are diversified, resulting in minimizing economic risk (Asgary et al., 2020) and mitigating the impact of potential economic downturns.

SMEs are small, agile, and flexible compared to bigger firms, and this makes them more available for entrepreneurship and innovation (Ullah et al., 2022), such as technology and new product development. SMEs normally join larger companies supply chains and contribute to competition by providing more choices of products and services to consumers. In addition, SMEs take part in socio-economic issues that affect communities by providing goods and services specific to local needs and exporting them.

2.2.3 The role of entrepreneurial orientation in supply chain management

SMEs drive the growth of a nation but also contribute to noxious gases emanating from OAGSC operations (Lewis et al., 2015), and Roxas (2021) found that, when

adopting green practices, SMEs are behind bigger firms. Researchers attest that this is due to SMEs lacking resources to finance and manage environmental resources to provide a competitive edge (Álvarez Jaramillo et al., 2019, and Ljungkvist and Andersén, 2021). SMEs have a low level of adoption of operations, which results in green supply chain management (GSCM). Zhu et al. (2018) and Pinto (2020), posit that SMEs do not appreciate the economic value of environmental practices.

It is now believed that SMEs promote sustainability development by adopting entrepreneurial orientation (EO) (Niemann et al., 2020 and Amankwah-Amoah et al., 2019). According to Permatasari and Dellyana (2023), EO involves SMEs being proactive, taking risks, and being innovative in order to grow. SMEs have become sustainable, obtained economic returns from environmental business practices, and implemented GSCM. According to Ljungkvist and Andersen (2021), EO assist SMEs get involved in green business practices in an effort to improve economic performance of SMEs.

Namagembe et al. (2016) support the idea that there is a positive link among EO, GSCM adoption, the environmental and economic sustainability. SMEs that aim to be successful at sustainability encourage pro-activeness using greening efforts (Rivell et al., 2010). SMEs are important to economic sustainability by taking part in total productivity, overall business activities contributing to gross domestic product, and environmental sustainability such as pollution (Roxell, 2021).

Hence, an innovative SME can succeed when it uses environmental regulations as an opportunity to enter new markets as well as move to more efficient and green operations, which consume less energy and have the potential to turn mandatory environmental systems into profitable processes (Ramanathan et al., 2018). SMEs face many challenges in order to become economically sustainable, but there are strategies that can be employed to ensure their survival and the adoption of green technologies. These can be specified in the contractual arrangements between SMEs and OAGCs.

2.3 CONTRACTUAL ARRANGEMENTS

SMEs worldwide provide employment and wealth to communities and contribute meaningfully to the national GPD (Das, 2021; Asah and Louw, 2021; Tsatsenko, 2020; Abraham et al., 2020). However, in their first five years of operation, five out of seven SMEs in South Africa close down. This is attributed to poor access to finance, financial awareness, and management, as well as a lack of skills (Hossain et al., 2020). Despite this, SMEs still contribute to economic growth (Maksimov and Luo, 2021).

While most OAGCs are multinational and employ lawyers in-house, SMEs are small and financially unable to afford lawyers to go through their contract documents before signing (Aleynikova et al., 2022). As a result, poor contractual relationships between SMEs and OAGCs arise, which may affect SMEs working in the OAG industry. These include skills shortages, delays in the completion of work, technological challenges, financial limitations, and poor government support and sustainability (Ojelade et al., 2022; Ablo and Otchere-Darko, 2022; Okereke et al., 2022). The OAGCs also experience delays in project completion and attendant losses as a result of poor contractual relationships with SMEs (Wang and Huang, 2022). The elements of contractual arrangements between OAGCs and SMEs are shown in Figure 2.1 and discussed below.

2.3.1 Internal and external factors affecting the sustainability of SMEs

Internal and external factors affect SME sustainability. The management of the firm, work-related factors, and financial issues (Fitan, 2018; Mihret, 2022) form part of the internal factors. Many management factors (management skill, experience, and strategic business planning) link with SMEs growth and survival (Karmaker et al., 2023).

External Factors: These include economic considerations, labour; technological issues; marketing; political and legal infrastructure, crime and corruption and regulations; as well as financial factors (Fitan, 2018; Mihret, 2022). Market issues that affect the economic sustainability of SMEs are related to supply chain

management, market concentration, consumer behavior, and demand patterns (Babu et al., 2020). Looking at the contractual arrangements between SMEs and OAGCs in Figure 2.1, the internal factors are skills, trust, and financial issues, while the external issues are the role of government, corruption, operational risks, financial issues, greening, and contract formation. Financial issues are considered both internal and external (Babu et al., 2020). The detailed interaction of contractual arrangements and sustainability is discussed in below:

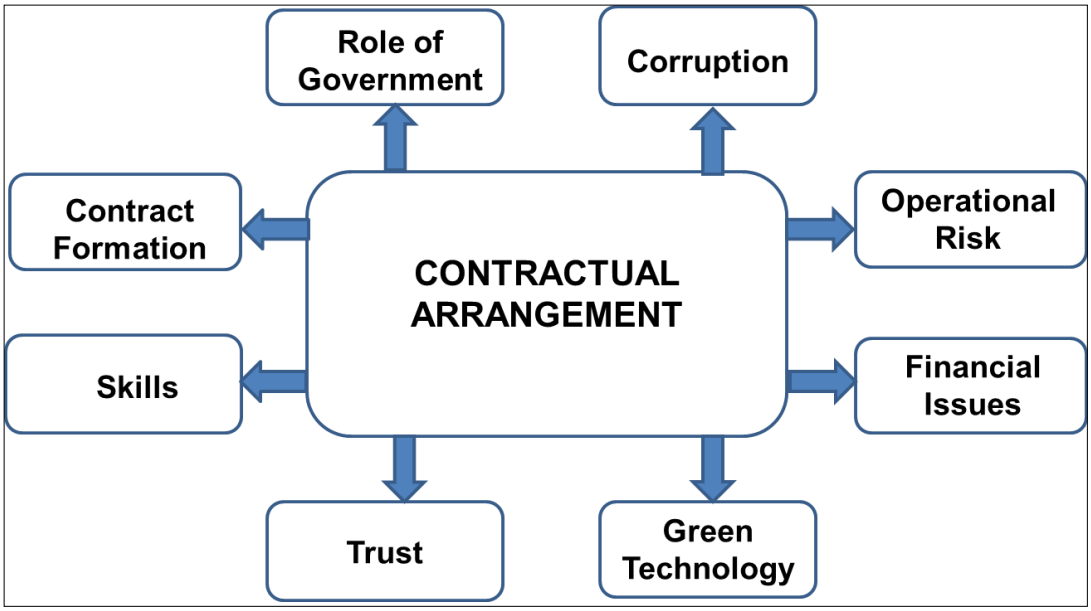

Figure 2.1: Elements of Contractual Arrangements between SMEs and OAGCs

2.3.2 Contract Formation

Typically, a contract is an agreement signed by all contracting parties (Steenhuis et al., 2020; Andersen and De Rooy, 2022; Lee et al., 2020). Construction laws control maintenance work carried out in the OAGI. Therefore, for these projects to be successful, potential contractual risks should be clearly defined, measured, and acted upon (Christopher and Mjema, 2021; Lee et al., 2020). It is standard practice to stipulate the roles and responsibilities of each participant in contracts to avoid claims and inevitable disputes.

In the construction industry (OAGI included), the standard International Federation of Consulting Engineers (FIDIC) forms are used as standard contracts (Jagannathan and Delhi, 2020; Lee et al., 2020). This normally results in the modification or even total removal of clauses that may benefit contractors, with potential risks to them. This may result in allegations of breaches and resultant claims by stakeholders.

OAGCs also tend to change contractual conditions by placing higher risks on contractors (Zulhafiz and Bin Abdul Rahman, 2020; Salih and Yamulki, 2020; Shash and Habash, 2020). The resultant problems of adding ambiguous terms and unfavorable clauses may cause contractor risks, as they might not understand their obligations (Lee et al., 2020; Youssef et al., 2022). If the omitted clauses of a contract are associated with specific limitations of liability for contractors, disputes may occur in which contractors are required to pay huge amounts of money.

These may exceed the value of the contract, resulting in massive losses and a marked reduction in profitability (Fridson and Alvarez, 2022). Contracting parties usually have different bargaining powers, or a negotiator might be unprofessional, resulting in an unbalanced risk distribution. This imbalance should be considered a serious problem, as it may result in an inequality in bargaining power with the OAGC having a dominant position over the contractor (SME).

Issues of contractual risk between OAGCs and SMEs are guided by the principal agency theory and the relational contract theory. In this research, the Principal Agency Theory (Matinheikki et al., 2022; de Morais et al., 2022) assumes that a relationship is developed when OAGCs and SMEs work together guided by a written contract. This relationship assumes that the OAGC delegates work to an SME or contractor, and the OAGC believes that the SME works in their best interest and makes good decisions for the OAGC by maximizing their value (Ellram and Tate, 2021). However, if the SME fails to meet their obligations of time, quality, and cost, a dispute arises (Batavia et al., 2020; Noone and Ojelabi, 2020).

Table 2.1: Underlying Theories in Support of Contractual Arrangements

Theory	**Reference**	**Explanation**
Agency theory	Matinheikki et al. (2022) ; de Morais et al. (2022)	A relationship is developed when two or more participants work together, guided by a written contract. In this relationship the principal (OAGC) delegates work for an agent (SME/contractor)
Relational Theory	Frydlinger ,Hart and Vitasek (2019),Wu et al. (2022); Cummins and Guyer (2022); Nwajei (2021	Considers contracts as relations and not distinct transactions. The main outcome is a win-win alliance, instead of just a deal.

Furthermore, the contractor (SME) can be replaced by another if they fail to perform (Noone and Ojelabi, 2020). In this relationship, each party is alert to risk aversion, goal conflict, lack of trust, and imperfect policy implementation, which may lead to conflict (García- Sánchez et al., 2020).

Similar to the traditional contract (as outlined in the principal agency theory), a relational contract is an agreement that binds contracting parties legally by detailing their obligations, responsibilities, and rights (Macchiavello, 2022; Frydlinger, Hart, and Vitasek, 2019; Chen et al., 2022 and Nayal et al., 2022). In contrast to traditional contracts that deal with discrete transactions, relational contracts involve building relationships based on a series of complex purchasing transactions over an extended period. The parties in relational contracts are usually very dependent on each other, and they strive to develop a framework for mutual trust, understanding, and flexibility. These governance structures ensure that the contracting parties attain efficiency and achieve anticipated success during the contracting period.

According to Frydlinger, Hart, and Vitasek (2019), relational contracts arose due to companies attempting to reduce hold-up problems by alleviating incomplete contracts and shading. Hold-up problems are experienced when the stronger party abuses its power over the weaker one by lowering prices, changing delivery dates, or changing the scope of work. Incomplete contracts omit or do not fully specify all potential problems or contain ambiguous terms that may occur during the contract's duration.

In an attempt to reduce being taken advantage of, clients normally employ more than one supplier, lock supplier prices, ensure suppliers agree to take the risk if any new activities arise after signing the contract, and use termination-for-convenience clauses (Hart, 2006). In retaliation to the stronger party (usually the client) taking advantage of them in a standard contract, the weaker party (usually the supplier) stops cooperating and performs poorly, and this is referred to as shading (Hart and Moore, 2008). A reference point should be reached at which all processes should align with both parties' expectations. This is normally done using relational contracts—"What's in it for We ", or the New, Improved Keiretsu (Hart and Moore, 2008).

Generally, relational contracts have the following characteristics:

- The contract duration is long-term, such as many months or years.
- These contracts involve collaborative and cooperative relationships typified by good communication, combined problem solving, and conflict resolution between the contracting parties. Hence, arbitration is preferred to mitigation when aiming for a successful long-term
- To establish the parties performance during the contract period. metrics are introduced,

In the OAGI, the SME is the supplier, while the OAGC is the client. The relational contract ensures that a framework of trust, risk management, and cooperation is established. Contract formation is important for economic sustainability, especially when considered from both a survival and green perspective (Adamowicz, 2022). Before a contract is formed between an OAGC and an SME, certain considerations have to be made.

The contractual relationship should be planned to survive for a long time, result in

a sustainable economy, and have minimal environmental impacts. There should be an allocation of anticipated risk mitigations (Naradda et al. 2020), such as reduction of waste and avoidance of spillage, between the contracting parties. This ensures that the resultant business thrives, becomes resilient, and survives due to attending to these risks.

By encompassing green aspects such as carbon reduction and sustainability-sourcing clauses while forming contracts, OAGCs can ensure environmentally acceptable procedures and, ultimately, efficient environmental and economic operations. Contracts between OAGCs and SMEs can include practices of reuse, recycling, and repurposing of components, resulting in minimal waste and reduced consumption, as well as the adoption of circular economy practices. This system lowers production costs and elevates efficiency, resulting in enhanced economic sustainability. Adoption of green practices can drive technology, thereby improving competitiveness and opening new markets, which promotes economic sustainability.

2.3.3 *Operational Risk*

Operational risk is a widely used term in finance, insurance, operations, and project management. Even though SMEs and OAGCs work together under a contract, risks are always part of the relationship between the contracting parties. Operational risk has many applications and is defined as business risk arising from failed systems, processes, and people. Management makes cautious decisions when exposed to conditions of uncertainty, and they only change this stance when the type of risk is clear and risk mitigation processes are implemented. In this discussion, operational risk is referred to simply as risk. Risk is a circumstance with potential to affect or change the original status, cost, and time of a given project (Hillson and Simon, 2020). Conversely, risk can be defined as an incalculable and unforeseen occurrence that could have an impact on project objectives, the scope of work, cost, timeline, and quality (Christopher and Mjema, 2021).

Risk is a component that can affect how a goal is achieved, yielding unexpected results, if viewed from a process perspective. In a situation where the hazard has

adverse outcomes, the risk influences the outcome of a project. According to Christopher and Mjema (2021) and Kassem et al. (2020), some stimulants of risk in projects on gas pipelines are unrealistic time schedules, changes in the scope of work, or unrealistic compensation of contractors. Other risks are contractor cash flow problems, project delays, poor contractor methods to perform projects, long client approval systems, poor quality, tiredness, human error, and delays in communication by project players. Projects typically come with a lot of hazards (Nguyen and Macchion, 2022; Zuo et al., 2022). Risk management aims at identifying risks and facilitating their subsequent treatment.

There are often many allegations against OAGI projects of breaches and subsequent claims by stakeholders, resulting in cost overruns and delays in the project schedule (Lee et al., 2020; Youssef et al., 2022). Hence, SMEs are expected to know their roles and responsibilities by carrying out a detailed contract review before signing an agreement with the OAGC. This could reduce problems in the event of litigation (Rawat et al., 2022).Whenever services or goods are supplied, there is a possibility that something goes wrong and the parties end up in disagreement. In the event of a potentially unfavorable occurrence, a risk mitigation program to minimize or avoid recurrence must be written into the contract (Gurtu and Johny, 2021). Risk-related issues include force majeure, changes in scope, and project delays.

If there are no provisions for undesirable changes of situation in a contract and the undesirable occurs, it may be inferred that the party expected to take the risk assumes the risk. A clause known as force majeure can be included in a contract to address this issue since it lessens the possibility that it would negatively affect the agreement terms (Alfadil et al., 2022). Force Majeure covers conditions of unusual, unexpected, extraordinary, uncontrollable, and insurmountable acts of God'. This definition also encompasses events that are external to the contract participants and that make it impossible to adhere to prevailing contractual arrangements (Goldberger, 2020). It also includes embargoes, unforeseen shutdowns, crop failures, manmade problems such as strikes and riots, government decrees, and tornadoes, earthquakes, and hurricanes (Goldberger, 2020).

The protection offered by Force Majeure is very broad, and its application varies by geographic location, jurisdiction, and the situation in which it is applied. The wording of the force majeure can result in different protections that can be offered to the various contracting parties. When written into a contract, a force majeure clause is a safeguard as it allows the parties to either end the contract as stipulated in the contract or suspend it until an agreed time (Haack and Esplin, 2020; Goldberger, 2020).

Despite difficulties in coming up with one universal definition, the incorporation of force majeure in OAG contracts has resolved almost all potential risks, such as floods, cyclones, tidal waves, thunderstorms, violent storms, unintentional destruction of petroleum buildings and plants, and political disruptions (Haidar, 2021). The exceptional incident of the COVID-19 pandemic with its attendant government and business decisions to lock down almost all facilities in most countries has caused so much disruption that the world had never anticipated, and no Force Majeure clauses could cover this pandemic (Ismail and Ismail, 2021).

A potential risk is realized if OAGCs change the scope of work, usually with no notice to SMEs (Herrera et al., 2020). SMEs normally struggle to get compensation if the contract has no scope of work clause (Thakkar, 2022). SMEs and OAGCs get into conflicts because this practice is so prevalent and these costs are not easy to calculate; thus, the conflict is normally not easily resolved. Dispute resolution is usually through arbitration and should be included in the contract (Loots and Charrett, 2022).

A change of scope usually results in work being completed beyond the agreed-upon period. This leads to project delays. How project delays will be managed needs to be included in the initial contract document (Rawat et al., 2022; Jang et al., 2022). SMEs give initial estimates of project completion durations and costs at the time of quotation. However, numerous social and economic implications arise due to the failure of contractors to adhere to contractual time, cost, and performance requirements (Herrera et al., 2020).

Delays in work completion not only lead to the late finishing of the project but also third-party claims, work disturbances, higher costs, productivity reduction, disputes, and the cessation of contracts (Harle and Shinde, 2020). In Malaysia in 2005, for example, 17.3% of project completions were either abandoned or delayed by more than three months. In addition, 70% of projects in Saudi Arabia were delayed, while 75% of projects in Iran ended up with budgets and schedules higher than planned (Herrera et al. (2020). SMEs, like all contractors, face the dilemma of how to avoid increasing project duration without reducing the product or service quality (Najib, 2022). Most causes of project delays are due to time, cost, and financial issues such as late payments from OAGCs to SMEs, poor contractor access to finance, and OAGC requirements for many documents (Najib, 2022). Stakeholder inexperience and a reduced joint approach to a given project can cause delays.

Both OAGCs and SMEs should discuss why a given project was delayed. Aljamee et al. (2020) posit that this is mainly due to SMEs budgeting below cost or allocating too little time. Hence, cost constraints and poor time allocation for the project by SMEs usually result in project problems, where SMEs may abandon the project prematurely or present poor-quality services or products. Abbasi et al. (2020) agree with this finding. This study attempted to confirm this outcome.

If an OAGC causes delays beyond the control of SMEs, the SME might then have to do the work over a longer period at the same price, thus minimizing profits (Do et al., 2022). The cost of recovery due to opportunity costs needs to be considered; for example, costs associated with the termination of an existing failed contractor and further costs incurred to get the services of another contractor (Gregory, 2020). OAGCs might also have a valid contract with an SME but put a project on hold. The SME might then find that the goods to be supplied are more expensive than at the time of signing the contract, while the OAGC refuses to alter the contract price (Do et al., 2022; Jang et al., 2022).

Operational risks in the OAGI can have negative implications for economic sustainability from a survival and environmental perspective. Operational risks include delays in the completion of work, project cost overruns, resource efficiency

issues, trust issues between OAGCs and SMEs, and green issues. Cost overruns can be a result of delays in the completion of work and/or a poor understanding of the scope of work. Cost overruns negatively affect the financial viability of projects, resulting in survival problems.

Delays in project completion can negatively affect supply chain functions and streams of income, thereby resulting in contract penalties and reduced market share. This negatively affects financial stability, growth, and survival. SME reputation and trust with clients, investors, and other stakeholders can be damaged because of delays in project scheduling and misunderstandings of scope. The outcome is weak business sustainability, which is exhibited by lost contracts, low interest, a lack of confidence, and the difficulty of attracting new customers. Delays in project completion can result in increased environmental impact and inefficient resource utilization, resulting in more investment, energy consumption, and waste management. While scope misunderstanding typically manifests in inefficient resource usage, resulting in numerous negative environmental impacts and wasteful material consumption, operational risks should be addressed to maintain economic sustainability.

2.3.4 *Skills*

Contractual arrangements related to skills include a lack of skilled labor, training facilities, know-how, inadequate supervision, and poor leadership. One of the major problems SMEs face when attempting to become sustainable is skills shortage. Boadu et al. (2020) and Pham et al. (2020) assert that foreign contractors carry out major projects in developing countries mainly because local contractors lack capacity. Therefore, the most critical component for success is training (Moeuf et al. 2020). In addition, Amarkhil et al. (2021) said that OAGCs often complain about project delays once SMEs are awarded work due to a lack of skills resulting from poor project planning, poor site management, and poor quality of work, all necessitating rework.

Most SMEs do not send their employees for recognized training, and this also affects productivity and quality of work (Zumbraegel, 2022). In addition, SMEs generally pay lower remuneration than industry standards (Klymak, 2022). They

train their employees in-house, and when the employees are experienced, they leave for greener pastures. Consequently, some SMEs use this as an excuse for not training their employees, as they end up as training grounds for OAGCs. This may result in rework, which reduces profits as well as OAGC's perceptions of SMEs and jeopardizes their future chances of getting new contracts. The OAGCs then end up employing the services of skilled people from foreign countries, while local SMEs become idle and eventually close (Zumbraegel, 2022). Some SMEs also end up forming unhealthy alliances and joint ventures with foreign contractors who might not be qualified, but SMEs believe that their status has improved, and OAGCs give them contracts based on these alliances.

Generally, the universities and training centres in local countries also have inadequate equipment, skills, and know-how about the qualifications required by personnel who are competent to work in OAGCs (Aquino et al., 2022). On getting contracts, poor work may result due to a lack of training, and this negatively affects profit and continued work (Zipperer, 2022).

Furthermore, inadequate labor supervision is experienced when SMEs run a "one-man band" operation and have few people to address complex contracts (*Aquino et* al., 2022). This results in no labor supervision, as the operator is the same as the supervisor. This can result in poor workmanship, rework, and inefficiencies (Zumbraegel, 2022). Poor managerial skills may also be the cause of poor supervision, and OAGCs do not pay for substandard work. The majority of SMEs are founded and managed by people who have held comparable roles in multinational corporations. For example, engineers are experienced in fixing equipment and performing maintenance work. This engineer will be very technically competent, but if the engineer forms and operates an SME, they might lack supervisory and management skills and would not deliver the outcomes of a contract with OAGCs efficiently. Here, the engineer is now involved in supervisory, marketing, and finance issues that distract from their core capability and fail to delegate and supervise staff.

SMEs employ fewer employees, and the managers end up involved in day-to-day operational work, resulting in contracts not being attended to adequately, poor

leadership, and dissatisfied employees who are not loyal and leave to join OAGCs (Zipperer, 2022). If this happens during the execution of work on a contract, the SME fails to complete the contract efficiently and on time. Overruns in time and operating costs can result in conflict between the OAGC and the SME (Okereke et al., 2022). This leads to expensive and lengthy dispute resolution, ultimately affecting SME sustainability (Aquino et al., 2022).

SMEs in the OAGI can align their skills and capabilities with green technologies and sustainability, ensuring their survival in a changing market while contributing to a more sustainable and environmentally conscious industry. It is important to determine the qualifications and skills of OAGI SME, to determine their existing expertise and areas of potential growth, and to identify specific skill sets that align with green technologies and sustainable practices. OAGCs can then assist SMEs by transferring green technology to them. This then ensures that SMEs implement effective, sustainable practices. This new collaboration can be in the form of a joint venture, consortium, or partnership and can receive financial aid for the adoption of green technologies. This would ensure SMEs take part in larger green projects and become competitive by getting involved in contractual arrangements with OAGCs, thus becoming economically sustainable.

2.3.5 *Pricing*

One of the main reasons why SMEs close shop after a few years of operation is lack of funding. Generally, SME owners start the business using their savings or investments, and the business takes off well. However, once the operation grows, there is a need to employ qualified personnel to ensure that the contractual obligations of the SME to the OAGCs are realized. The initial funding runs out and bankers are not willing to give credit as SMEs are high-risk ventures. The engagement and retention of qualified staff thus become a challenge, as this can affect staff across the board, including administrative, accounting, marketing, technical, and operational staff. Monthly salaries are compromised, and the lack of funding also negatively affects equipment. Generally, SMEs do not have all the equipment that they need, as most of it is obsolete and spare parts are fake. Without equipment, SMEs are grounded and cannot complete contracts efficiently.

In addition, fuel and operational supplies run out, and the SME almost closes down. Some SMEs cannot afford to buy equipment and must hire it, although sometimes they cannot afford to hire if payment is delayed and their cash flow is compromised.

One of the main problems that OAGCs and SMEs experience is delays in payment (Jang et al., 2022; Zumbraegel, 2022; Ablo & Otchere-Darko, 2022). The resultant negative cash flows and poor working capital cause the failure of SMEs to pay salaries, and a "brain drain" of employees follows (Okeke et al., 2022). Delays in payments may also cause the failure of SMEs to finance contractual obligations or projects, resulting in scheduled overruns and a negative bearing on costs and time (Thakkar, 2022; Zumbraegel, 2022). Long delays in the payment of SMEs can also give rise to the SME getting a poor credit rating (Do et al., 2022).

This situation is exacerbated by SMEs' failure to attract banker and financier interest because they believe SMEs have no collateral for credit consideration and are high-risk entities (Do et al., 2022). The World Bank agrees with this observation that SMEs are unlikely to get lines of credit or bank loans compared to big companies (Szymborska and Toporowski, 2022). In developing markets, getting finance is a major hindrance to sustainability (Szymborska and Toporowski, 2022). Most large contracts in this industry require contractors to have significant insurance coverage before the establishment of a contract.

For large contracts, OAGCs prefer to see a specific SME turnover or even a performance bond. This is typically difficult for SMEs to deliver because their turnover is usually modest and they cannot afford to acquire a performance bond. Most of the time, SMEs quote extremely low costs in their bids since they simply need to meet their responsibilities. Even though they know the value of their work, they bid low to get the contract. When performing the work, the SME usually fails to finish, delays completion, or does the work without the necessary equipment or personnel, thus compromising on quality. In this situation, the SME is typically compelled to repeat the job or face being blacklisted by the OAGC. A few repeats of this unacceptable work result in the SME being unsustainable and closing down.

Financial problems may result in problems with meeting financial obligations and paying for all operational costs and suppliers. SME survival may be at risk. Poor cash flow and delays in payment may cause SMEs to fail to purchase equipment, upgrade it, conduct research and development, and adopt new technology. Poor cash flow may also cause poor access to finance, resulting in an inability to invest in green practices. Failure to invest in environmental standards, waste management, and technology development can result in non-compliance, regulatory inefficiency, and, consequently, an inability to transition to greener operations. These challenges can negatively affect contractual operations, make it difficult to secure contracts, and affect the survival of SMEs.

2.3.6 The Role of the Government

An attempt to stabilize and empower SMEs has been initiated by many governments through the use of local content (LC) (Ablo et al., 2022). LC refers to a specific percentage of domestic components being included in the final product or value added by a domestic entity. The LC policies have the goal of enhancing the national development of production and operations as well as increasing the participation of local people in foreign direct investment. This is demonstrated by indigenous people now contracted to supply goods and services, the employment of more local people by multinationals, and the use of local raw materials. In addition, LC involves systems that favour local people, be it in price, tariffs, or licensing (Ablo et al., 2022).

This skewed favouritism ensures that investors are requested to abide by a fixed LC percentage, and locals have reserved quotas for specific devices and inputs. Hence, in the OAGI, preferred multinationals are those that appoint local nationals as employees, whom they subsequently train. Countries with established LC policies prefer multinationals that include a preference for locals in their contractual agreements or even form part of the bid document requirements. This entails, among other issues, the appointment of competent local nationals to positions previously occupied by expatriates (Zumbraegel, 2022).

Hence, a company that does not have the required percentage of locals or raw materials cannot take part in the bidding process. In the OAGI, the OAGCs that

contract locals enjoy tax incentives, whereas those who do not employ locals can be asked to pay punitive concessions. In South Africa, the LC is called Broad-Based Black Economic Empowerment (BBBEE). It aims at correcting racial imbalances and encouraging social responsibility while empowering society (Ndiweni & Sibanda, 2020). BBBEE is the government's growth strategy, which has the objective of growing the country while introducing the majority of black people into the economy of the country. The BBBEE Act is designed to protect the interests of employees, suppliers, consumers, the environment, and the community by balancing the social consequences of racism and uplifting socio-economic issues.

This Act compels companies to set up a social and ethical committee to ensure the eradication of social injustices. In addition, social transformation has to be integrated during the transition to sustainability (Vilakazi and Ponte, 2022). Government departments are legally required to comply with the BBBEE code when making procurement decisions, public-private partnerships, or licence applications. Private companies are not legally bound to comply with the code, but this practice enhances their scorecard. This means that LC is present in South Africa but is not strictly enforced. In addition, no government monitoring exists, so multinational OAGCs may still give work to foreign contractors in preference to local SMEs.

The irony for the country as well as the OAGI is that there are many vacancies for skilled workers as well as unemployed people who lack the requisite industry maintenance skills. The industry requires skilled technical people in the maintenance and engineering fields; nevertheless, SMEs spend very little on skill development. A few qualified and skilled SMEs set up operations in the OAGI, but they do not get contracts.

Some researchers, such as Ablo (2022), believe that it is because of poor communication between SMEs and OAGCs, while others propose that OAGCs still claim shortages of skills as a front for their preference to use foreign contractors. Yet another group of OAGCs does not use any local contractors for meaningful and valuable work because they claim that local SMEs still need to be

trained to get to the skill levels of foreigners (Tilahun and Berhan, 2022). Some multinationals even claim that it is their multinational head offices outside the country that force them to use foreign contractors, who are cheaper than local contractors' rates (Zumbraegel, 2022).

The major concern with LC is that the availability of local skills frequently falls short of industry needs, and many OAGCs consequently take advantage of this fact as a reason for failing to meet LC requirements. Zipperer (2022), for example, pointed out that it is difficult to determine where local SMEs can afford opportunities to supply goods and services to OAGIs when they are of poorer quality than the foreign contractors. Nevertheless, the locals should be given opportunities to develop and grow. The researcher suggests setting up a regulatory instrument to assist aspiring locals with potential but limited experience. Research has found that positive outcomes are observed when investment projects' ownership is shared between local and foreign firms. In this situation, foreign firms would be willing to use local SMEs for insourcing provisions and sharing their technology with locals.

The requirement by the government for the OAGC to use a fixed percentage of all local products or services has resulted in increased local jobs and more alliances, and in turn, SMEs have grown (Szymborska and Toporowski, 2022). Nonetheless, these joint ventures have resulted in many problems for SMEs, such as adaptation to different cultures and cumbersome pre-qualification and tender requirements for contractors. Other negative challenges for SMEs include inadequate financing options, employee poaching by larger oil corporations, and the government's failure to monitor these foreign OAGs.

If the LC program is continued, this leads to inadequate facilitation of partnerships and alliances, as well as a lack of technology transfer and capacity building (Szymborska and Toporowski, 2022; Zumbraegel, 2022). Despite these researchers' perceptions of problems for SMEs, LC has great benefits in forming alliances and strategic partnerships. It exposes SMEs to newer technology and operational efficiencies by learning from better-equipped and more advanced partners in developed countries who have the know-how (Jang et al., 2022).

Hence, governments are important in encouraging economic sustainability from both a green and a survival perspective. The government is involved in establishing policies, regulations, and monitoring, thereby fostering an environment conducive to establishing an economy that is sustainable. Such supportive policies can give SME access to finance through specialized banks that support and encourage SME growth and preferential SME regulations such as LC. This promotes the growth and survival of sustainable SMEs that are innovative and technologically competent.

In addition, the government can develop meetings between all stakeholders, such as OAGCs and SMEs, to discuss SME plights, encourage other stakeholders to assist in funding, and provide tax incentives to those organizations that support SMEs in adopting green technology. This enables better opportunities for SMEs and OAGCs to become economically sustainable. The government can sponsor research and development into sustainable products and services, resulting in economically sustainable markets.

2.3.7 *Corruption*

Corruption reduces economic sustainability from both a survival and a green perspective. Corruption encourages not doing business by the rule of law, encourages public distrust in prevailing systems, and slows down processes that promote sustainable operations (Lacatus and Sedelmeier, 2020). An unfavourable business environment is created when some companies are favoured over others, thereby encouraging unfair business competition. This can be realized by inability to access some markets, higher costs, and reduced chances of attaining sustainable business. The survival of SMEs is extremely compromised since transparency, certainty, equal opportunities, and fairness are nonexistent. Extortion and bribery can result in legal cases of reputation damage and poor business practices that negatively affect future planning and growth, resulting in poor economic sustainability (Sellami and Borgi, 2020).

Corruption results in siphoning away funds from investments and the productive sectors, stifling economic growth, poor innovation, and poor sustainability (Sellami and Borgi, 2020). When corruption is rife in government departments that monitor

environmental regulations, illegal practices such as deforestation, pollution, and illegal fishing go on unabated and result in disruption of ecosystems, and there is no transition to a sustainable and green economy. When corruption is rife, energy, natural resources, and water are misused or channeled into personal gain, thereby undermining the process of moving to green policies, using renewable energy, and the achievement of sustainability goals. Investors are unwilling to commit funds to developing sustainable projects for fear of losing their investments. This results in the slow development of green technology and a poor chance of employment in this sector.

It is critical to fight corruption in order to transition to a green and sustainable economy. It is now common to see multinationals moving and establishing operations in developing countries that provide markets for them (Contractor et al., 2020). Many of these countries have incentive schemes for foreign investors; for example, in South Africa, there are Special Economic Zones (SEZ). These are specially chosen areas where activities that give rise to national economic growth are chosen to attract foreign investors and a few affluent local investors into the country. The investments are generally technological, and export activity is a prerequisite (Zeng, 2021). Some contractors bribe government officials to win tenders for major projects. It occurs especially in instances where the lack of enforcement of laws concerning health and safety, the environment, sustainability, and labor allows non-compliant firms to win projects (Lima-de-Oliveira, 2020).

The overheads expected to be incurred due to environmental and labor laws, for example, are not incurred by participating firms, and poor institutional structures enable multinationals to post high profit margins. The same poor institutional structures that allow corruption in SEZs also enable multinationals to offer contracts to foreign contractors at the expense of local SMEs. These fail to get enough work to keep them afloat, and they eventually become unsustainable and close operations. An example of a corruption scandal involving LC application in the OAGSC was found in Brazil (Lima-de-Oliveira, 2020).

To run any company, even an SME, the government has basic compliance requirements. However, the compliance process can be so corrupted that some

SMEs build gratification expenses into their cost base. Corruption is also seen when tendering for highly technical maintenance work at government entities. Instances abound where technically competent and experienced SMEs lose contracts to non-technical contractors who are willing to pay kickbacks to government officers (Lacatus and Sedelmeier, 2020). The government is also very lax in monitoring corruption; it just talks about it (Lacatus and Sedelmeier, 2020). Furthermore, multinationals take advantage of the lack of monitoring and keep on giving contracts to foreign firms or turn a blind eye to obvious acts of corruption from their staff (Sellami and Borgi, 2020).

2.3.8 Technology

Technology-based SMEs face a few challenges. At the onset, an SME's asset base is very small, which makes it impossible to use as a guarantee to apply for a mortgage or loan (Wang et al., 2022). SME funding is normally drawn from an owner's limited funds, which result in the purchase of second-hand or old equipment that is affordable. At the same time, skilled personnel are required to use high-tech equipment or technology, but SMEs cannot afford to pay competitive salaries to attract these skilled personnel.

The cost of technology is also high, and SMEs find it difficult to change technology or buy new equipment. SMEs must be involved in innovation, research, and development, as failure may result in the closure of the SME (Hervas-Oliver et al., 2021). Nevertheless, even after buying the expensive equipment required for research and development, the SME is not guaranteed to get a contract with the OAGC, further escalating the problems for SMEs in this industry. Generally, management of the technology is poor, where the technologist is the manager and the operator, a "one person is the master" syndrome (Kassem, 2022).

Current technological developments also point to a new transition in the transportation industry, which may influence the demand for OAG. For instance, electric car usage seems revolutionary and capable of reducing oil usage substantially (Alotaibi et al., 2022). Cherif et al. (2021) suggest that oil prices could reduce substantially against the price of coal by early 2040. This would mean that

SMEs in the OAGI would need to change their service and product offerings quickly to be relevant and still have work to do. However, the viability of wind and solar energy at present has a high capital cost and very little storage capacity and does not seem to pose a threat to the OAGI (Zaversky et al., 2022).

SMEs should be hired as contractors and included in the OAGI supply chain to carry out the movement toward greener OAGCs. One of the players in the supply chain can't remain unsustainable, while the rest have commendable sustainability reports. In this regard, fossil fuels cause profound environmental issues such as poisonous gas, water bodies and the soil pollution. Moreover, the consumption of fossil fuels causes greenhouse gas emissions leading to the terrible effects of climate change. Consequently, scholars have made it clear that countries must reduce their gas emissions or suffer catastrophic effects. This green sustainability movement is real and is slowly being accepted worldwide. Since green energy results in zero pollution, there is a global call to use clean and renewable energy to reduce global warming and adverse climatic change (Ibrahim and Mohammed, 2022).

Hence, the use of green technology by SMEs plays an important function in promoting economic sustainability from both a survival and a green perspective. By leveraging green technology, SMEs can differentiate themselves in the market, increase brand value, and enhance their long-term survival prospects. SMEs that practice sustainability attract customers who prefer environmentally friendly services and products. SMEs are capable of setting themselves apart in a given market when they have adopted green technology and reduced gas emissions.

2.3.9 Trust

Trust is made up of positive intentions to accept another person's vulnerability (Wang and Huang, 2022). Customers or principals prefer to deal with trustworthy contractors (agents), as they can be assured of the good workmanship that will be delivered (Nayal et al., 2022). Moreover, trust relations between OAGCs and SMEs are critical in ensuring that economic sustainability is implemented. (Huntjens and Kemp, 2022). Honest communication between the parties to a

contract strengthens trust and helps to implement green technologies and economically sustainable practices.

SMEs can keep abreast of current developments in green technology and innovations as a demonstration of their reliability and sustainability status. By attending conferences and keeping in touch with other stakeholders, such as OAGCs, SMEs develop trusting relationships based on mutual respect and professionalism. Economic sustainability is attained when SMEs implement energy-efficient systems. This is also enhanced when SMEs receive good references and testimonials of quality services from OAGCs. Attaining economic sustainability results in SMEs gaining trust and respect from OAGCs. Collaborations and partnerships between SMEs and OAGCs ensure the survival of the contracting parties and show that SMEs have a long-term commitment to economic sustainability and green practices by demonstrating trustworthiness.

2.3.10 Summary of Contractual Arrangements

From our discussion, it is clear that elements of the contractual arrangements between SMEs and OAGCs play a role in whether SMEs remain functional or even eventually close. OAGCs prefer to deal with SMEs that they trust; therefore, close attention should be given to the wording and meaning of terms in contracts, as they may favor one of the parties. Issues such as price, force majeure, length of the contract, completion time, and the work scope should also be included in all contracts in order to realise good relationship between the parties. Most importantly, SMEs are particularly vulnerable and tend to lose if these issues are not carefully considered.

The government is crucial in instituting laws that favor local SMEs, such as LC, as well as monitoring the implementation of these laws. By adopting green technology, establishing trusting relationships between SMEs and OAGs, and complying with government and industry requirements, SMEs can survive and attain economic and environmental sustainability. Operational risks, corruption, poor skills, and difficulties in funding are threats to the survival of SMEs and should be carefully monitored when forming contracts between OAGCs and SMEs.

2.4 SUSTAINABILITY

2.4.1 Underlying Theories Underpinning Sustainability

The Stakeholder Theory depicts stakeholders in a firm as working together in a collaborative manner (Kantabutra, 2020), and many stakeholders' efforts put together may result in innovative and sustainable services and products (Inigo et al., 2020). This theory further proposes the creation of value for all shareholders and is closely linked to the sustainability management concept that value is interlinked with the core of business on economic, environmental, and social levels (De Morais & Barbieri, 2022).

Table 2.2: Theories underpinning sustainability

Theory	**Reference**	**Theory Explanation**
Stakeholder theory	Tapaninaho and Heikkinen (2022); Kantabutra (2020).	Stakeholders in a firm work together in a collaborative manner and their efforts put together may result in innovative and sustainable products and services.
Sustainability Management Concept	Silva et al. (2022); Rosário and Dias (2022); De Morais & Barbieri (2022)	Sustainable value is interlinked to the core of the business on the economic, social and environmental levels.

2.4.2 Sustainability Management Concept

Sustainability is one of the few concepts that has gained popularity quickly and has much intellectual importance and implications. It is a very popular 'buzzword' in management, strategy, ecology, finance, and economics and has reinvigorated many approaches in research (Apetrei et al., 2021). Sustainability is now

considered an agent of a paradigm shift and one of the main factors in innovation (Inigo et al., 2020). It is a popular topic in global environmental issues (Ruggerio, 2021; Wang et al., 2020). This popularity is even observed in board meetings of multinational and small firms, in political rallies, in scientific conferences, and in most speeches about the future. The 21st century has been coined "the century of sustainable development."

In academic and non-academic circles, once somebody demonstrates that they wish to carry out a project sustainably, then it is accepted as viable (Murtagh et al., 2020). It is widely believed that sustainability actions carried out today have a bearing on generations to come and that they are made up of a harmonized combination of economic, social, and environmental goals (Virtanen et al., 2020). Even though sustainability is popular, doubt has been expressed as to its potential to bring harmony to the economy, society, and environment (De Morais and Barbieri, 2022). The criticism of the sustainability definition has resulted in many interpretations of this concept (Murtagh et al., 2020; De Morais and Barbieri, 2022). Thus, it has become a vague and unclear metaphor for expressing current issues.

Literature has up to 300 definitions of sustainability or sustainability development (Dobson and Chakraborty, 2020). Furthermore, the United Nations International Environmental Forum (UNIEF) found over 1000 sustainability definitions (Alhawari et al., 2021). The origin of sustainability dates back to an idea called spaceship earth, which evolved and became widely known as sustainable development (Whalen, 2022; Bonnedahl et al., 2022).The World Commission on Environment and Development (WCED) (1987) considered it an occurrence that satisfies the requirements of existing people as well as enables generations to come. This definition implies centralized decision-making, which balances people's social and economic needs with a natural environment that can regenerate itself. It also implies that most of the current problems and resources are not designed past their renewal point (WCED, 1987). Mixed notions of this definition were observed, with complete acceptance being offered by Silva et al. (2022) and Rosário and Dias (2022), who agreed with the idea of sustainability idea but not the WCED definition.

The concept of sustainability was introduced to supply chain management by Carter and Rogers (2008). In resource-based supply chain development theory, organizations attain sustainability by ensuring a balance of economic social and environmental aspects (Carter & Rogers, 2008; Ruggerio, 2021).

Some sustainability definitions are discussed according to periods between the 1980s, 1990s, and the Millennium:

Table 2.3: Sustainability Definitions of the 1980s

Author and Year	**Definition of Sustainability**
Liverman et al. (1988)	Abundance of institutions and infrastructure that protect and deliver all parts of a system. This enables efficient survival of human beings by provision of land, air and all systems that support life.
O'Riordan (1988)	An assembly point for sustainable developers and environmentalists.

As seen in these definitions, sustainability was considered mainly from an environmental perspective in the 1980s. Only towards the end of this period do we observe a reference to economic and social aspects as well. Newer definitions of sustainability were advanced in the 1990s, with more focus on social and economic aspects of sustainability. Examples of typical definitions include those that integrate environmental and economic concerns or those that combine environmental sustainability with social sustainability.

Table 2.4: Sustainability Definitions of the 1990s

Author and Year	Definition of Sustainability
Daily and Ehrlich (1994)	A socially sustainable and environmentally capable development. Population, sustainability, and Earth's carrying capacity
Willers (1994)	Upgrade people's quality of life in a balanced ecosystem. Sustainable development: a new world deception
Pezzy (1994)	A development path that results in increase in human well-being in the future.

In the millennium, sustainability was regarded as a concept that considers a holistic approach with all three aspects of environmental, social, and economic dimensions included in one definition. New issues were introduced, for example, the green movement, climatic change, and global warming, in which conservation of the environment in this generation would ensure its existence in the future.

Table 2.5: Sustainability Definitions of the Millennium

Author and Year	Definition of Sustainability
Agyeman et al. (2002)	The concept is not only about being green or involving the environment.
Dupont (2015).	System of creating value for shareholders and the society while reducing the footprint of the environment. Climate policy integration.
Cherrafi et al. (2016)	Companies look after five assets: financial capital (profits, sales), natural resources (environment), people, social relationships and fixed assets.

Thus, though sustainability has many definitions, its meaning is what is crucial. Indeed, sustainability is bound to have many definitions as it relies on economic, social, and environmental issues with distinct definitions. In addition, sustainability is closely related to operations management and strategy, project management, and many more disciplines, and each discipline could have its own distinct definition (Virtanen et al., 2020).

More modern definitions of sustainability are available. One can consider sustainability as a term given to conserving the environment while using available components in the surroundings (an environmental element). It can also mean ensuring that living conditions for all are good (the social element). Finally, it can ensure that people can afford basic human needs such as shelter and food and are financially stable (the economic element) (Virtanen et al., 2020; Taiwo, 2022). Sustainability is also defined as efforts put in place to improve the efficiency of people and their environment while not compromising future generations (Virtanen et al., 2020; Rosário and Dias, 2022).

2.4.3 Triple Bottom Line (3BL)

Sustainability is also seen as the Triple Bottom Line when viewed from an environmental, ecological, and socio-economic dimension and is also defined as sustainable development' (Taiwo, 2022). A very prevalent and common definition of sustainability is depicted by three pillars, components, or perspectives that are interconnected (Rosário and Dias, 2022; Allam et al., 2022). However, there is no rigorous theoretical analysis of these three pillars, which are interchangeable with dimensions, components, stool legs, aspects, or perspectives. The major reason for this is that sustainability comes from many different aspects of life, and it becomes impractical to operationalize the definition (Alsayegh et al., 2020).

Nonetheless, this Triple Bottom Line model assumes that sustainable development is only possible when all entities of sustainability, namely the social, economic, and environmental dimensions, are considered equally (Lakshmanan and Kalyanasundaram, 2022; Alsayegh et al., 2020). Lee et al. (2020) considered that 3BL adoption involves the inclusion of people, profitability, and the planet. Academics in this field study how firms can incorporate sustainability. However, no one fully understands sustainability, as the framework is not rigid and its application is not consistent. The author employs this definition in this discussion. The Triple Bottom Line incorporating sustainability is depicted in Figure 2.2 below:

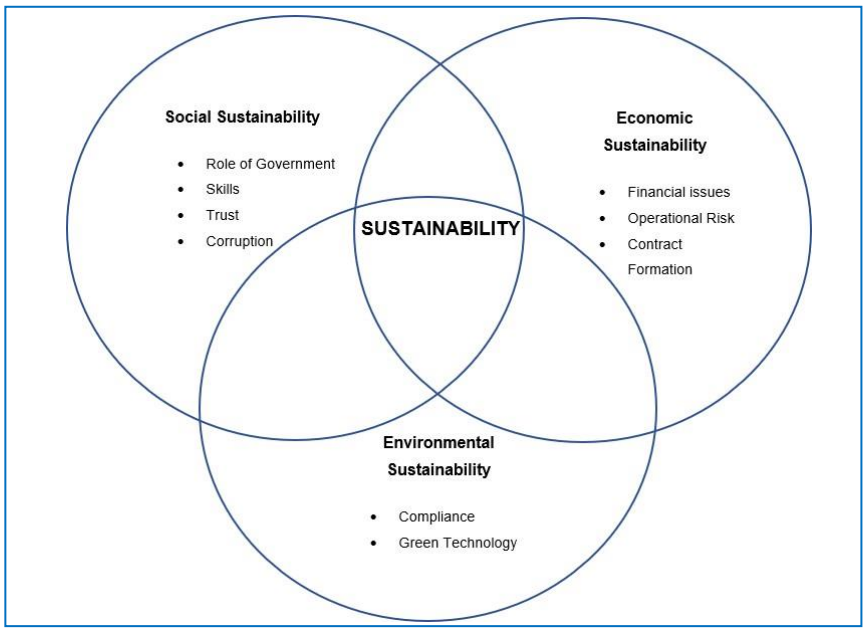

Figure 2.2: Sustainability: The Triple Bottom Line in OAGI, adapted: Wilson (2015)

Since SMEs provide goods and services to multinationals, they are required to be sustainable and to provide their sustainability reports to multinational oil companies, which in turn compile these sustainability reports. SMEs find accreditation to OAGC requirements non-negotiable, and the cost of compliance is very high. This has a negative impact on SME sustainability (Kalokoh & Kochtcheeva, 2022).

2.4.4 Economic Sustainability

This sustainability dimension ensures that people earn high salaries while firms remain profitable and financially astute (Okeke, 2021). Moreover, companies and groups of people make sure that their surroundings and the whole world are kept viable (Lai et al., 2021). This element involves being able to point out two different characteristics of sustainability. One is a normal financial issue for the organization, while the other affects the general economics of people who live in the same geographical area but are not necessarily part of the organization (Tuffour et al., 2020). The economic impact deals with the economic aspects of business and includes evolving and eventually supporting future systems (Okeke 2021).

For sustainable and economic growth, SMEs in South Africa should be structured and function well (Olarewaju and Msomi, 2021). Furthermore, they should be imaginative and innovative to find solutions to their social problems, such as lack of employment and reducing the socio-economic gap. This would then contribute positively to economic growth and development (Tuffour et al., 2020). Many OAGCs have invested huge amounts of money to upgrade and improve technologies and methods that ensure that communities around these installations become sustainable and unharmed. In addition, national oil companies and OAGCs have been under pressure from governments and the public to correct these sustainable development challenges (De Morais & Barbieri, 2022).Since sustainability involves long-term environmental, social, and economic survival, it is regarded as the solution to longevity(Doane and MacGillivray, 2001). Most companies, SMEs included, make efforts to survive today as well as in the future, not only for themselves but for the society.

Hence, they aim to achieve their planned social, economic, and environmental needs. In this sense, sustainability is considered an ongoing and perpetual activity. These three aspects of sustainability overlap and are linked, and not attending to the economic, social and environmental aspects and can hinder both micro- and macro-level survival. Hence, the distribution and protection of limited resources, resulting in positive environmental and social results, can be considered economic sustainability. For contractors in the OAGI, economic sustainability involves efforts to attain equilibrium between financial viability, environmental efforts, and social responsibility in an effort to increase the potential to survive and attain long-term success. In the OAGI, economic sustainability requires SMEs to generate enough profits to cover operational costs and business continuity. SMEs need to take part in effective cost control and financial management as well as survive changes in market performance. (Imhanzenobe, 2020). In addition, diversification is critical for survival, and SMEs need to have more than one client and offer diversified services and products, especially during changes in demand for OAG or low prices (Silva et al., 2021).Economic sustainability is not as well understood and researched compared to environmental and social sustainability.

Dmitrieva and Romasheva (2020) and Obeidat et al. (2020) posit that SMEs should engage in efficient operations while adopting innovative technologies in order to reduce waste and improve productivity. Cherepovitsyn et al. (2020) outline that SMEs in this industry face risks such as price volatility, geopolitical changes, and regulatory changes. They can manage the risks by adopting effective contractual arrangements and hedging strategies. Finally, Lewis et al. (2015) support the idea that economic sustainability requires SMEs to adopt environmentally responsible practices, such as reducing waste, minimizing greenhouse emissions, and promoting energy efficiency. This ensures a green economy and better adaptation to operations.

The Significance of Economic Sustainability for SMEs

The ability of SMEs to remain viable and profitable while utilizing economic, environmental, and social factors is called economic sustainability (Okeke, 2021). It results in the success and longevity of SMEs and covers more than just financial success. The importance of economic sustainability to SMEs is that SMEs can increase their competitiveness and reduce failure in their business practices, thus attaining long-term viability. Economic sustainability improves the way SMEs utilize their resources. This is manifested by an increase in productivity, a reduction in operational costs, and higher competitiveness for SMEs. Financial performance and sustainability can be enhanced by SMEs carefully controlling their costs.

SMEs usually get funding, loans, and investment capital when they have included economic sustainability in their operations. When SMEs comply with social, environmental, and labor laws, they reduce the probability of being involved in litigation and consequently perform business efficiently and responsibly. To maintain economic sustainability, SMEs must manage supply chain risks effectively. Skilled employees usually stay at workplaces that implement economic sustainability, giving rise to SME productivity and innovation. Business stakeholders such as investors and consumers give great importance to SMEs that adopt sustainability, as trust is built between these stakeholders and SMEs, thus establishing competitiveness. Hence, economic sustainability is important to SMEs, enabling them to be more economically viable.

Challenges Faced by SMEs in Achieving Economic Sustainability

SMEs face many challenges when attempting to become economically sustainable. Issues such as the pandemic, the Russia-Ukraine war, uncertainties, risks, globalization, and changes in customer demand (Vinayak and Mackenzie, 2018) pose challenges to SMEs (Karmaker et al., 2023). Financial challenges consist of management of cash flow problems, limited access to capital, and high borrowing costs. SMEs face intense competition, changes in the supply chain, and consumer demands.

Generally, SMEs lack skills (Ali et al., 2019) and are subjected to high staff turnover and problems in the retention of employees since they generally pay less remuneration than industry rates. The OAGI has many complex policy and regulatory compliance requirements that are expensive and a burden on SMEs (Lesejane, 2021). SMEs suffer difficulties when it comes to technology since they are not susceptible to digitalization due to cost concerns and cybersecurity issues, which have been reported by SMEs to the OAGSC (Moktadir et al., 2018).

Opportunities for Enhancing the Economic Sustainability of SMEs in the OAGI

In order for SMEs to become more economically sustainable, they require better access to finance and better market diversification, such as ventures into renewable energy. By training and finding better ways of retaining employees, such as increasing remuneration by benchmarking against industry standards, SMEs can better attain economic sustainability. There is a need to re-look at regulatory and compliance issues in this industry and the digitalization and adoption of green as well as more advanced technology in order to ensure SMEs in this industry are more economically sustainable.

How SMEs are affected in terms of economic sustainability in the OAGSC

SMEs face many challenges in order to become economically sustainable, but there are strategies that can be employed to ensure their survival and the adoption

of green technologies. This can be specified in the contractual arrangements between SMEs and OAGCs, as discussed in Section 2.3 above.

2.4.5 Environmental Sustainability

This is the most talked-about aspect of sustainability, mainly because of the historical events that led to it. The United Nations (UN) played a pivotal role in is known about environmental sustainability. In 1972, the Global Sustainability Campaign was one of the earliest global meetings to discuss the environment, conservation, and sustainability (Shibaike, 2022).

The UN interventions aim to give equal attention to the economic, social and environmental sustainability goals. These goals are related in a complex manner. For example, development does not thrive in a resource that is deteriorating, and even the environment cannot be safe if growth results in the destruction of the environment (Ahmad et al., 2021). Hence, each leg of the triple bottom line is distinct, but they mutually support each other (Lakshmanan and Kalyanasundaram, 2022). Furthermore, the financial performance of organizations should be integrated into social and environmental aspects; otherwise, the organization's competitiveness is undermined (Andersson et al., 2022). Due to the increased reliability of the business's working partners in a supply chain, they usually form vertical integrations and strategic alliances.

Due to the disintegration of the sustainability Triple Bottom Line, environmental impacts accumulate due to transportation inventory operations, accumulation of waste, decisions on procurement, massive pollution, carbon emissions, and extensive pollution. These give rise to global warming and climate change (Seth and Rehman, 2022). Consequently, organizations ought to be involved in environmental sustainability by providing environmentally safe production facilities. They should redesign products and services and introduce environmentally safe protocols. This will result in the recycling of environmentally compliant systems, waste disposal systems that are more efficient, and products that are reusable and safe (de Souza et al., 2022).This dimension ensures that all natural ecosystems are kept in balance (Lakshmanan and Kalyanasundaram, 2022). Environmental sustainability, according to Carfora et al. (2013), assumes

that people live in a defined environment with boundaries of biological and physical limits that serve as the origin of life and provide disposal for waste. A similar observation has been made, in which waste and nutrient recycling enable the maintenance of natural ecosystems (Jiao et al., 2022). Since 1980, this element of sustainability has become critical to survival, as is evident by global climate and environmental policies. This means that firms need to ensure that all their operations are environmentally friendly and green and should innovate and carry out research and development to become productive and competitive (Khan et al., 2020).

Jiao et al., (2022) posit that environmental sustainability is responsible for a better appreciation of green firms, while Seth and Rehman (2022) see these firms as ensuring lower costs. Some researchers believe that SMEs are normally not included in sustainability discussions or major laws that control environmental and pollution issues at the national level (Carfora et al., 2021). In cases where they are involved, SMEs are constrained by not having the capacity or influence to lobby the larger OAGCs to stop polluting. However, some research shows that SMEs are starting to get involved in environmental sustainability programs as a means of social responsibility and legislative compliance (Oppel et al., 2021). There are environmental hazards if environmental sustainability is not taken seriously, such as floods, droughts, and ozone depletion (Oppel et al., 2021).

2.4.6 Social Sustainability

Social sustainability has many definitions. It deals with both the negative and positive aspects of organizations, processes, systems, and people's social lives (Zastempowski and Cyfert, 2021). Social aspects of sustainability include health, safety, security, and environment (HSSE) and job creation in the presence of environmental and economic aspects of productivity. This dimension of sustainability involves cultural issues that may change beliefs, norms, and values and create benefits for society, organizations, and all stakeholders (Rentizelas et al., 2020; Golicic et al., 2020).

Social sustainability involves human and labour rights, acceptable working

conditions and justice, service and product responsibility, fair and functional systems in the community, and cultural considerations (Zastempowski and Cyfert, 2021). Social sustainability is responsible for determining the level of involvement in the value chain of a group, including development in rural settings and food crises (Pan et al., 2022).Social sustainability is, however, neglected in favor of economic sustainability (Rentizelas et al., 2020). Moreover, industrial design and renewable energy contribute to the social sustainability of people (Pan et al., 2022; Rentizelas et al., 2020). Issues that may arise if social sustainability is not fully considered include people overworking, spending most of their time working at the expense of rest, earning below-standard salaries, being underage workers, and working without a contract (Rentizelas et al., 2020).

Traditionally, there has been a belief that SMEs are not able to implement social sustainability. This is attributed to their lack of capital, poor skills, and poor financial discipline (Chowdhury and Shumon, 2020). The problem is made worse by the fact that SMEs frequently find it difficult to care for the welfare of their employees and, as a result, fall short of achieving their sustainable goals. Achievement of these goals is key, as SMEs provide the majority of the world's employment and economic growth (Gigliotti et al., 2022). Moreover, stakeholders exert substantial pressure on SMEs to be socially sustainable. A mismatch is therefore created between SME competence and stakeholder expectations (Chowdhury and Shumon, 2020; Gigliotti et al., 2022).

Hence, SMEs require training in sustainability and generate more resources to afford to embark on a social sustainability program. In addition, the OAGI needs to first develop a social responsibility standard that is tailored to its industry and, after this, support SMEs. This institutional support would assist SMEs and the whole industry to become sustainable, especially during unexpected occurrences that disrupt and paralyze operations, for example COVID-19 pandemic (Ma et al., 2021). SMES require social sustainability to be adopted, such as looking after communities, employees, and all stakeholders, as well as engaging in ethical business practices (Silva et al., 2021). It has been confirmed that socially sustainable companies are better adapted than those that are not (Chowdhury and Shumon, 2020; Rentizelas et al., 2020).

2.5 OAG SUSTAINABILITY STRATEGIES

Sustainability strategies in the OAGI include meeting environmental regulations, HSSE, assisting communities in which they operate, and ensuring economic viability. Okeke (2021) summarized environmental, social, and economic sustainability strategies that are common in OAGI. These include environmental sustainability (strategies include reduction of emissions), waste reduction strategies, compliance with environmental regulations, and cost reduction (Jayasinghe et al., 2021; Jiao et al., 2022; Okeke, 2021). Moreover, Okeke (2021) supported market presence and sustainability strategies. Finally, social sustainability strategies include working conditions, consumer HSSE policies, and community relations such as donations (Okeke, 2021; Rentizelas et al., 2020).

2.6 OAG's ENVIRONMENTAL, SOCIAL, AND ECONOMIC IMPACTS

Sustainability is now considered an important survival tool for companies because of increasing pressure from the public for OAGCs to take responsibility for the environmental and social consequences of their activities (Okeke, 2021). Companies are also aware that they are expected to put strategies in place to prevent or mitigate adverse social and environmental impacts (Okeke, 2021). These impacts are shown in Figure 2.3 below.

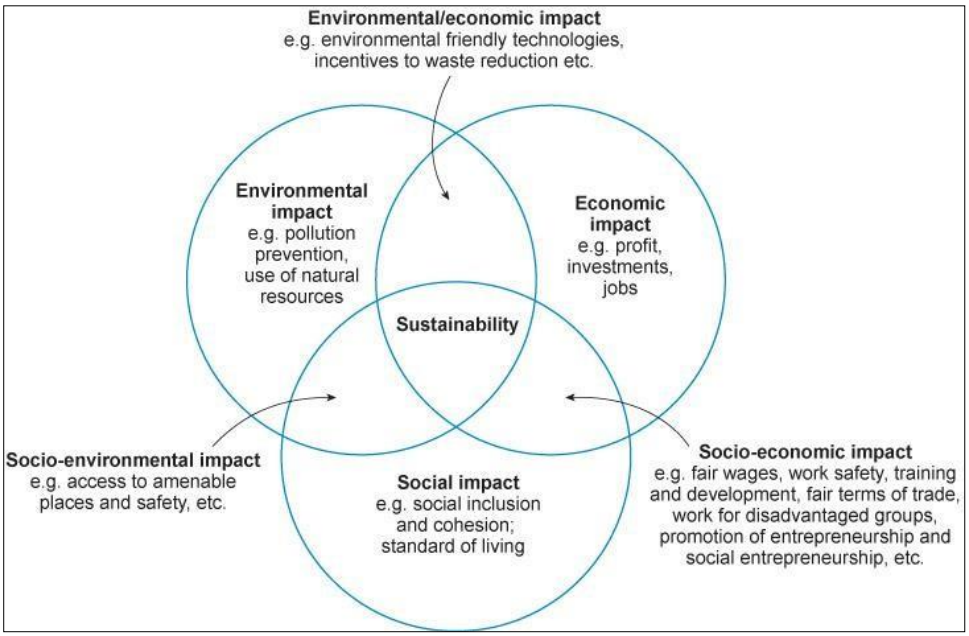

Figure 2.3: Environmental, Social and Economic Impacts of Sustainability in the OAGI Source: Adapted from O'Rourke and Connolly (2003)

Environmental impacts of the OAGI include greenhouse gas emissions resulting in climate change, soil and water contamination, and thermal, noise, air, and light pollution. Additional environmental impacts include OAG installation decommissioning and waste disposal, habitat loss and fragmentation, and carbon stock loss (Singh et al., 2020; Miranda et al., 2022).

Climate change may result in many negative social impacts, such as damaging arable soil and vegetation and contaminating groundwater, which may increase poverty and exacerbate inequalities in social classes. Global warming may also increase illnesses such as malaria (Miranda et al., 2022). Some climate-related disruptions, such as droughts, floods, storms, pest infestations, and heat waves, can also destroy homes. In addition, OAG extractions, product spills and leaks, waste products, and wastewater disposal pollute water resources and negatively affect communities' drinking water and agricultural activities.

According to Ogwang and Vanclay (2021), there are beneficial and negative outcomes of OAG operations for local communities. Positive impacts include increased employment, better roads, rail, and airport infrastructure, healthcare and school infrastructure, and better HSSE. Corporate social responsibility, such as the support of education through donations and scholarships, sponsorship of sports, and awareness of environmental sustainability efforts are provided by OAGCs (Ogwang and Vanclay, 2021). Economic impacts in the OAGI include increased revenue obtained from jobs performed in the industry, higher personal income, increased household spending, and improved value added within the OAGI and the entire supply chain (Charfeddine and Barkat, 2020). In addition, improvements in roads, schools, water provision, and clinics upgrade communities’ standards of living.

However, in establishing the OAG plants, many people may be displaced, resulting in food insecurity, reduced access to social services, the disintegration of social and cultural cohesion, and damage to historical heritage and cultural sites. Negative impacts are the destruction of environments supporting the livelihoods of communities in various economic sectors such as fisheries, livestock, and tourism. Furthermore, when living standards improve, the cost of living goes up,

reducing the disposable income of individuals (Ogwang and Vanclay, 2021).

In summary, sustainability can be understood as an occurrence that includes all three aspects described above. Green innovation is an important aspect of this analysis (Factor et al., 2021).

2.7 DEVELOPMENT OF A PRELIMINARY CONCEPTUAL FRAMEWORK

From the literature review of contractual arrangements and sustainability, a few potential gaps in knowledge were observed. Firstly, the literature discusses the individual stakeholders in contractual arrangements, but not all of them together. Moreover, there is limited literature on how contracts are formed and managed between OAGCs and SMEs in the OAG value chain. Thus, a need exists to review that information before understanding how the contractual arrangement between SMEs and OAGCs affects sustainability. This was identified as an initial gap in the prevailing literature. In addition, standard FIDIC forms are used. In order to reflect the interests of the project owners, this study will determine what changes are typically made to these by OAGCs (Lee et al., 2020; Jagannathan and Delhi, 2020). This study attempted to confirm which theory is used when contracts are formed between OAGCs and SMEs: the principal-agency theory or the relational theory.

Thirdly, the literature analysis highlights the issue that very few SMEs are involved in the OAGI and that the majority of sustainability activities are carried out by OAGCs. Garcia-Sanchez et al. (2020) addressed this topic in Section 2.4.5 on environmental sustainability. These authors believe that SMEs are not involved in sustainability efforts, but some research shows that SMEs are starting to get involved in such programs. The sustainability strategies used by OAGCs have been identified through this literature review. Finally, the review did not find any literature that mentioned links between contractual arrangements between SMEs and OAGCs and SME sustainability. This has therefore been the main area of study, as there is limited literature on factors affecting SME sustainability in the OAGI. The preliminary conceptual framework is thus developed, as shown below in Figure 2.4.

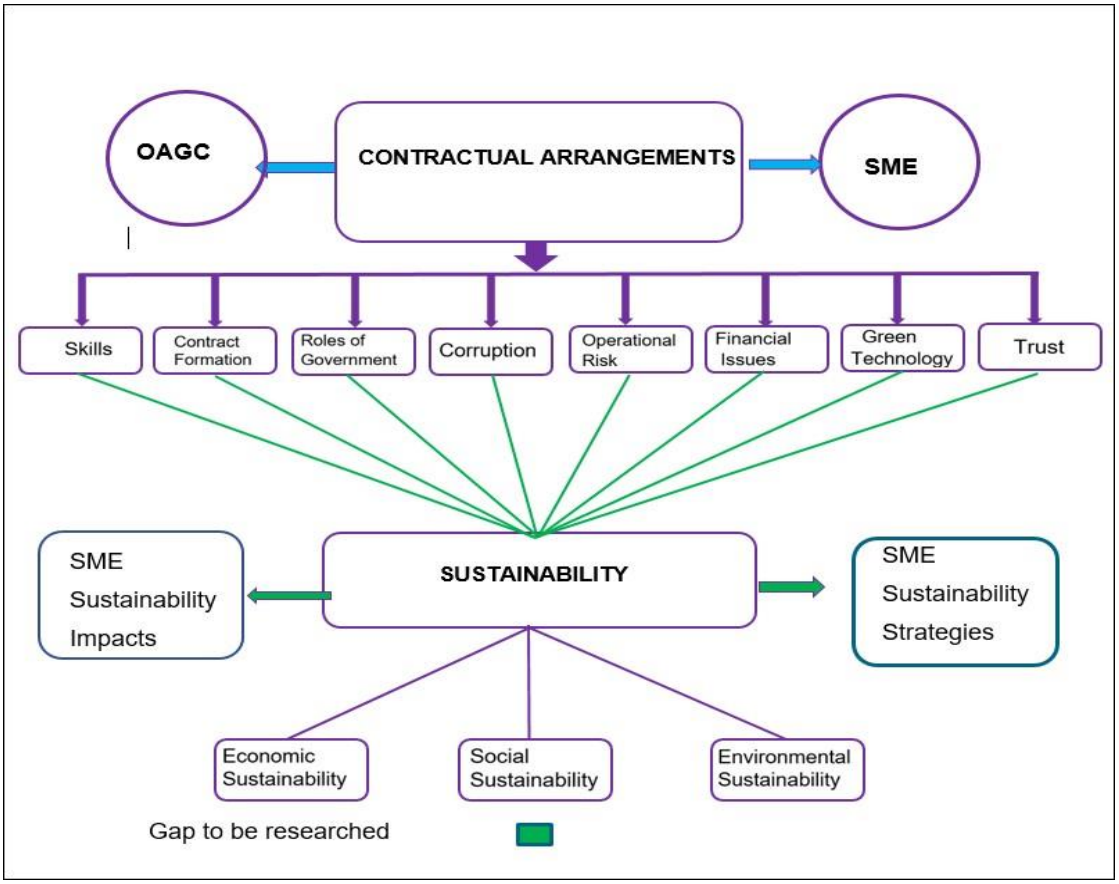

Figure 2.4: The SME-OOAG Contractual Arrangement and Relationships with Sustainability: A Preliminary Conceptual Framework

2.8 SUMMARY

The chapter was an overview of the available literature on the main concepts of this study, namely the OAGSC, the contractual agreements between SMEs and the OAGC, as well as the sustainability of the SMEs in the OAGI. A preliminary conceptual framework is also presented. The next chapter outlines and justifies the selected research methodology.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter discusses the methodological approaches used in this study. In this discussion, methodology refers to the principles, procedures, and practices that govern research (Creswell and Creswell, 2018). It includes planning and performing the research, drawing conclusions, and understanding the findings. A sound research design positively affects how one collects data for analysis.

The introduction is discussed in Section 3.1 and a brief outline of the Interpretivist philosophy that was selected for this research is presented in Section3.2. Section 3.3 outlines the aims and objectives of this study. The research design is discussed in Section 3.4, while Section 3.5 presents the framework of the research methods and techniques to guide how data is collected and analyzed. Section 3.6 describes the research strategies and justifies the selected strategy. The chapter is summarized in Section 3.7.

3.2 RESEARCH PHILOSOPHY

Research philosophy is a concept dealing with a researcher's decisions concerning how data describing a certain phenomenon is collected, analyzed and used (Singh, 2022). The research philosophy is paramount in deciding the epistemological and ontological focus of any research (Perera et al., 2022). Ontology describes what reality is and is the background of all assumptions made in research. Zhang, Olsen, and Lobov (2022) consider Epistemology to be the discipline of study that deals with knowledge. Saunders et al. (2019) coined main research philosophies into five groups namely positivism, interpretivism, pragmatism, critical realism and postmodernism.

3.2.1 Justification of the Choice of Philosophical Approach: Interpretivism

The research aimed to acquire information on the contractual arrangements between SMEs and OAGCs as well as establish sustainability strategies from economic, social and environmental perspectives. This information was obtained

from participants who were subject experts in OAG and who manage SMEs. Interpretivism refers to phenomenology, which is concerned with the opinions, involvement, and know-how of subject experts but does not consider if this is real or not (Singh, 2022; Saunders et al., 2016). It explores participants' lived experiences or human knowledge about a specific phenomenon (Saunders et al., 2016).

To understand the research in its entirety, it is necessary to study the different aspects of the subject and combine them to come up with a stance for the research findings. For example, this study has established how contractual arrangements between OAGCs and SMEs affect SMEs' sustainability. It is, therefore, necessary to understand how each constituent part of contractual arrangements, such as skills, price, compliance, etc., affects SMEs. These individual findings can be combined to come up with an overall stance on the research findings. This is the fundamental principle of the hermeneutic circle (Elbanna and Newman, 2022).

In this research, the researcher influenced the problem identification and development in the form of their interest, involvement, and commitment. In addition, it was critical to understand the historical background of the OAGI before embarking on the research, as this enabled an appreciation of the current situation under investigation. This was only possible through interpretivism. In contrast to positivism, Interpretivist research can be done without any information about the research background.

Interpretivism further suggests that research findings are produced as a result of the interaction between a researcher and participating social actors in society (Singh, 2022). The researcher can explore participants' experiences through interviews as well as informal discussions. This was the essence of the research. Where the OAGI expert subject matter was to discuss their experiences in terms of contractual arrangements and sustainability issues. This research, therefore, studied the details of human experiences by adopting a qualitative methodology and design (Zelinka et al., 2022). During the study, there is a possibility that the results obtained are not the same as the theory underlying the design of the research. Zelinka et al. (2022) called it the principle of dialogical reasoning. This

study used an Interpretivist approach, which allowed participants to tell their stories or narratives of similar events and to come up with multiple narratives. Thus, the researcher considered all individual experiences in their findings rather than generalized expectations, as in a positivist approach.

This research dealt with OAGI subject experts who had massive experience, and it was expected that important insights and findings would be obtained. However, it was recognized that the research could still be prone to bias and systematic distortions by participants (Zelinka et al., 2022). Hence, the researcher adopted an interpretive philosophy to collect knowledge on engineering service suppliers and how contracts and sustainability systems worked in the OAGI.

3.3 RESEARCH AIM AND OBJECTIVES

3.3.1 The aim of the study

The major aim of this study was to investigate how the contractual arrangements of SMEs in the OAGI enhance economic sustainability through environmental, social, and economic impacts.

3.3.2 Objectives

In order to realise the aim, some objectives were formulated:

- To identify the contractual arrangements of SMEs in theOAGI.
- To assess the type of sustainability approaches implemented in South Africa in
- To examine the economic, social, and environmental impact on sustainability in the OAGI in South Africa.
- To develop a conceptual framework of how the contractual arrangements of SMEs in the OAGI will enhance SME sustainability.

3.3.3 Research Questions (RQs)

- What are the contractual arrangements of SMEs in the Oil and Gas Industry in South Africa?
- What are the types of sustainability strategies implemented in the South

African Oil and Gas Industry?

- What is the economic, social, and environmental impact on sustainability in the Oil and Gas Industry in South Africa?
- How are the contractual arrangements related to economic, social, and environmental sustainability?

3.4 RESEARCH DESIGN

The design of a research is a pathway through which study is directed towards its objectives (Bell, Bryman, and Harley, 2022). This design forms the framework of research methods and techniques chosen by the researcher to determine how data is collected and analysed and contributes to the relevant direction the study will take. Haydam and Steenkamp, 2020). Hence, as with the research itself, the design can be broadly classified into quantitative and qualitative (Bell, Bryman, and Harley, 2022). Qualitative data can be collected through interviews, focus groups, observations, or reviews of documents. Quantitative data, however, can be statistically examined, and the findings can be numerical.

3.4.1 Analysis of research designs in the OAGI

The randomly chosen examples in Table 3.1 below revealed that the majority of the research on SMEs, OAG, and sustainability has been qualitative. It was clear that the area of SME sustainability had very limited literature. Research revealed that about 95% of the total export revenue from Nigeria is in the OAGI, but SME participation is very insignificant (Lawal, 2022).

In addition, SME data revealed that sustainability efforts have not been captured; only the OAGCs have enough sustainability statistics. This meant that SME contractual arrangements and sustainability had not been adequately studied and that this was an emerging area that needed to be explored. Furthermore, it was considered prudent to use a qualitative methodological approach for such emerging topics, which would provide rich value from SME expert experience in contracts and sustainability efforts (Van Burg et al., 2022).

Table 3.1: Selected Research Designs in the OAGI

Author	Topic of Research	Research Design	Outcome (Findings)
Turkyilmaz, Dikhanbayeva, Suleimanand Shehab, 2021.	Challenges and opportunitiesof SMEs in OAGI	Interviews	Recommendations for SMEs and governments to resolve challenges, barriers and facilitate better industry cooperation.
Dirani and Ponomarenko (2021)	Contractual Systems in the OAG sector current status and development	PESTEL analysis and literature review	Analysis of production sharing contract system,
Otman (2021)	Importance of SMEs and effects of Covid-19	Self-administered questionnaires	Challenges of SMEs – lack of funding, poor access tofinance,
Suleman and Zaato (2021)	Local content implementationOAGI for sustainability development	Semi-structured Interviews	An effective LC policy towards achieving sustainability demands balancing the needs of policymakers, local community, multinationals, and regulators to succeed.
Cao and Lumineau (2015)	Interplay between contractualand relational governance	Literature review Qualitative review	Satisfaction and performance are improved by trust and relational norms.
Abubakar (2014)	Study of Sustainability in the Oil and Gas Supply Chain	Survey and Questionnaire	Introduction of economic, environmental and social sustainability strategies' to the OAGCs.
Mani, Jabbor, and Mani (2020)	Relationship between supply chain, social sustainability practices, and supply chain performance in SMEs in manufacturing	Semi-structured interviews	Focusing on increasing supply chain social sustainability results in good performance..

3.5 RESEARCH METHODS

3.5.1 Choosing a Research Method

Once a design was established, business research methods were implemented. (Kostere and Kostere, 2021). When the research method was chosen, the duration and nature of the research were important. In this research, the researcher had time constraints in which to complete the analysis; therefore, a qualitative and systematic procedure for collecting data and its subsequent analysis was used.

This study used applied research because of the need to find out why SMEs were closing down less within five years after inception. The researcher presumed that how contracts are established and managed between SMEs and their clients influences sustainability and carried out this study to verify whether this was true.

In the current study, as the subject under review could not be put in a controlled environment and no meaningful results would be obtained, the use of experimental data was impractical.

3.5.2 Qualitative and Quantitative Research Methods

In qualitative research, answers to interview questions are subject to analysis and final interviewer interpretation, which may differ from one interviewer to another (Singh, 2022). Quantitative research design methods are concise and narrow, objective and deductive in nature, and necessary for the growth of any organization (Bell, Bryman, and Harley, 2022).

Moreover, they employ research methods used in natural science to show relationships between theoretical concepts relevant to the study at hand (Bell, Bryman, and Harley, 2022). Quantitative researchers collect numerical information, and accurate measurements and their interpretations and meanings are recorded using opinion scales such as the Likert (Bell, Bryman, and Harley, 2022).

3.5.3 Qualitative Research

In this study, however, relationships between variables were not the focus, but descriptions of what happened when SMEs were contracted in the OAG supply Chain, implying qualitative methods. The research questions all aimed at getting answers that arose from the experiences of participants' ideas, values, and beliefs when forming contracts and developing the new sustainability approaches established by SMEs (Creswell and Creswell, 2018). In addition, emphasis was placed on the impacts of industry processes on environmental, social, and economic environments. The research was also to understand interpretations of participant behavior, such as frowning, smiling, and concerned looks (Aguinis and Solarino, 2021). The researcher's culture, values, history, and background could affect the research outcome. Thus, the purposes of the study were intended to understand the experiences of SMEs and OAGC clients once they established contracts during supply chain dealings in this industry and to reveal the meanings, experiences, and rationales behind the sustainability of SMEs in this industry. There was therefore a need for research transparency and replicability while analyzing behavioral responses using qualitative means (Aguinis and Solarino, 2021). Therefore, a descriptive design which employed semi-structured interviews of key SME experts was adopted and resulted in an unbiased, neutral, valid, and reliable outcome.

3.5.4 Mixed Methods

While qualitative and quantitative research denote extreme and opposite ends of a research continuum, the centre is mixed methods (Mumba and ALICI, 2021). Mixed methods use multiple methods to collect and analyze theories while controlling bias (Mumba and Alici, 2021).

3.5.5 Summary of Research Methods Used

In this study, substantial and in-depth information was gathered from OAGI professionals using a qualitative methodology. The advantages of this method were that a small sample was used and that the participants were experienced and subject-matter experts in this industry. Their opinions and perceptions were subjective, but they provided rich and detailed inductive reasoning. Detailed

interviews gave invaluable information on contractual arrangement factors between SMEs and OAGCs and their subsequent effect on SME sustainability.

3.6 RESEARCH STRATEGY

After selecting the ontology followed by the epistemological research philosophy and the design, the research questions about the contractual arrangements existing between SMEs and OAGCs as well as SME sustainability were answered using one main research approach. Research strategy is important when formulating research questions, research philosophies, and data collection methods (Saunders et al., 2016).

The purpose of this research is to understand contractual arrangements between OAGCs and SMEs and SME sustainability from the participants' points of view. These participants had spent a considerable amount of time in this setting. There were various factors to take into account in order to select the best research plan. A theory is considered grounded if its findings lead to the development of a new one. Contrarily, ethnography is the study of a group of people in their natural habitat or workplace in order to understand their culture, values, or associated concerns without developing a new theory. If the researcher wants to improve a certain phenomenon, phenomenology is the strategy of choice. A descriptive research design was developed for all research questions, in which the researcher explored qualitatively, without any evaluation, the status quo of events (e.g., what are the contractual arrangements between OAGCs and SMEs, what sustainability approaches have been implemented by SMEs?). This contrasts with quantitative analysis, in which analytical research is performed where one establishes details already known and analyzes them.

3.7 SUMMARY

This study uses the Interpretivist philosophical approach. The research is qualitative in nature. Participants were interviewed to acquire a thorough understanding of the agreements made between SMEs and OAGCs as well as the sustainability of SMEs.

CHAPTER 4: DATA COLLECTION AND DATA DESCRIPTION

4.1 INTRODUCTION

This chapter discusses how information or data were collected. Section 4.1 is an overview of the data collection methods used, while Section 4.2 discusses how the semi-structured interviews were designed and conducted. This also includes details of the choice of participants, how the sampling was done, and the location of the participants. Section 4.3 discusses the method used to collect data as well as a pilot study undertaken before the main research. The use of existing contracts, note-taking during semi-structured interviews, and triangulation are discussed. The chapter's summary is presented in Section 4.

4.2 QUALITATIVE INTERVIEWS

Data collection was by use of semi-structured research interviews. The interviews concerned an understanding of contractual arrangements and sustainability issues by asking the interviewee questions (Adeoye-Olatunde and Olenik, 2021). This involved direct discussions in which researchers requested that the participants answer questions that exposed their experiences and interpretations of issues. The participants discussed their lived experiences with contractual arrangements between SMEs and OAGCs and SME sustainability approaches and impacts. The information collected from the participants normally had some common elements as well as varied and peculiar details. Hence, the information collected by the interviewer was subjective.

Semi-structured interviews are commonly used qualitative method when collecting data by interviewing participants (Adeoye- Olatunde and Olenik, 2021). This was the method employed in this research. Semi-structured interviews are made up of open-ended questions with prompt questions used to follow up on thought processes (Adeoye- Olatunde and Olenik (2021). The semi-structured interviews were used to collect data on contractual arrangements and sustainability from OAGI key informants who are subject experts and experienced. The interviews relied on the participants' exposure to the industry; hence, they would give their

opinions, personal experiences, and beliefs about issues asked by the researcher. In addition, these interviews contributed to a conceptual and theoretical body of knowledge based on the participants' experiences.

4.3 SEMI-STRUCTURED INTERVIEWS

The semi-structured interviews were formulated and conducted using the eleven (11) steps outlined below:

Table 4.1: Steps to formulate and Conduct Semi-structured Interviews in OAGI

Step 1: Discussing the purpose and scope of the study
Step 2: Who are the participants and criteria of choosing them?
Step 3: What are the ethical issues?
Step 4: Consideration of Logistical Issues
Step 5: Developing Guiding and Follow-up interview questions
Step 6: Developing Relationship of Trust
Step 7: How to conduct the Interview
Step 8: How to write Memos and Reflection?
Step 9: Data Analysis
Step 10: Demonstrating the trustworthiness of the Research
Step 11: Presentation of Findings

4.3.1 Step 1: The purpose and scope of the research

The aim of this study was to investigate how the contractual arrangements of SMEs in the OAGI enhance SME sustainability. This was brought about after realizing that SMEs in South Africa were failing to survive, with five out of seven businesses failing within the first year (Stats, 2011). A potential motive for OAGI failure is the way in which contracts are run and managed between SMEs and OAGCs. This raised the researcher's interest in analyzing the way in which OAGC and SME contracts are established and maintained and how they affect SME sustainability from an environmental, economic, and social perspective.

Moreover, reviewed literature demonstrated that sustainability in the OAGI is

greatly demanded since the industry generates huge amounts of obnoxious products that ultimately pollute the environment, resulting in climatic changes and accompanying ozone depletion. OAGCs present impressive sustainability efforts to reduce these environmental poisons in their annual sustainability reports. In contrast, there is limited literature on whether SMEs are sustainable or not and if any sustainability efforts have been put in place. In addition, a gap in the literature was that there was no study showing how written and implemented contracts between SMEs and OAGCs affected the sustainability of SMEs. Research questions were generated as a follow-up to the literature review in Chapter 2.

4.3.2 Step 2: Who are the participants and what are the criteria for choosing them?

The sampling method used was purposive ad is also known as selective or purposeful sampling. Etikan and Bala (2017) and Patton (2002) define purposeful sampling as a qualitative research technique used for the finding and choosing participants who know the issues under research well. The rresearcher intentionally choose participants who were subject specialists in the OAGSC and specifically those who managed SMEs in the OAGI downstream in South Africa. These individuals had at least a technical or SC degree and ten years of industry experience as OAGSC maintenance or project engineers, procurement managers, or depot managers. In addition, the SME Directors had started off by working in an OAGI or OAGSC. The SMEs employed eleven to sixty employees, had a yearly income of between R60 million and R180 million, and operated in the OAGI in South Africa (Stats, 2011). The purpose of the researcher was to gain accurate and detailed information and thereby understand how contractual arrangements affect SME sustainability in this industry.

The researcher specifically targeted SMEs in this industry to ensure that their voices were heard and their opinions contributed to sought-after information and the correct perspective. This population is normally left out when research is performed in the OAG supply chain. Creswell and Poth (2018) consider purposeful sampling to be the one that enables researchers to purposefully choose participants who can provide unique perspectives and insights. This sampling technique is typical of participants who have different backgrounds, experiences,

viewpoints, and perspectives to give a holistic appreciation of the topic under research. Purposive sampling, combined with iterative data collection and analysis, can lead to data saturation, ensuring that sufficient information is obtained for a comprehensive understanding of the research topic. By selecting participants with relevant experience, the researcher enhanced the trustworthiness and validity of the study's findings.

Table 4.2: List of Participants

Company unique ID	Size No. of employees	SME/ Y/N	Functional Area	Firm Age in years	Position of Person interviewed	Years Participant in OAGI
R01	15	Yes	Engineering	18	Director/owner	30
R02	15	Yes	Engineering	8	Procurement Manager	10
R03	10	Yes	Engineering	4	CEO/Owner	25
R04	40	Yes	Engineering	7	MD	15
R05	15	Yes	Engineering	15	Director/Owner	25
R06	22	Yes	Engineering	9	Director	12
R07	30	Yes	Engineering	12	CEO/owner	13
R08	15	Yes	Engineering	4	CEO/owner	16
R09	8	Yes	Engineering	6	Director	7
R10	9	Yes	Engineering	15	Director	15
R11	12	Yes	Logistics and	7	Director-Owner	25
R12	28	Yes	Retail site	25	CEO	30
R13	70	No	OAGC	10	Operations Manager	16
R14	250	No	OAGC	19	Operations Manger	30
R15	250	No	OAGC	20	HSSE Manager	30
R16	250	No	OAGC	26	Procurement Manager	26
R17	100	No	OAGC	4	Operations manager	25
R18	85	No	OAGC	6	Operations manager	6
R19	25	No	Strategic	9	Terminal Manager	20
R20	91	No	Strategic	7	Operations Manager	25
R21	250	No	OAGC	26	Procurement Manager	26

4.3.3 Step 3: What are the ethical issues?

The researcher made sure Nottingham University approved of the ethical plan before the interviews and gave potential participants a detailed explanation of the project so they could decide for themselves whether or not they wanted to take part in the study. Participants were able to leave the study whenever they desired, and their data was shielded from intruders because of the use of pseudonyms in the thesis and a robust NTU data protection system. (Please refer to Section 5.12 for more information.)

4.3.4 Step 4: Consideration of Logistical Issues

The researcher made the decision during interview preparation that calling respondents first and sending them an email with all the pertinent material was the best way to get their informed consent and contact them prior to the interviews. The COVID-19 epidemic necessitated virtual interviews using Zoom or MS Teams to be undertaken. With the participants' permission, the interview audios were recorded, and throughout the interviews, notes were made. The researcher organized the use of the Nvivo qualitative software (provided by NTU) for organizing, managing, and transcribing the interviews from the audio recording, as well as data analysis.

4.3.5 Step 5: Developing Guidance and Follow-Up Interview Questions

Semi-structured interviews used clear, open-ended, and neutral questions (Ruslin et al., 2022). The interviews started with simple questions that described the context, followed by more in-depth, difficult questions, which are follow-up questions or prompts to get more in-depth knowledge of the issue. Table 4.3 below gives the detailed types of questions, ranging from core questions to planned follow-up questions. The Research Questions are stated below. For each Research Question, many Core questions and corresponding follow-up questions were prepared for ease of reference.

Research Questions (RQs)

- What are the contractual arrangements of SMEs in the Oil and Gas Industry in South Africa? 16 core questions.
- What are the types of sustainability strategies implemented in the South African Oil and Gas Industry? 8 core questions.
- What are the economic, social, and environmental impacts on sustainability in the Oil and Gas Industry in South Africa? 8 core questions.
- How are the contractual arrangements related to economic, social, and environmental sustainability? 10 core questions.

Table 4.3: Core Questions and Follow-Up Prompts in Semi-structured Interviews

Research Question No.	**Core - Questions Sub - questions of RQs**	**Planned Follow-up Questions/ Information**
1	What is your understanding of contractual arrangement in this industry? Can you explain how contracts are formed between you and your Oil and Gas clients?	Information on contract negotiation, the process of supplier selection and accreditation, nepotism and bribery.
1	How important is technology in your business?	Information on (R and D), innovation, Renewable Energy, green technology and use of diversified sources of energy.
2	What is your understanding of sustainability?	Follow-up question: Information on environmental, social and economic sustainability.
2	Tell me more about the environmental sustainability strategies your company has invested in.	Information on waste management, pollution, water
3	What do you consider as the Social impact of sustainability in the OAGI?	Change in employment patterns, use of LC and collaborating with local entities, developing enabling infrastructure improving local skills, effect on physical and mental stress, human rights, health and social equity, working conditions social responsibility.
4	What is the effect of government monitoring and support of SMEs in their (SME) sustainability?	Does increase in government support of SMEs increase or decrease SME sustainability?

After developing guiding interview questions, a pilot test was performed so that a time frame and nature of collected information of the interview could be established. Replacements and modifications to questions were made after the pilot tests.

4.3.6 Step 6: Developing Relationships of Trust

Plans were put in place to ensure that special forms of relationships would develop when the researcher and interviewees discussed these important issues in the OAGSC. The researcher developed a good rapport with the interviewees during information sharing by listening attentively and respectfully (Ruslin et al., 2022). Moreover, the researcher was open and honest and showed interest in the interviewee's opinions, even if they were contrary. A professional outlook and acknowledgement that the interviewee was the subject expert helped in developing a respectful and trusting relationship (Byram, 2022).

4.3.7 Step 7: Conducting the Virtual Interviews

The interviews were done virtually. Ideally, the location should be in offices where it is quiet and doors are closed, but during the COVID-9 pandemic, participants were at home, and sometimes their family members barged in during interviews. At the beginning of the interviews, the researcher’s interest in OAGI and SME sustainability, as well as the format of the interview were outlined. The interviews were planned to be 1 hour long and were divided into 4 parts, which corresponded with the four research questions. The interviewer observed social and non-verbal cues in the form of intonation and body language. Active listening was encouraged and practiced by using smiles, nods, and silence (Ruslin, 2022). Verbal Prompts and probes to repeat the interviewee's words showed agreement between the parties.

4.3.8 Step 8: How to Write Memos as Well as Reflections

The interviewer reflected on the interview and wrote memos of the critical issues, lessons learnt, and any issue worth remembering (Ruslin, 2022).

4.3.9 Step 9: Data Analysis

Since data analysis occurred at the same time as data collection, the strategy for how the data was to be analyzed was developed during the planning stages (Ruslin, 2022). The general data analysis and interpretation process involved reviewing transcripts, detailed notes, and audio recordings on Zoom or Teams.

This was followed by looking for categories and patterns and using Nvivo software to organize the data.

Rationale for using Nvivo

Qualitative research samples are generally small since the objective of this analysis is data saturation, which requires a smaller (purposeful) sample, unlike qualitative research, which requires statistical significance. According to Fusch and Ness (2017) Data saturation is accomplished when there is adequate information to recreate the research, when it becomes possible to obtain additional new information and when it becomes impossible to add new codes. In line with the qualitative approach and since the data collected was diverse even from a small sample size, Nvivo allowed importing, keeping track of, navigating, and filing qualitative information such as interviews, referenced literature, participant consent forms, information sheets, research audios and transcripts, copies of contracts, and reflective notes in an organized manner.

Iterative Analysis: Since data collection and analysis were conducted at the same time, as is common in qualitative research, Nvivo enabled the revision and addition of new data insights while refining the research details, which benefited the small sample. Even with a small sample size, Nvivo enabled the trends, archetypes and themes that emerged from the information collected. Formation of codes and categories in Nvivo assisted in the organized and systematic analysis of the themes, ensuring efficient thematic analysis. In addition, Nvivo offered charts, network diagrams, and mind maps, which enhanced the presentation of the findings even with a small size of a sample.

4.3.10 Step 10: Demonstrating the trustworthiness of the Research

Trustworthiness or credibility was established by noting that the findings were accurate and representative of the data, transferable and dependable, and that those findings were consistent and sustainable over time (Byram, 2022).

4.3.11 Step 11: Presentation of Findings

Research findings were described as narratives and in-depth discussions of participants' perspectives, experiences, and concerns. The data were presented as graphs, tables, and figures, as well as conceptual frameworks, as discussed in Chapter 6.

4.4 DATA COLLECTION

Once the semi-structured interview questions were developed, potential participants were contacted telephonically and by email, as described in Section 4.3 above.

4.4.1 Conducting the Interviews: The Pilot Study

According to Table 4.2 above, each company was represented by a team of industry veterans with a minimum of fifteen years of expertise. This helped to give assurances that the data obtained from the experienced senior Director respondents was valid and reliable for the research analysis and subsequent interpretation.

Being cognizant of access to information and sampling details, as well as ethical considerations outlined in the University's ethical approval documentation, a pilot study was undertaken between May and September 2020 in Johannesburg, South Africa. The pilot study established feasibility of the research and how best to conduct a large-scale research project. It assisted with the identification and/or refinement of research questions and deciding on the best methods to use for the research. These included determining how much time and resources would be required for the actual research. Three accredited SMEs were selected. These provided engineering services to the downstream sector of the OAGI and had been in this business for at least four years. Three participants, one from each company, were carefully chosen for their industry knowledge and experience. It was important to find SMEs with experienced and skilled staff. For this reason, the selection of suitable SMEs was not entirely random but focused on experienced and skilled SMEs that could replicate expected theoretical outcomes (Eisenhardt, 2020).

The researcher explained the aim of the study and how it would impact the participants, the OAGI, the government, and the industry at large, and all ethical issues were explained. As discussed above, the interviews used Semi-structured questions. (See Appendix 4 for semi-structured interviews for SMEs and Appendix 5 for semi-structured interviews for OAGCs.) This was done on Teams or Zoom and lasted for at least an hour. Initially, the one-hour-long interviews were recorded, manually transcribed, and briefly analyzed, and the pilot study results, together with limitations, were examined. Initially, manual coding was done, and the researcher experienced information overload. Many cycles of open coding were carried out, and many themes were identified. Nvivo software was used to make the process easier, and second-order codes were developed. This is depicted in Figure 4.1 below:

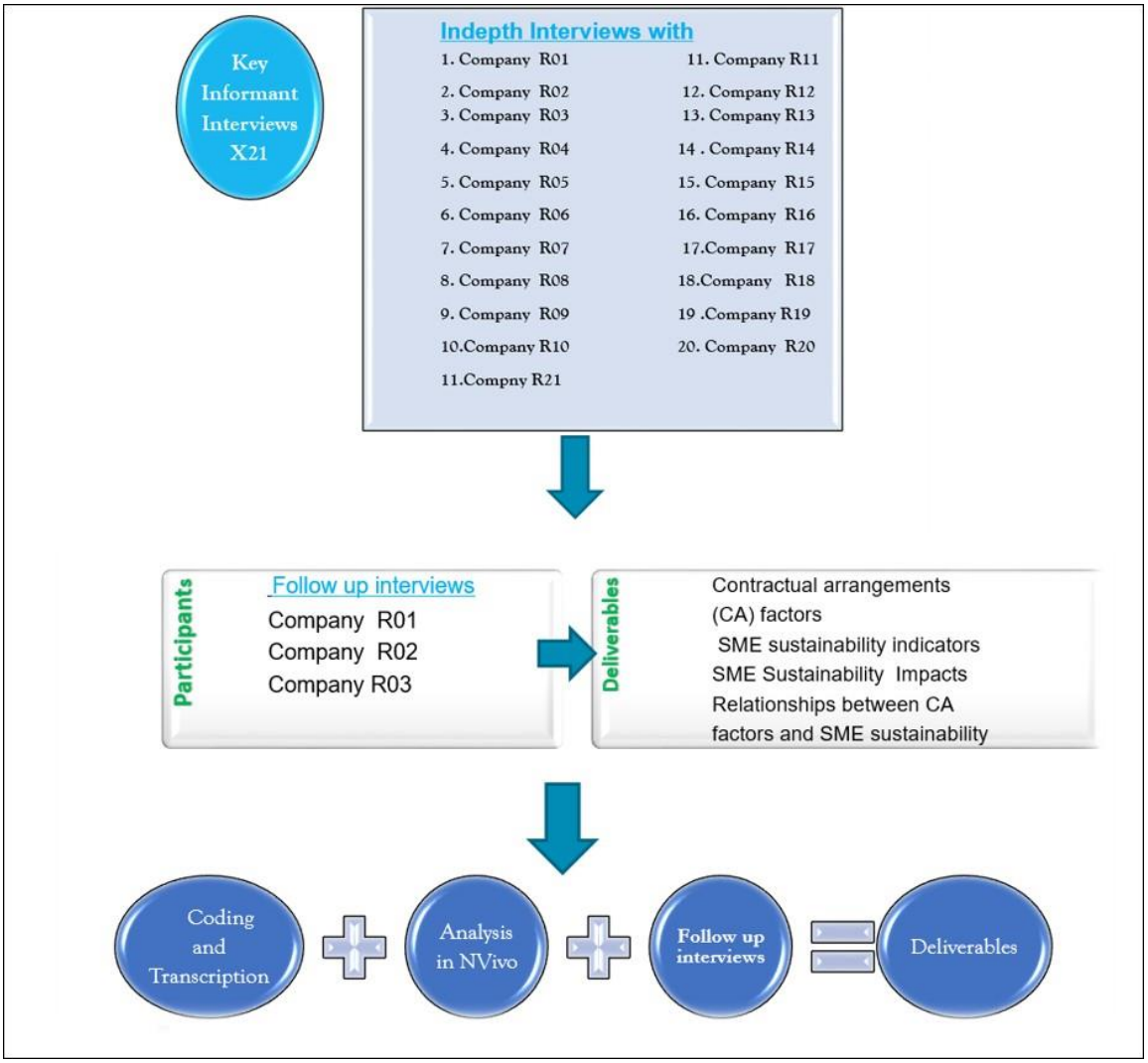

Figure 4.1: Summary of the Qualitative Research Process, Ruswa (2018)

4.4.2 Insights from the Pilot Study

The owners of the SMEs were willing to be interviewed but were unwilling to have their employees interviewed. Such engagements assisted the researcher in learning and improving interviewing skills by conducting semi-structured interviews. The pilot study served to establish the research epistemology and methodology. It was recommended to revisit and modify Research Question 1 (RQ1) to include trust, corruption (as a standalone entity), and greening. Furthermore, the pilot study was used as a tool to consider the phenomenology approach and excluded the researcher's prejudices regarding phenomena and participant experiences.

Recommendations were made for the interviewer to reduce bias by the time of the actual research by entering any biases and feelings into a journal during interviews. Finally, the pilot study provided experience with data collection and analysis. Coming to grips with interviewing and transcription was time-consuming and slow, but the interviewer learned transcription and thematic analysis, first manually and then using Nvivo.

4.4.3 Interview with 21 Participants

Three participants took part in the pilot study after which relevant modification of the research questions was undertaken. Thus, the research methodology was confirmed, and the main research was undertaken in January 2021.Twenty-one selected participants were interviewed. Twelve of these owned or worked for SMEs (Engineering services, logistics and transportation, and retail service stations), while nine of them worked for downstream OAG companies.

Ten SME participants provided engineering and maintenance services; one participant transported bulk fuel from depots to retail sites; and one SME ran a retail site on a busy main road joining the Johannesburg Central business district to Soweto (a densely populated residential area). One of the OAGCs situated within a harbor received oil, fuel, and gas from ships and stored the products as part of the country's strategic fuel reserves. All OAGCs were global fuel marketing

companies except one, which was owned and managed by the government.

The size of the companies were determined by the number of employees. Most of them are SMEs, as shown by the SME classification gazetted in South Africa in 2021 (Appendix 10). All companies have been in this business for at least 5 years; the participants occupy management positions, and most have worked in this industry for over 10 years. They were therefore knowledgeable and were able to respond to my questions adequately.

This helps to give assurance that the data obtained from the experienced senior Director participants will be valid and reliable for the research analysis and subsequent interpretation. Moreover, the names of both the companies and the participants were kept anonymous. Thus, the information given was not disclosed in a way that could identify the company or participant, according to the Nottingham Trent University Ethical Approval Protocols.

These three participants from the engineering services SMEs were interviewed in July 2020, and the same participants were interviewed again in July 2021, and their opinions were recorded. These participants were used in a longitudinal study of the contractual arrangements and sustainability of SMEs. These interviews were recorded followed by verbatim transcription which was later revised to more concise language by the obliteration of repetition and vocal hesitancies.

4.5 USE OF EXISTING CONTRACTS

To achieve the SDG 9 proclaimed by the United Nations (2017), infrastructure should be built to acceptable standards. In the OAGI, most SMEs are involved in construction, and processes that reduce climate change effects and improve infrastructure maintenance must be designed to mitigate economic, social, and environmental risks (Brauch, 2017). Existing supply contracts between OAGCs and SMEs were used as a source of information to confirm or dispute participant interview findings about contractual arrangements, and this information was used to triangulate research findings. A copy of a contract between an OAGC and a contractor (SME) used for this sole purpose is attached as Appendix 6.

4.6 NOTE-TAKING DURING INTERVIEWS

Making accurate notes on what the interviewees stated required attentive listening. These notes included the mood, appearance or general demeanour of the participant. Rich, in-depth information was acquired using the interview audio in conjunction with the study (Ruslin et al., 2022). Appendix 7 contains a copy of the researcher's notes.

4.7 TRIANGULATION

This entails using different research methods when collecting data, such as interviews, questionnaires, documents, and observations (Singh, 2022). Triangulation involves comparing the research results of one method with those of a different method (Singh, 2022). Knowing that each research method has advantages and disadvantages, triangulation makes sure that the advantages of one method are counterbalanced by the disadvantages of another (Saunders, 2016). In this study, data were gathered through qualitative interviews, researcher's notes, and written materials (contracts), and then they were triangulated.

4.8 SUMMARY

Planning for semi-structured interviews and qualitative analysis and collection of data were covered in this chapter. It explains the two steps of the interviewing process. The first was a pilot study, and the second involved doing the primary research interviews and applying both existing contract documents and the researcher's own interview notes. The subsequent chapter covered data analysis.

CHAPTER 5 - DATA ANALYSIS

5.1 INTRODUCTION

Chapter 5 summarizes the research findings. Section 5.1 discusses the detailed thematic analysis used in this study. The suitability of the method used and the reliability and validity of the method id discussed in Section 5.2. Section 5.3 discusses ethical issues; Section 5.4 outlines the issues of bias and the chapter is summarized in Section 5.5.

5.2 THEMATIC ANALYSIS

After the interviews, thematic analysis was (Adeoye, Olatunde and Olenik, 2021). Analysis and preparation of the data happened in parallel and included the following steps adopted from the five stages of data analysis (Creswell and Poth, 2016). The first step involved typing the transcripts of the recorded. Interviews with the participants were conducted in the following order: SMEs first, then OAGCs. The first participant to be interviewed was given the pseudonym R01, and the last participant was given R21. Pseudonyms were issued to all 21 scripts. Each interview lasted over an hour. The interviewer took reflective notes both during and after each session. This was crucial because it allowed the researcher to capture data while it was still fresh in her mind and helped her create engaging narratives when it came time to write the thesis. The notes for participant 1 were labeled NR01, and for participant 17, they were labeled NR17.

Any contracts that the participants were willing to share with the researcher were also collected after removing the SME or OAGC's name. The data were arranged so that there was a transcribed script for each participant containing reflective notes and any copies of contracts. The transcription was done manually and verbatim, which allowed better understanding of the collected data earlier on in the research. In agreement with McMullin (2021), manual transcription is important in determining the validity of qualitative data collection. Creswell and Poth (2016) recommend the use of computerized software to organize, sort, and locate information, and in this research, Nvivo 12 software was used.

After having read the transcripts and notes many times, the researcher started writing down the simple pattern that emerged. This was done several times until many themes were obtained. In line with Creswell and Poth (2016), the researcher highlighted key phrases and additional notes in Nvivo.

The next stage was data coding, which involved reducing the data into meaningful portions. The coding was done using Nvivo as shown in Appendix 11, and examples of nodes generated are listed below.

Table 5.1: Example of Nodes Generated During Thematic Analysis

Nodes	Files	References	Created On	Created By	Modified On	Modified By
CONTRACTUAL ARRANGEMENT	21	21	2021/08/24 11:14	N	2021/09/29 17:47	N
JOINT VENTURES	16	38	2021/08/24 11:14	N	2021/09/29 17:47	N
TRUST	19	52	2021/08/24 11:14	N	2021/09/29 17:47	N
CONTRACT	21	164	2021/08/24 11:14	N	2021/08/24 11:37	N
SKILLS	20	162	2021/08/24 11:14	N	2021/09/20 23:40	N
FINANCES	20	165	2021/08/24 11:14	N	2021/09/27 17:01	N
CONFLICT RESOLUTION	2	5	2021/08/24 11:14	N	2021/09/29 17:44	N
OPERATIONAL RISK	20	253	2021/08/24 11:14	N	2021/08/25 08:15	N
COMPLIANCE	17	69	2021/08/24 11:14	N	2021/08/24 11:38	N
GOVERNMENT ROLE	20	110	2021/08/24 11:14	N	2021/08/24 11:40	N
CORRUPTION	20	102	2021/08/24 11:14	N	2021/09/29 17:47	N
HSSE	21	121	2021/08/24 11:14	N	2021/08/29 15:23	N
TECHNOLOGY	20	152	2021/08/24 11:14	N	2021/08/24 11:40	N
GREENING	6	13	2021/08/24 11:14	N	2021/09/29 16:35	N
SUSTAINABILITY STRATEGIES	1	1	2021/08/24 11:14	N	2021/09/12 17:25	N
impact of sustainability	1	4	2021/08/24 11:14	N	2021/09/10 10:45	N
SUSTAINABILITY DEFINITION	7	16	2021/09/15 11:52	N	2021/09/29 17:44	N
IMPACTS OF SUSTAINABILITY	0	0	2021/09/15 11:54	N	2021/09/15 11:54	N
RELATIONSHIP BETWEEN CONTRACTUAL ARRANGEMNTS AN DS	8	165	2021/09/15 12:44	N	2021/09/15 13:01	N
RESPONDENT	21	106	2021/09/29 11:34	N	2021/09/29 16:52	N

Different types of nodes were created in this study, ranging from technology, skills, joint ventures, trust, etc. The nodes represented the themes, which were the topics found in the source material and were descriptive. Case nodes, on the other hand, were the participants. The reflective notes, consent forms, and personal information forms were stored in an orderly manner in Nvivo. According to Creswell and Creswell (2018), themes are made up of many nodes combined into a concept. The data was therefore easier to interpret once it was converted into themes by just comparing the themes. In this study, many codes were combined into themes: For example, consider research question 1: What are the contractual arrangements between SMEs and OAGCs?

There were 215 nodes and sub-nodes realized in Nvivo. These nodes were grouped by finding similarities into 52 main themes, which are also named first-order (level) codes. The first-order codes were further grouped to form only 11

second-order code categories. These categories were in turn grouped to form six aggregate dimensions. Using a specific example, the many nodes were combined to form first-order codes, for example, cash flow, SME financing, SME delayed payments, deposit payments upfront, funding problems, order financing, no financial concessions for SME payment terms, and poor financial management, which were all individual first-order codes. First-order codes comprising fixed prices, payment terms, and delays in payments were grouped to form payment issues, and second-order codes or categories.

In turn, cash flow, SMEs financing SMEs, funding problems, order financing, no financial concessions for SMEs, and poor financial management formed their distinct cash flow and funding second order codes or categories. The two second-order categories were combined to form an aggregate dimension for financial issues. This process was implemented many times to come up with the six aggregate dimensions shown in Figure 6.1 below. The first-order codes are what the participants say and are easy to understand.

The researcher revisited the research objectives and verified how often themes were obtained from the data by using frequency graphs.

5.3 GIOIA METHODOLOGY

Qualitative research is often criticized for lacking scholarly rigor. An attempt to redress this (though not foolproof) was made using the Gioia methodology (Gioia et al., 2021). This methodology involves conducting a thematic analysis as shown above and then grouping participants' observations into groups as in the first-order codes. Once the first-order codes are formed, second-order themes are formed by grouping these first-order themes. The aggregate dimensions are obtained from grouping second-order themes.

This methodology is well known for providing an organized way of building new theory (Gioia et al., 2021). This methodology forces a disciplined approach to evidence and helps find patterns in the data generated from interviews.

5.4 LIMITATIONS OF THIS METHODOLOGY

While first-order codes are a direct result of the participant's quotations, second-order themes are, however, formed from appropriate theoretical academic terms and constructs, which have no complete bearing on the participant's findings. The participants' quotes will not give rise to second-order or aggregate dimensions. According to Köhler et al. (2022), there is pressure on qualitative researchers to use templates like the one offered in the Gioia methodology. This has glorified reporters who report on participants' perceptions and experiences instead of researchers who critically evaluate information obtained from participants.

In addition, this tendency would prove disastrous to innovation and development in scientific analysis, where discoveries would be limited. Mees-Buss et al. (2022) propose that the inductive route to the theory that the Gioia methodology is well known for does not address the challenges of interpretation. These authors rather suggest a return to the epistemological tradition of hermeneutic orientation, which they believe can offer more realistic theories based on interpretive rigor but not procedural rigor. The following steps necessitate relating the topics to literary works and summarizing the results. As a result, four primary sources of data were used in data triangulation (Creswell and Creswell, 2018). The SME formal contracts (Appendix 6), participant interviews (Appendices 4 and 5), and interview notes (Appendix 7) were among them.

5.5 VALIDITY AND RELIABILITY

Munodawafa and Johl (2021) refer to validity as a process when a researcher uses some procedures to check the accuracy of given findings, while qualitative reliability refers to how replication of results can be measured. It is interesting to highlight that qualitative research's credibility can be proven through the use of trustworthy and effective methods (Rose and Johnson, 2020). In this study, the participants were subject experts whose opinions were respected in the OAGI. In addition, the same research questions were asked of each participant and recorded to ensure accuracy and consistency.

Furthermore, the researcher took down notes during the interview to provide a

fuller record of the proceedings through triangulation and ensure the reliability of the data. The participants were all male mechanical engineers with different experiences and opinions, and they viewed supply chain contractual issues between SMEs and OAGCs through unique yet non-antagonistic lenses. Additionally, the researcher was familiar with the interviewing procedure, and the interviews were recorded to guarantee consistency. According to Saunders et al. (2016:175), triangulation is considered an important process for the validation of data in interpretivism research. The researcher took back information obtained from participants for verification that the correct information had been captured during the interviews. This was done a sufficient number of times to ensure that reliable information had been recorded. The Gioia methodology assisted in ensuring a transparent and repeatable system for conducting and presenting inductive research methodology (Gioia et al., 2021).

5.6 ETHICAL CONSIDERATIONS

Ethical considerations are important in any research (Jain, 2021). The researcher therefore ensured that they performed the research strictly within the Professional Doctorates Research Ethics Committee (PDREC) of Nottingham Trent University through the use of approved qualitative interview questions and data collection for both pilot and actual research. Every participant completed a Participant Information Sheet (Appendix 2) and read and agreed to consent forms containing ethical considerations, as detailed in Appendix 1.Furthermore, the researcher discussed the ethical issues with the prospective participants before the interviews, including informed consent, and explained the project with its detailed ethical issues. This made them aware of their ethical rights as participants, even while they were interviewed virtually. All participants filled out and signed the Participant Information Sheets and Consent Forms.

5.7 COMMUNICATION WITH STAKEHOLDERS

The stakeholders in this research were OAGCs, SMEs, and the government.
The SMEs were the easiest group to communicate with because the researcher collaborated with them and could readily revert to participants and provide feedback on the research's findings. Interviews with OAGCs were more

challenging, considering that the researcher works for an SME that is a contractor in this industry and could not present a document that might not be completely complementary to the client. The feedback was presented through the Department of Energy, and the government received feedback through the Department of Energy, Women in Oil and Energy, and the South African Petroleum Industry Association, of which the researcher is a member. The researcher intended to publish these findings in reputable journals for the benefit of professional and academic audiences.

5.8 ELIMINATION OF BIAS

As Kahneman et al. (2011:3) stated, it is 'intrinsic in my human nature to be biased. The researcher is knowledgeable in this industry; nevertheless, the application of thematic analysis helped to emphasize what the participants said and not what the researcher thought the participants ought to say. This suppresses researcher bias. With bracketing, the researcher had to conduct the analysis with no preconceived notions about the contractual arrangements or the viability of SME's. Hence, the researcher relied on her intuition as to the accuracy of the information and focused on the interviews and data gathered and their interpretation rather than her prior knowledge.

5.9 SUMMARY

This chapter covered the thematic data analysis method. The detailed pilot study's findings and recommendations helped shape the research tool and its themes. The procedures used to eliminate bias were discussed, along with descriptions of the validity and reliability approaches. The findings of the research on the 21 individuals are provided in the following chapter.

CHAPTER 6: RESEARCH FINDINGS

6.1 INTRODUCTION

The chapter presents findings of the research objectives of this study. Section 6.1 is the Introduction, while Section 6.2 reports findings to identify contractual arrangements affecting the relationships between SMEs and OAGCs in the South African OAGI supply chain. Section 6.3 reports the findings on the types of sustainability approaches embarked on by SMEs in detail, while section 6.4 highlights the findings on impacts of these sustainability approaches. Section 6.5 identifies the links between contractual arrangements and SME sustainability. Finally, section 6.6 summarises all the findings for the four research questions.

6.2 FINDINGS - UNDERSTANDING CONTRACTUAL ARRANGEMENTS OF SMES AND OAGCS

The study sought to gain an understanding of the way contracts between OAGCs and SMEs in this OAGI supply chain are established and managed. Eighty-five threads were observed, making it possible for the researcher to glean deep insights from participants. A few extracts of the themes developed are given in Appendix 9.The participants understood contractual arrangements .Participant 11 said:

> *"A legally binding document that determines how you will provide the goods or the services. You need to have a document in place, which is a contract, which now spells out what will happen during the course of provision of the services or the goods." (R11)*

After a review of the results presented in Figure 6.1, it emerged that contractual arrangements between SMEs and OAGCs can be grouped into seven main groups. These are compliance, financial issues, operational risks, skills, institutional void, trust and green technology. The frequencies of these aggregate contractual arrangements are shown in Figure 6.1 below. Using the Gioia methodology of analysis, these groups are presented in Figure 6.2: below:

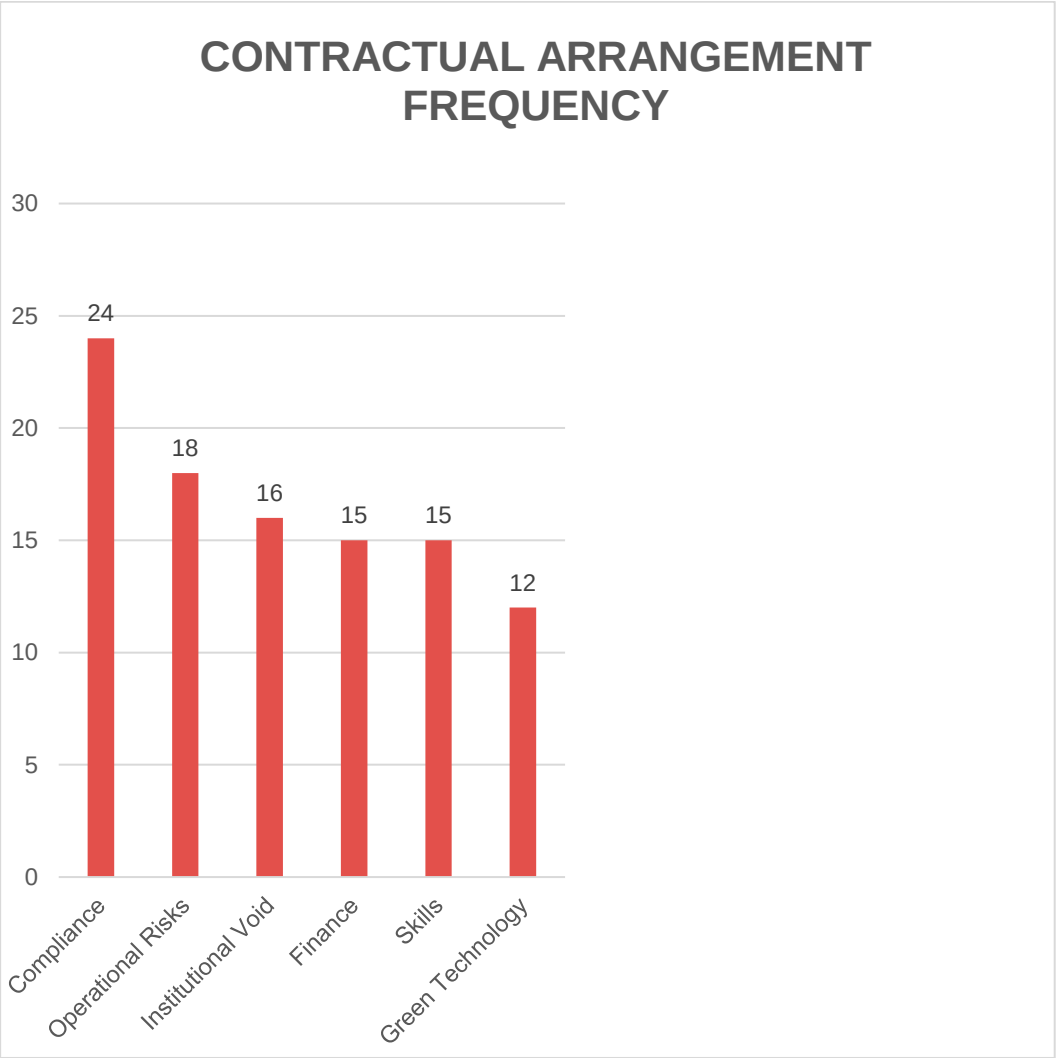

Figure 6.1: Summary of Findings related to Contractual Arrangements

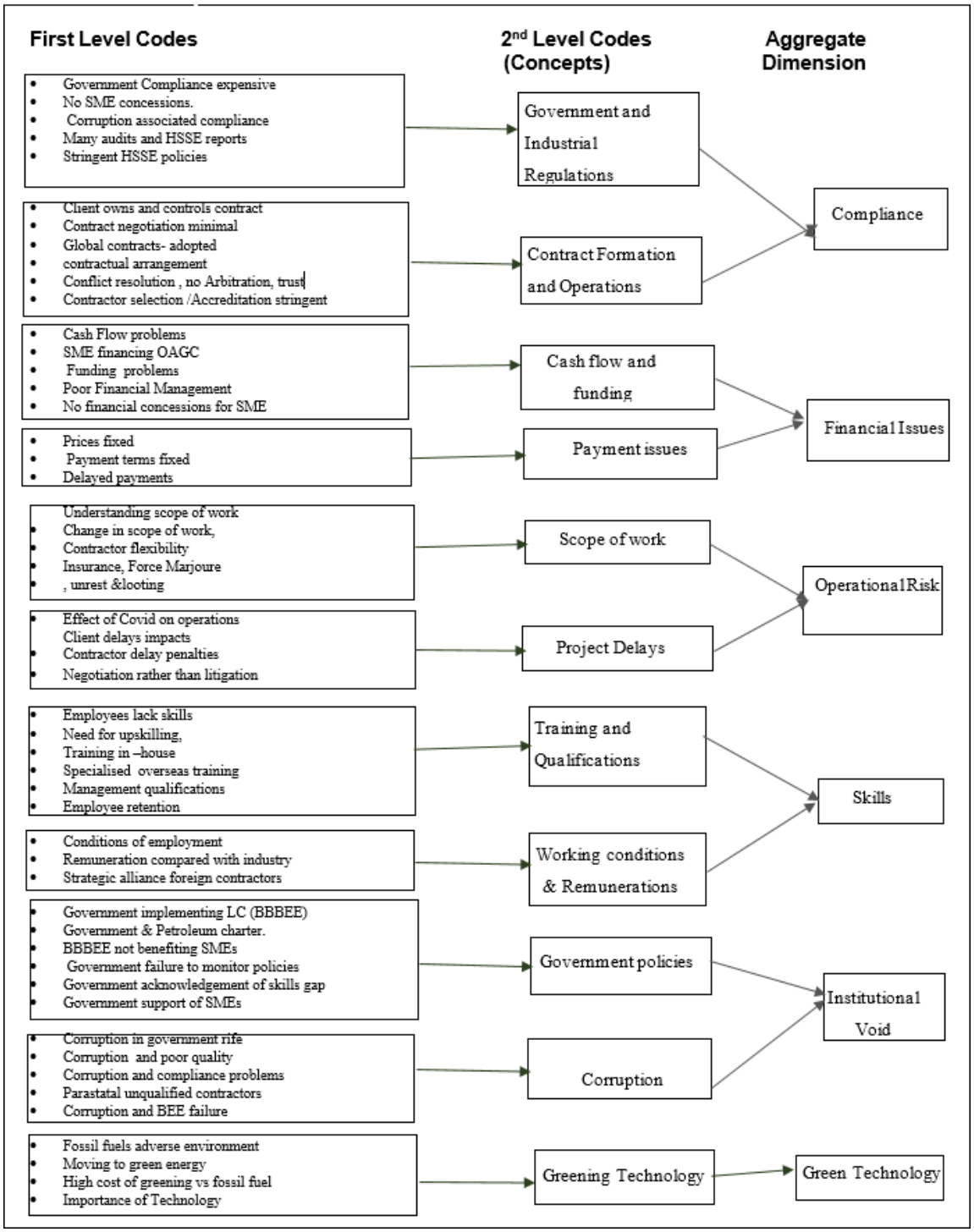

Figure 6.2: Detailed Contractual Arrangements between SMEs and OAGC

6.2.1 Compliance

It is clear from Figure 6.2 that compliance is the most critical issue in relation to contractual arrangements. A key finding is that, for SMEs to be able to operate sustainably, they must comply with two major issues. These are compliance with government, and with OAGI requirements that involve mainly HSSE regulations, contract formation and operations protocols between OAGCs and SMEs.

The findings are that complying with government regulations to operate a company in South Africa is expensive. To operate, it is a prerequisite for any company, including SMEs, to comply with all government taxes, levies, and tariffs. Meeting these government requirements is not only expensive, but time consuming, resulting in a diversion of SME focus from their core business. This is in line with findings that the regulatory compliance cost is very high and poses a burden to SMEs in South Africa (Van Wyk, Dahmer and Custy, 2004). In addition; there are no SME concessions in terms of statutory requirements. The majority of participants expressed concern about government driven compliance:

> *"The time and effort to ensure compliance with government tax rules, VAT regulations are quite cumbersome. We have to comply with the workers compensation and a myriad of other issues, to the extent that sometimes our focus from the businesses has diverted in trying to comply. So, the cost of compliance is onerous on SMEs. There is no distinction between requirements for corporates and SMEs." (R01)*

Interestingly, corruption is associated with government compliance. The compliance process can be so corrupt that some SMEs build gratification expenses into their cost base. Corruption is also seen when tendering for highly technical maintenance work in government entities. Some technically competent and experienced SMEs lose contracts to non-technical contractors who are willing to pay bribes to government officers. Participants 02, 20, and 01 illustrated this by saying:

> *"So, for you to obtain licenses from government, you do have corruption that takes place. For those in other sectors of the industry, maybe you require land to build filling stations and you have to deal with city officials, there's corruption." (R02)*

> *"Corruption. It's included as a cost of doing business. You know, there is a cost layer that is inevitable. Firstly, there is the price layer for doing the business. There is a price layer for carrying out your operation.*

There is a price layer for the profit of the SME. And then there is a price layer for the corruption. So, the cost of doing business is increased because you have this inevitable price layer." (R20)

"When the client is a government parastatal, sometimes it is a bit difficult there, fulfilling the usual requirements of demonstrating technical competence sometimes surprisingly does not win you the work, even if you were the best suited candidate technically - Corruption!!" (R01)

Additional findings are that potential contractors in this industry are required to comply with many prerequisites. These range across qualifications, skills, contracts, and experience of personnel, HSSE management systems, bank statements, and compliance to all government and industry statutory registrations, HSSE reports and audits. A related finding is that SMEs are required to comply with non-negotiable terms of safety and operability of equipment. Failure to comply can result in the SMEs being stopped from working, and there is a risk of contract termination. These requirements are extensive and present barriers to becoming an SME. These aspects are underscored by participants 17, 11, 13 and 02.

"You just have to comply with so many requirements from oil companies in order to be accredited." (R17)

"OAGCs require that our people be provided with PPE. The people must have hard hats, overalls, reflective vest, boots, and gloves. The second thing is, we must have procedures in place. There are procedures for offloading, loading, product handling, product knowledge, and measurement, and all that. These are requirements for safety. The procedures require drivers to drive only two hours and rest in-between, drive below a speed of 80 km/ hr., don't drive at night. So, we've got ….very stringent procedures that must be adhered to as part of the requirements for safety. This also applies to environment. If, in a scenario where we have accidents, we have clean-up teams, we have treatment for the environment if we have had spills. So, we have all those. In terms of health, we have requirements for testing our drivers. Eyesight, to test their health after some time. So, we have all these as requirements." (R11)

"For the equipment itself, we've got stringent maintenance requirements. Maintenance records must be kept. Very old trucks must be removed from the fleet and spill containment equipment on the fleet itself must be there." (R13)

"Yes, we're expected to provide reports. We provide reports to our Board monthly, and the safety report is part of that." (R02)

Hence our study clearly found that the cost of compliance is very high in this industry and compliance issues are too many. This can result in SMEs poor sustainability as they cannot keep up with these regulations. In addition, government and industry regulations may be barriers to entry for potential new contractors in this industry mainly because the OAGI has rigorous requirements before even considering the myriad of requirements from government.

In the process of forming a contract between an SME and OAGC, seven (7) themes were identified that SMEs must comply with to win the contract. Firstly, the client owns and controls the contract. Therefore, the SME should be agreeable and accept these conditions to secure a competitive advantage. Secondly, the study found that most contracts with multinational OAGCs are adopted by a simple matter of copy and paste from their head offices that are out of South Africa. Although attempts are often made to adapt such contracts to suit local conditions, it is usually easy to recognise elements that do not reflect prevailing local circumstances. Participants 06 and 05 had this to say:

> *"It's sort of that most of this stuff is copy and paste. Its stuff that's not even relevant to the scope of work." (R06)*

> *"In the formulation of the contract, there is little or no negotiation because most of the OAGCs are international. They have fixed contracts which they use from their head office. So, you can't really negotiate on most of the terms. They do dictate what terms you have to work with. If you have to negotiate probably, we'll be talking about negotiating on the price and the duration of the contracts. However, if you look at most of the clauses they are already formulated." (R05)*

Thirdly, the contracts are signed after minimal or no negotiation at all, despite that these are legal documents. No discussions take place between contractors and the client to alter conditions detailed in the contract, except price and timelines. A participant highlighted this:

> *"Usually, there is not much that the small organisation can do. In many cases, it's like one that fits all, because a lot of these contracts come from global organisations and the document is already set. There's nothing you can do about it. But it comes with problems, because many times the contents are not very fit for the local conditions, so it makes the operationalisation of the document of the contract fairly difficult." (R11)*

The fourth finding was that SMEs understand contractual arrangements and how contracts are formed, run, and managed. This is imperative in ensuring compliance of SMEs with OAGCs requirements for contractors. Participants 06 and 01 expounded on their perception of contractual arrangements between SMEs and OAGCs:

> *"The content of the contract. The liabilities, responsibilities, uh, you know, payment clauses, delay clauses, scope of work, uh, resources, logistics, an overview of the whole project. And it's basically a legal document once it's signed and the purchase order is secured." (R06)*

> *"The written contracts outlining, the relationship between ourselves as contractors and the oil and gas clients" (R01).*

Our fifth finding was that OAGCs tend to give more contracts to SMEs that they know and trust. Hence trust positively affects SME sustainability. For example:

> *"Trust is critical because SMEs represent the client in their work and if there is no trust between the clients and SMEs, problems are experienced. The more the client trusts an SME, the higher the chance that the client will give them more work." (R02)*

> *"It's important, there must be trust-, and trust creates harmony in the system. If there is no trust there is always suspicion. And when there is suspicion there is always conflict. And when there are conflicts there are always legal issues. Therefore, we must work as partners, we trust each other. So, trust is quite important." (R15)*

The study also revealed that the supplier selection and accreditation process is so rigorous, stringent, and involved that the process can act as a barrier to entry. New entrants are asked by OAGCs to provide bank statements; employee practice details, HSSE practices, management style and anti-corruption and drug policies and many other documents. Participants 01 and 13 aptly said:

> *"It is a fairly stringent process. The OAGI appears to be a closed ecosystem it's not particularly easy to get in. For instance, to be able to bid for jobs, contractors need to be accredited and the process is quite detailed. The oil companies would send representatives not only to do a physical audit of where we are operating from, they are particularly interested in the qualification, experience, and skills of the personnel. In addition, they are also looking at formal systems within the Organisation, that demonstrate capacity for quality, safety, accounting, and I would say business systems to give assurance, that the contractor is knowledgeable with specific skills, authorised normal banking accounts, formal registrations, and compliance with statutory*

requirements regarding employment contracts, registrations to pay income and corporate taxes, for example." (R01)

"Part of our accreditation requires you to have separate bathrooms for males and females, a canteen area and an emergency response plan with escape routes. In a workshop or an office, it is easy to comply. But working out of their house, an SME is trying to cut costs. And can't comply." (R13)

However, other participants expressed conflicting sentiments when they said.

"The only thing that will be different between my agreement and your agreement it will be the price, name, surname and identity number." (R12)

The findings also indicated that sustainability is one of the criteria used to select contractors. Participant 14, who is an OAGC, said.

"Sustainability is very important because you don't want to deal with a company that would not be there tomorrow." (R14)

Surprisingly, the study found OAGCs are not keen to do work with SMEs who they perceive would give them problems in the event of conflict. Though conflict resolution policies are detailed in contracts, OAGCs prefer mutual agreement to resolving issues rather than litigation. They avoid arbitration. This is clearly described below by Participants 01, 05, and 02.

"In the contract, is an agreement, how you're going to resolve the conflicts. And mostly from observation, you will always sit and discuss, but there's always an appointed authority in case you have to seek a third party to help." (R05).

"From our side, realizing the competitive nature, we try to avoid prolonged or any conflict , for that matter and we would rather resolve them through negotiation , again on the basis that we would be hoping to get further work from the same client in future." (R01)

"The contractor resorts to negotiation to resolve any dispute. No arbitration is put in place as we normally resolve issues between the client and us." (R02)

Our findings are therefore that Government has stringent requirements for SMEs (or any other company) to exist in South Africa. The compliance is expensive and time consuming and some SMEs pay bribes to government officials in order to be seen as complying. The OAGI has numerous requirements, and the accreditation process to become a preferred contractor is very difficult. Both SMEs and OAGCs

studied know their contractual obligations in line with the principal agency theory (Ellram and Tate, 2021). They nevertheless prefer to resolve conflicts through mutual negotiations and not arbitration. Finally, OAGCs prefer SMEs they can trust to work for them.

6.2.2 Financial Issues

SMEs and may cause due to financial problems. These encompass cash flow and funding, payment issues, and financing of SMEs.

In the study, SME contractors unanimously confirmed having experienced problems with access to finance and funding. Reflecting on these aspects, participants said:

> *"So, the biggest problem that they have is having access to finance." (R21)*

> *"We face this major problem. We have finance constraints in terms of the operations. We are considered not creditworthy, as we do not have requisite collateral and we therefore fail to secure loans to cover us for working capital." (R02).*

> *"Because SMEs with a contract put some of their financial resources into the process of mobilisation, and the recruitment. In addition, where you delay payment, for example, what it means is that they would have to find a source of money to pay their members of staff." (R20)*

There is an added burden of SMEs financing clients. This is a common occurrence as most clients are reluctant to pay an initial upfront deposit, regardless of the contract value. Participants 01 and 02 reported this:

> *"No upfront payment…" (R02)*

> *"Prefer to have a deposit up front upon being given a job, but this is not always possible. We have to incur fully all the mobilization costs and the work costs and rely on the clients to pay us when we have finished the work and sent out the invoice." (R01)*

Cash flow problems can also arise due to delays in payment, as attested by Participant 14.

> *"To build up a strong credit with a financial institution, you need a strong cash flow, which can sometimes be a challenge because of the inconsistent inflow of the funding into the company." (R14).*

SME players reported that carrying the burden of financing contracts and uncertainty in receiving payments was very stressful. These major problems result in contractor's negative sustainability and a real risk of eventual closure. Usually, the payment terms between the client and contractors are fixed, and well defined from 30 to 45 days, the delivery period agreed upon. For example:

> *"A delivery period would have been agreed upon; the deliverables would have been encapsulated in the scope." (R01)*

> *"The payment terms are discussed and agreed, but about 80% of our clients never really stick to the payment terms." (R06)*

Despite this, contractors still experience delays in payment. Participants 01 and 03 said:

> *"Payment sadly might only come through much later than the envisaged 30 days. So, a payment after 60 days or sometimes even 90 is not uncommon." (R01)*

> *"When the client delays, we face cash flow problems, cannot pay our salaries, and cannot finance our operations." (R03)*

Even OAGCs are aware of the negative impact of late payments.

> *"They may also want to pay their suppliers some money, and when we delay payment, it would mean that they would get loans at a very expensive rate. This has a negative impact in the way SMEs perform financially." (R20)*

Many OAGCs consider SMEs as having very poor financial management skills, and this affects the cash flow and eventually negatively affects sustainability. For example, participants 16 and 18, both OAGCs, highlighted that.

> *"Quite a number of contractors actually fail to make it or to maintain continuity because of poor financial management." (R16)*

> *"The other issue is, just quantifying and putting a rate to each and every element of the job that they are going to do. Some of them, they just look at the sky and say how much can I charge them?' They don't even do their own research by going around and looking for quotes." (R18)*

While the majority of SMEs agreed that the lending facility is inadequate, some banks and government try to assist SMEs. For example:

> *"There is just what is called the Development Bank which doesn't have much liquidity. It is either poorly funded, or its liquidity is quite poor. It is not just for the SMEs, but for anybody else who is looking for funds." (R21)*

> *"You tend to find that the interest rates that are charged by these institutions, are not too favourable, especially for small and medium enterprises. So, there's not much adherence, to these facilities. But yes, they are in existence." (R19)*

There are no financial concessions for SMEs, and this also negatively affects SME sustainability. For example:

> *"The banking industry, the criteria used to evaluate SMEs is same.as for big companies. So, you can't, if you are an SME for instance, they want three year audited financial statements. And if you really start up, you can't have those." (R07)*

Our overall findings on financial issues are that access to finance is very poor, as evidenced by the unwillingness of banks to assist SMEs, and this results in poor contractor financial stability. This problem is compounded by delays in receiving payments from clients and poor SME financial management, thus making it very difficult for contractors to make profit and remain competitive and sustainable.

6.2.3 Operational Risk

Our study showed that changes in scope of work and project delays were the main operational risks affecting SMEs and OAGCs. Variations in understanding the scope of work can be experienced when a contract is signed, but the scope of work is not understood by all team members including SMEs and OAGC employees. For example:

> *"So, the variations in our understanding of scope are a usual problem. In instances when we have arrived at the work site, the conditions of the job are different from what could have been proposed in the work instruction variations in scope can be quite a problem." (R01)*

We found that even the client is not happy changing the scope of work, as it is time consuming on their part and affects SME cash flow, project deadlines, deliverables, and quality of service. For example:

"We try not to change scope of works. internally, we need to apply and go through all sorts of approvals, in terms of why the scope is being changed and that can cause delays, and then delays the payment to the SME, and I'm an I'm quite attentive and sensitive around, the payments and the potential resultant cash flows problems for SMEs." (R13)

The Covid-19 pandemic was never planned for and has caused devastating effects on project delivery. SMEs could not work during lockdown and could therefore not be paid, resulting in some of them closing. Covid-19 resulted in negative SME sustainability. Participants 06 and 07 said:

"…of this COVID epidemic now, I mean, we have lost about two or three of our contracts that we just signed and secured early in 2020, and we've never been able to execute them because the clients basically just cancelled it." (R06).

"No, there is nothing except the current COVID. When the COVID started, we had to stop two of the projects because the project involved close contact with people in confined spaces. We de-established and come back when the level of lockdown allowed people to be in confined spaces and stick to those numbers." (R07)

Even though the OAGCs did not penalise the SMEs during the Covid-19 pandemic, cash flow issues resulted in negative sustainability and resultant closure of some SMEs. Participant 15 had this to say.

"Yah. I will cite a specific example, like in the case of the famous Covid pandemic. That can really affect the project deliverables. Especially if you are dealing with imported equipment. We have experience where you find where you were supposed to import the equipment, there is a lockdown, you can't transport. In such cases that are beyond the contractor control so, you cannot penalise the contractor on that. So, that will negatively affect the project deliverables." (R15)

Unrest and riots also caused devastating effects on SMEs who could not fulfil their contractual obligations, as they could not go to work, and some of their equipment was destroyed during riots. Participant 06 aptly describes this incident.

"Uh, even this last couple of weeks in South Africa, I can just imagine a lot of people couldn't fulfil maybe contracts or do work or lost contracts." (R06)

Most OAGCs require SMEs to take out insurance to cover potential risk in the event of unplanned incidents on site.

> *"For our SMEs to be accredited, they must have public liability insurance. I think we have a minimum of about 10 million Rand as a requirement that they have to get." (R13)*

However, Force Majeure is rarely included in small contracts, but if an act of God does occur, OAGCs expect SMEs to carry the risk.

> *"A Force Majeure clause can be omitted from the contract and when acts of God happen, the SME is expected to compensate the client." (R02)*

Our findings were that deliverables are usually specified in the contract, and both contractor and client know them, and the delivery time is fixed. However, contractors (SMEs) still feel that delays are normally caused by clients who may not be ready for contractors at the appointed time.

> *"Where the contractor delays the work, the oil companies are much less forgiving and would normally penalise the contractor and even reduce payment as compensation." (R01)*

Clients normally impose fines when SMEs delay completing the jobs.

> *"We were two weeks late on delivery of the project. And the client didn't think twice, they put a fine on us." (R07)*

Where the client believes that projects are delayed due to incompetence, the SME may even be banned from working in the industry.

> *"We have also taken up drastic measures where we have just banned the contractor. If we saw that he is not doing the correct thing we just blacklist the contractor." (R15)*

Generally, the client refuses to pay for poor quality and may also deduct payment due to delays caused by the contractor.

> *"Difference in quality, the client doesn't accept the goods" (R11)*

Our findings were that SMEs do not take the time to read their contractual obligations before signing contracts. This usually is manifested in problems with understanding the scope of work and delays in project completion. It is further exacerbated when contracts do not include insurance and Force Majeure to cover risks such as labour unrest, riots, floods, and unpredictable acts of God, such as the Covid-19 global pandemic. Operational risk therefore negatively affects SME sustainability.

6.2.4 Skills

Generally, SMEs lack skills (Haselip, Desgain and Mackenzie, 2015). Such shortages result in poor quality of output and lack of competitiveness, again resulting in reduced contract opportunities for SMEs and poor sustainability.

Most SMEs in this industry are owner–run and are specialised because they offer engineering services. The senior management is well qualified with technical and business degrees, are highly skilled, and their experience is at least ten years. For example:

> *"Yes, the General Manager of the company is Bachelor of Science, Master's degree and a PhD. I work as Deputy GM as well as Chief Operations Officer, with a Bachelor of Science Engineering and MBA. In finance, the Finance Manager is also Bachelor of Commerce, Accounting, He's a Chartered Accountant..." (R11)*

> *"We've got the operations manager; he has been in the industry for about 10 years. He is qualified, certified experience in all the NDT methods. We've got the QA QC manager and we've got the HSE ISO manager." (R06)*

Engineers and technicians are very difficult to find as there are few trained and skilled experts in the industry. The dire skills shortage is coupled with the few skilled people being poached by OAGCs from SMEs who would have trained them. This renders SMEs unable to carry out work due to the skills shortage, or unwillingness to be a "training ground" for their client's future employees.

> *"There's a skills gap, from your contractors in this industry. Expertise is normally sought outside the country." (R02)*

> *"It's true. There is a skills shortage." (R10)*

> *"The government also acknowledges that there's a skills gap." (R17)*

Contractors struggle to ensure that working conditions and remuneration are comparable with the industry. Detailed excerpts from participants are given below:

> *"Contractors do not pay very well and working conditions are unfavourable." (R12)*

> *"Remuneration, it has been, and I guess will continue being quite a challenge, because experienced and skilled personnel, the same folk that we are looking at, we are competing with the larger, and more*

established competitors and the oil industry/companies themselves." (R01)

To improve skills, joint ventures and strategic alliances with overseas contractors are recommended. This would result in skills transfer from overseas contractors to local SMEs.

"Yes, we have a company in Netherlands, we did a joint venture with them which worked very well were with us. It was a true skills transfer, and we got the value out of the JV." (R07)

SMEs in this industry need to pay their employees to avoid high staff turnover rates. For example:

"Yes, due to lower salaries our staff gets jobs at oil and gas companies." (R2)

Training is necessary to improve skills. Participant 12 highlighted this:

"Our client offers training for the operators of those points of sales, those managing sites, petrol attendants. And that training is not a once-off; it is a continuous training, on request of course. "(R12)

Generally the universities and training centres in local countries have inadequate equipment and skills to train personnel who are competent to work in OAGCs.

"So, universities there are nothing that they do to equip students for oil and gas environment." (R07)

Our findings are that SMEs generally lack skills, and training is urgently required, some of it in foreign countries. Furthermore, we found that joint ventures and strategic alliances have been introduced between local and foreign SMEs to assist local SMEs in gaining more technical exposure and improving their skills. Furthermore, SMEs struggle to ensure that working conditions and remuneration are comparable with the industry, and consequently experience high staff turnover.

6.2.5 Institutional Void

Institutional voids represent situations where institutional infrastructure is not present or if it is present, it does not render any use to its users. This study revealed two general findings grouped as government policies and corruption.

The findings are that government does “lip service” to the SMEs by enacting great laws that theoretically protect and give preferential contract awards and work to local SMEs, such as LC or BBBEE. In reality, this preferential treatment is not practiced. Sadly, local contractors are left at the mercy of the multinationals who give tenders to foreign contractors, knowing that the government does not monitor this process. For example:

> *“I think what we have the right policies. Whether those policies are being properly implemented it is another story. But policies are in place.” (R12)*

> *“Broad Based Economic Empowerment policies that have been enacted, and in theory this should all mean that opportunities are there and that we should, we should flourish and grow. Sadly, the policies remain just being theoretical. But I think, it is generally accepted that BBEE policies have failed in their objective to fairly distribute opportunities, with the result that, just a few entities that have links with political authorities, remain beneficiaries.-CORRUPTION.” (R01)*

> *“There has been a lot of this talk, normally from the governments talking about support for the SMEs, but there are no specific legislation, or legal framework that has been drawn or promulgated that supports the existence, or operations of the SME.” (R21)*

Furthermore, corruption in government offices is so rife in South Africa that it has almost become the norm. Everyone doing business with government expects it, and most people make provision for it to comply and operate. For example:

> *“…present but not able to prove, corruption result in poor quality, corruption results in compliance problems, parastatal unqualified people given contracts and BEE has failed & corruption barrier to entry.” (R03)*

Acts of corruption are also seen in allocating contracts in government OAG clients. Corruption in the form of exorbitant money requested by government officials before a potential SME can comply with all regulatory requirements can even be a barrier to entry. For example:

> *“So, for you to obtain licenses from government, you do have corruption that takes place. For those in other sectors of the industry, maybe you require land to build filling stations and you have to deal with city officials, there’s corruption.” (R02)*

Therefore, the government has instituted the LC and petroleum charters to give preferential contracts to SMEs, but a lack of monitoring renders the laws useless,

as multinationals still give contracts to foreign contractors at the expense of local SMEs, creating an institutional void. This is exacerbated by rampant corruption among government employees in South Africa. This limits government work opportunities for SMEs who normally cannot afford to pay the expected bribes and may eventually close. Hence the institutional void may result in negative SME sustainability.

6.2.6 Green Technology

Our findings were that improvement in technology is a requirement for the industry; technology is generally associated with faster and safer operations and can result in giving the contractor a competitive edge in the industry.

> *"In this industry, we see, technology having a great impact in terms of new and automated equipment. Rapid technological changes driven by the digital technology enhance safety. Our clients prefer contractors who do work more safely." (R01)*

> *"Our observation is that newer technology equipment records much more detailed information but does it faster and safer. To be able to have a competitive advantage, technology is a major factor, and the rate at which changes are taking place, also means that some of our older equipment has been rendered obsolete." (R14)*

Generally, management of technology is poor, where the technologist is the manager and the operator, and the "one person is the master" syndrome exists (Yeoh, 2019). In addition, SMEs cannot afford to buy new equipment and technology.

> *"A project that would have taken three years to do a few years ago can be done in a much quicker way now because of advancement in technology but it cost quite a... couple of millions of dollars." (R09)*

When SMEs invest in expensive technology, there is no guarantee of a contract from their clients, so they wait until they absolutely have to get new technology. This may result in local SMEs losing potential contracts to foreign contractors with better and newer technology. The move from fossil fuel to cleaner sources of energy or renewable energy is important to reduce global warming and climatic changes.

> *"The drive now is to go green or to go safer and, try and minimize our dependence on fossil fuels." (R17)*

Hence, technology enhances SME competitiveness and going green is the safer route. The more SMEs engage in technology, the more sustainable they are.

6.2.7 Importance of Trust

SMEs represent clients on site and their relationship plays a pivotal role in how the work is done. OAGCs tend to give more contracts to SMEs that they know and trust. Hence trust positively affects SME sustainability. For example:

> *"Trust is critical because SMEs represent the client in their work and if there is no trust between the clients and SMEs, problems are experienced. The more the client trusts an SME, the higher the chance that the client will give more work to this SME." (R02)*

The research demonstrated that supply chain success depends on good and trusting relationships between OAGCs and SMEs.

6.2.8 Summary of Contractual Arrangements between OAGCs and SMEs

The findings are that the contractual arrangements between OAGCs and SMEs are grouped into government and industry compliance, financial issues, skills, operational risk, institutional voids, trust, and green technology. These contractual arrangements influence the way in which SMEs operate. In effect, SME sustainability is affected by difficulty in achieving the myriad of compliance issues, lack of skills, poor access to finance, high need for applying mitigations to operational risks and the high cost of operating in environments subject to the existence of institutional voids, trust, and greening technology.

6.2.9 What is known and obvious in contracts between OAGCs and SMEs?

It is that there has to be an agreement between the 2 parties and that the contract is binding and obligations are specified. In addition, responsibilities and rights are specified in this legal document. What this research contributed which is not obvious of any contract between 2 parties is that in the OAGI, the OAGC and the SME are very dependent on each other in that for example, the OGCs do not employ engineering maintenance engineers, but rely completely on SME engineers performing maintenance functions. For SMEs to offer the maintenance functions, they have to be knowledgeable of the operations of the OAGCs in detail

and have worked in this industry over an extended period of time. These contracts involve building mutual trust and flexible relationships .These governance structures ensure that the contracting parties attain efficiency and achieve anticipated success during the contracting period. The research confirmed that hold up problems (in which OAGCs as the stronger party, may lower prices, change the scope of work or alter delivery dates) are rarely experienced. In addition, incomplete contracts were not observed. Moreover, shading by SMEs in which the weaker party (usually supplier) stops cooperating and performs poorly in retaliation to hold ups and incomplete contracts by OAGCs were not observed. This confirms that the contracts between OAGCs and SMEs in the AGSC are relational. This confirms findings by Frydlinger, Hart and Vitasek, (2019), that relational contracts arose due to companies attempting to reduce hold –up problems, alleviating incomplete contracts and shading.

In addition to the contracts between OAGCs and SMEs being of a relational contract type, our findings were that while there is a fixed contractual price, the SMEs finance the OAGC operations by providing services before payment by OAGC is made. This can give rise to SMEs facing cash flow problems as the OAGCs refuse to pay a deposit up front and expect the SME to provide services and a report before counting 45 days from date of receipt of the invoice. It usually takes 1 month to perform the service, two weeks to write the report and invoice and another 45 days waiting for the invoice to be paid, making it 90 days payment period. This lengthy payment period is not known and result in SME s experiencing negative sustainability and eventual closure.

What is not obvious about the contractual arrangements between OAGCs and SMEs is that government of South Africa has granted OAG Charters and concessions to players in this industry, but SMEs do not enjoy them due to massive corruption, which removes preferential local content advantages to BEEE people. Added to this is the fact that government in South Africa does not monitor implementation of LC and BBEE and SMEs still do not receive preferential treatment, but are unsustainable and close operations and die within 5 years of inception. It is known that the industry workers have poor skills, may experience delays in work completion and change of scope and seldom has a Force Majeure

Marjorie clause, but the link between these contractual arrangements and sustainability had not been studied.

6.3 TYPES OF SUSTAINABILITY APPROACHES IMPLEMENTED IN SOUTH AFRICAN OAGI

There are many and varied definitions of sustainability depending on the application. As a result, the interviewees were asked: "What is your understanding of sustainability?"

Some interesting terms emerged from the participants when defining sustainability such as:

> *"…'continuous', 'keep going with the same momentum', 'same margin of safety', 'keep going in the same trajectory', 'ongoing', 'stand on its own as a going concern and operate', 'protecting the environment', 'future generation', 'longevity', 'existence into the future', 'doesn't harm people, doesn't harm the environment, and that has to be at the same time profitable', 'the future', 'No compromise', 'to continue existing in the future', 'conserve the environment', 'to work efficiently, work properly, protect the environment, don't damage the environment, and ensure that our societies are benefiting from our activities', 'timeless, it's beyond today and tomorrow.'"*

Despite the numerous terms used, this study shows that all participants not only understand what sustainability is, but are also aware of economic, environmental, and social related aspects affecting the OAGI. In addition, they are aware that as contractors (SMEs), it is their responsibility to ensure that they meet all mandatory economic, environmental, and social ccompliance practices legislated by the government and the industry jointly with OAGCs and/or on their own. The SMEs, who are mainly CEO/Owners, have robust, positive economic, environmental, and social consideration of the industry in the future. Participant 01 and Participant 02 aptly summarised sustainability as:

> *"This generates a picture of longevity, of existence into the future, in a manner that doesn't harm people, doesn't harm the environment and that has to be at the same time profitable." (R01)*

> *"Sustainability is quite a broad aspect. But looking at the business relationship, it's an aspect where the expectation is that the business needs to maintain a certain level of performance to be able to survive. And that actually covers quite a lot of elements, and it relates to the ability of the business to be able to continue operating sustainably, or*

profitably. And, at the same time, that we also look after the societies in which we live, and the societies benefit from our activity. So, we must be doing things that will make it possible for the industry to work efficiently, work properly, protect the environment, don't damage the environment, and ensure that our societies are benefiting from our activities." (R02)

OAGCs are interested in sustainability.. Most of the sustainability approaches are related to health, safety and environmental regulations and help societies in which they operate in an economic manner.

The sustainability approaches are shown in Figure 6.3 ranging from spill recovery to financial Covid-19 support. HSSE improvement, training on sustainability and waste disposal are the prominent approaches adopted. SMEs in this industry appreciate, know, and mimic the sustainability strategies that the OAGCs adopt to be environmentally, socially, and economically viable, according to "The three pillars of sustainability-environment, social and economy" (Talan et al., 2020.).

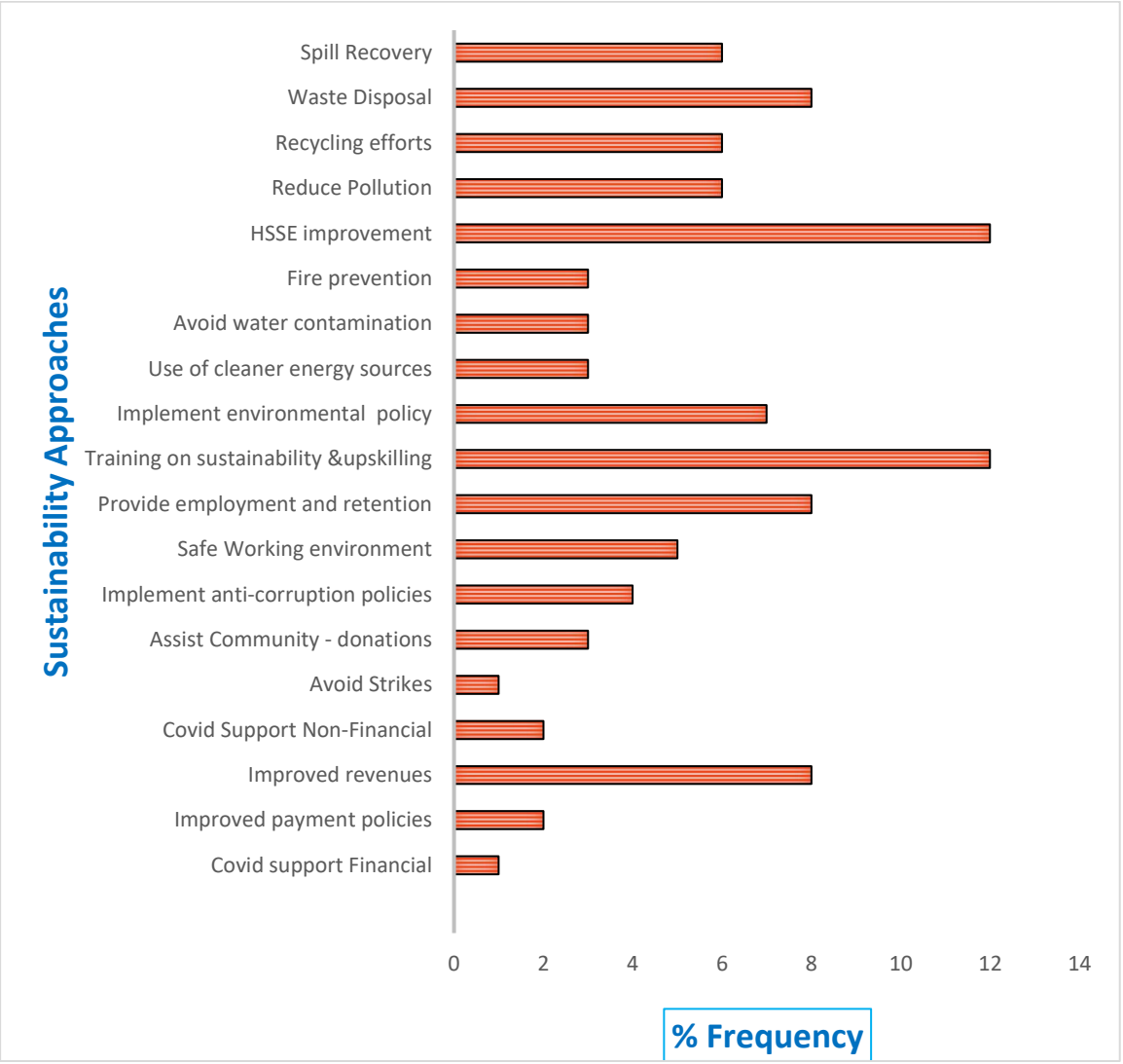

Figure 6.3: SME Sustainability Approaches

Our findings are that all SMEs in the OAGI implement the expected environment, social and economic sustainability approaches in addition to four new methods. These are partnership sustainability, compliance sustainability, adoption sustainability, and technology/innovation sustainability. The known findings are that SMEs implement environmental, social and economic sustainability approaches, but classification into partnership, compliance, adoption and innovation sustainability approaches are not known nor obvious. These are shown in Figure 6.4 below.

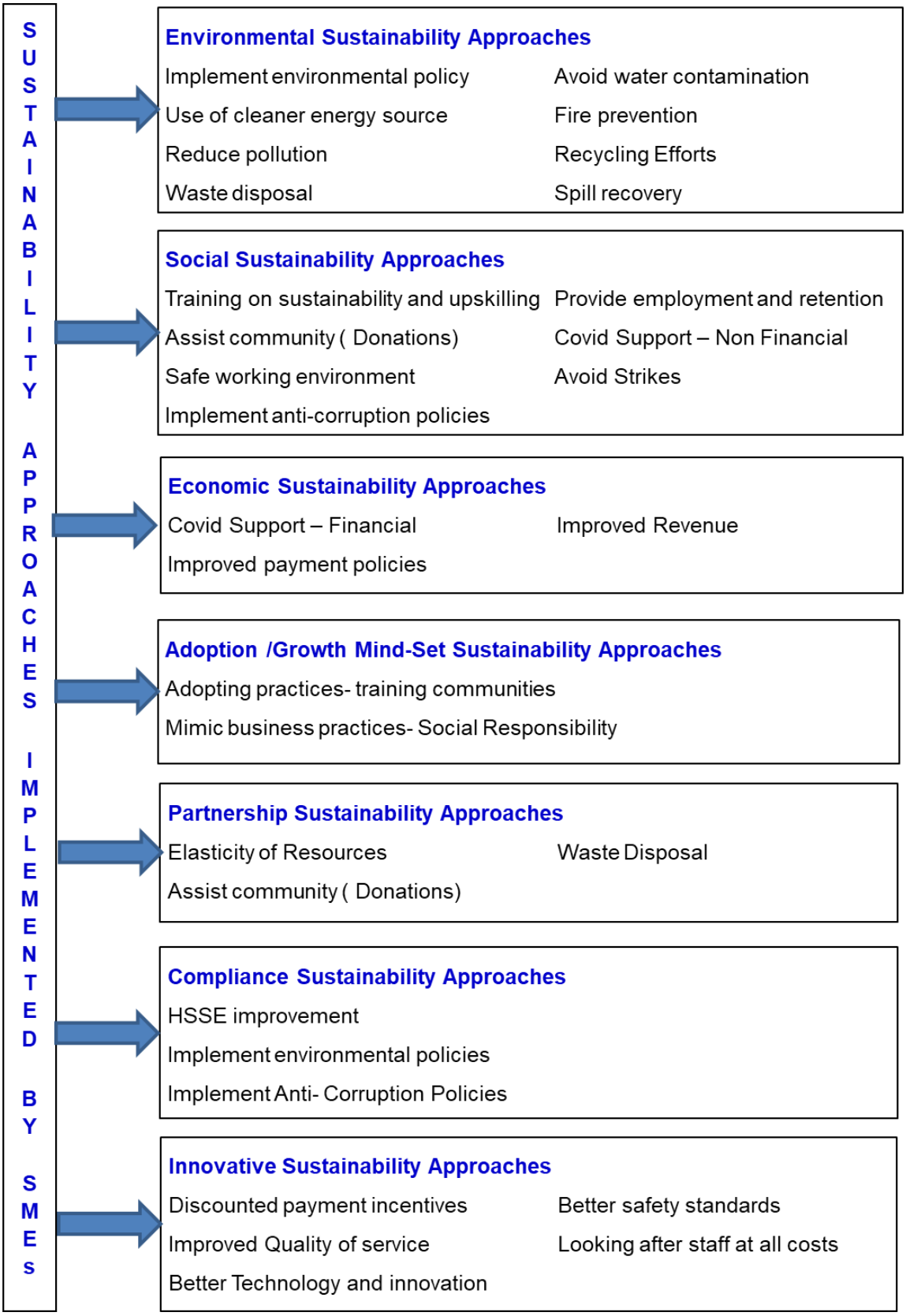

Figure 6.4: Sustainability Approaches Implemented by SMEs

6.3.1 Environmental Sustainability Approaches

Our findings are that all SMEs are aware of potential environmental hazards and have implemented environmental sustainability programmes to mitigate them. These environmental approaches adopted by SMEs as shown in Figure 6.4 range from waste disposal, implementation of environmental policies such as ISO 1400, pollution reduction, spill recovery, product recycling efforts, fire prevention, minimising water usage and contamination in rivers and streams and use of cleaner energy sources in this order of prevalence.

Implementation of Environmental Policy

All the SME participants in this study know initiates implemented by their companies and talked about them eloquently. For example, Participant 02 said:

> *"We adopted the ISO 14001, of which, you know, guides us in terms of this lifecycle; you know, procurement of things. What some of the services that we have even contracted local contractors to do, uh, is of hydrocarbon waste management." (R02)*

Even OAGCs interviewed acknowledged that SMEs are compelled to be accredited to many environmental policies before they can be considered for work in the industry. For example:

> *"And we do follow the environmental policy and we encourage all of those that work with us to be 100% compliant as well, with all relevant, um, legislation that exists." (R19)*

It was our finding that fire prevention is one of the environmental approaches SMEs have put in place.

> *"Fire and explosions are the biggest risks in our typical work environment. We have fairly stringent procedures to ensure that we carry our work in a manner that would not cause fires, which would obviously result in air pollution." (R01)*

Furthermore, SMEs who transport fuel are not exempt from managing spills in order to reduce ground pollution.

> *"Our transporters are at a high risk of environmental pollutions. We ensure that our trucks are inspected before every trip so that there are no leaks to the environment. Because imagine if the truck was leaking,*

it will just mess up the surroundings, so, we invest heavily in new equipment and have strict maintenance programmes." (R15)

Recycling is one of the successful environmental approaches SMEs are involved in together with OAGCs. The OAGC participant, R18, reiterated*:*

"We have this big equipment that consumes filters every day. We take those filters; we crush them in a filter crushing machine. Then the metal part is then recycled. We, the OAGC started this initiative, and an SME now runs the recycling process as a business, and it's in guidance with the ISO 14001 which encourages us as an industry to reuse and recycle." (R18)

Participants from both OAGCs and SMEs have put widespread waste management approaches in place as demonstrated by Participant 14.

"Contractors need to be able to comply with certain site requirements including the need to make sure that they manage their waste." (R14)

Despite successful implementation of the environmental approaches discussed, participants 11 and 14 feel that more can be done in making poor communities aware of environmental preservation in order to develop a culture of caring for the environment, when they said:

"For people who do not have access to electricity, what do they do when they want to cook? They either go cut trees or buy charcoal somewhere to cook. So, the OAGI is sensitizing the general public to just us LPG-even if it's just a small change, but it's a significant change. Yeah, and we have seen at least some change in the mind-set of poor people." (R11).

"We are trying to find ways to ensure sustainable measures are implemented by looking at alternative sources of energy." (R14)

6.3.2 Social Sustainability Approaches

Our findings are that the social approaches adopted by SMEs as shown in Figure 6.4 are:

Training in sustainability and upskilling, providing employment and retention; safe working environment; implementing anti-corruption policies; assisting communities through donations; Covid support (non-financial) and avoiding strikes. The social sustainability approaches are discussed below.

Training on Sustainability and Upskilling

According to this study, SMEs contribute to society in their small way by training and developing skills in sustainability and general upskilling for their community, as aptly put across by Participant 11.

> *"People don't have knowledge. There's a need to do more awareness to the people. People do not really understand what sustainability all is about. We do not have that culture. Our societies have not improved to a level where people understand the need to protect the environment. That is why, as part of our strategy, we train our people in the community as well as our employees who drive our fuel trucks." (R11)*

Implement Anti-Corruption Policies

It was also our finding that SMEs strive to ensure that their employees do not get mixed up with corrupt practices. They ensure that all their employees understand and sign anticorruption policies. For example:

> *"It is compulsory for all our employees to sign and understand anti-corruption policy." (R04)*

Safe Working Environment

Providing a safe working environment is a social sustainability approach adopted by all SMEs. Company Participant 08 emphasised that:

> *"Our sustainability initiatives have paid off, so from that perspective, I think we do take care of our people better." (R08)*

Assist Community (Donations)

Another initiative put in place is that OAGCs have identified potential business for locals to help them develop skills and set them up by providing the initial capital and guiding them through. For example:

> *"We have sponsored people who are innovative in terms of recycling empty oil drums which they clean and make into chairs, lamps and general home and office furniture .We are keeping on giving them those drums, and they sell the recycled products to different people as furniture that they've developed, and their livelihoods are dependent on that." (R21)*

Furthermore, skills are developed for schoolchildren who should know about this important issue of sustainability, as they are the future. For example:

> *"We give lectures to the school-going children about why the environment should be protected and the importance of giving back to society, and about the importance of education for them as children, because that is where the future lies." (R02)*

Yet another approach is to donate books and sportswear in an effort to make society aware of protecting the environment. For example:

> *"We donate desks. We donate books. We present to primary schools. We present to secondary schools." (R02)*

Though Covid times are harsh, with most SMEs closing shop from lack of project work opportunities, some SMEs have been involved in supporting their local communities with gas bottles used in storing the much-needed oxygen for Covid-19 patients breathing survival. For example:

> *"Fortunately, enough there was a shortage of Gas bottles for the Covid19 pandemic. Moreover, what we did is we saved those Gas bottles and donated them to the Gas Company. And luckily, they are still in use to date." (R04)*

Some SME owners developed sustainability approaches to ensure that their employees had financial support during the 6-month Covid-19 lockdown in 2020. For example:

> *"We went through this COVID thing, when they were salary cuts, I was the first person to cut my salary because I mean, that was just the way it is. I didn't earn a salary for six months because I had to support my staff." (R3)*

Our study revealed that some sustainability approaches have been put in place to avoid strikes as attested by Participant 12:

> *"I have been affected by strikes. These were strikes being experienced by the wholesaler where their truck drivers will be on strike, where their depot staff will be on strike, therefore, because of the results of the strike, it will be impossible for them to deliver petrol to the petrol station." (R12)*

6.3.3 Economic Sustainability Approaches

The findings are that the economic approaches adopted by SMEs as shown in Figure 6.4 are improved quality, increased revenue, improved cash flow management, improved profitability, and financial Covid support.

Participants agreed that cash flow problems are the main culprit for SME closures. Despite that observation, SMEs are aware of economic sustainability and pay particular attention to cash flow by following on payments daily and offering discounts on payments made before 30 days from the date of invoice. For example:

> *"Cash flow is a high risk to our operations, so we pay close attention to it, and we try to follow up on outstanding payments on a daily basis." (R01).*
>
> *"We follow-up on outstanding payments by offering a 5% discount on COD." (R02)*

SMEs have also developed approaches to improve revenue. For example:

> *"We are delivering fuel to more destinations by increasing our truck fleet. Economically, I think the business is very, very viable, and that is what we see. Our projections show that the volume will keep growing as people get more money and as more cars are being imported in the country. So, the demand, over the last ten years, has doubled for petroleum products, resulting in increased revenue from distribution for us." (R11)*
>
> *"If there are certain materials that they would want, if they are able to get the materials around the same area, they will buy them within the same area as part of promoting the local economy." (R20)*

An additional approach being used by SMEs to become economically sustainable is the provisioning of quality services. For example:

> *"The quality of our services can be improved, if we can make use of equipment with better technology which would result in work done faster, safer, better quality, and more economically, quicker. All these areas, we feel holds potential, for us to improve economic sustainability." (R01)*

SMES can also contribute to economic sustainability by use of cleaner forms of energy. Participant 02 said:

"I think diversification from hydrocarbon energy into electrical energy, and mainly into renewables. That's what would be the thing to go for and hopefully it would be more economic." (R02)

One approach some SMEs have employed is to ask for advance payment to clients before any work is done. This would assist SMEs to manage their cash flow better. This approach is usually met with resistance from clients, as they are not willing to sponsor SMEs before work is done. In exceptional cases, clients agree. For example:

"The only time we really assist is a situation where probably if there is a work and the contractor is financially stuck, we give them the advances, we sometimes we flex our rules in terms of getting off course based on mutual trust - we flex our rules based on the bond, insurance of the bond before we give the advance." (R15)

6.3.4 Partnership Sustainability Approaches

SMEs work well with OAGCs to form partnerships for longer terms as determined by the length of the contract. When implementing sustainability approaches, SMEs and OAGCs work together to ensure that both entities become sustainable.

Elasticity of Labour Resources

The relationship between OAGCs and SMEs enables OAGCs to use a fixed number of employees and manage their expenses on salaries, despite the total number of people required at peak and at low seasons. This is because SMEs have to increase or decrease their work force depending on the volume of work the OAGCs need. This allows for elasticity of labour resources to OAGCs. Participant 13 aptly said:

"SMEs allow you to scale up and scale down, you know, as and when required. So, when you have lots of work, you get more of them. So, you can scale up and get more done. When you don't have as much work you scale down, you know, without you know, going through retrenchments and all those funny things. So just also allows you to be elastic in terms of your, your resources." (R13)

Assist community (Donations)

Sometimes SMEs are brought into OAGCs social responsibility programmes. For example, cleaning up public places and donating solar-fuelled stoves. Participant 17 said:

“Sometime last year, before this COVID started, we would actually go out wearing our OAGC T-shirts and banners to market places where we would be involved in clean-up exercises by picking up trash and donating company labelled blankets to homeless people on the street. I've taken part as an SME company in terms of donating simple solar stoves and discouraging the local poor community from using paraffin fuelled lamps and stoves.” (R17**)**

Waste disposal

Some OAGCs have identified communities and helped them to become SMEs in the business of waste disposal: Participants 17 and 05 said:

“…waste management. So, if a contractor is coming to do say, is it vehicle service for, like our Re-fuellers, someone comes in to do vehicle service, that contractor, actually, what we've done is actually follow up in terms of say whatever oils that they take or the spent filters that they take from, uh- they removed from vehicles as they do services, we actually followed up, uh, at their places and see where they're keeping them. They've actually gotten like, uh, bins where they put those like paper filters.” (R17)

“A waste management company to come and collect the sediments, which we'll remove from the tank and stuff like that.” (R05)

6.3.5 Innovative Sustainability Approaches

The findings challenge the general belief that SMEs are not innovative and that crises usually weaken their survival aptitude (Michael & Robbins, 1998). Instead, we found that during the Covid-19 pandemic and similar crisis, SME survival is enhanced by the use of innovative sustainability approaches (Adam & Alarifi, 2021). The innovative sustainability approaches are discussed below:

Found new ways of survival- Looking after staff at all costs

SMEs are small and flexible, and with good managers, are able to innovate and change their operations quickly to adjust to new ways that ensure survival of the company. Participant 3 asserted*:*

“During the Covid lockdown, a lot of small companies have basically, eh, closed shop, but somehow, we are still carrying on because we sat down, we thought about it, we planned and changed the way we operated, eh, good thing that we have been able to have some work in our space. Some of our guys have been working throughout the lockdown and so we are grateful for that.” (R03)

"We went through this COVID thing, when they were salary cuts, I was the first person to cut my salary (CEO), because I mean, that was just the way it is. I didn't earn a salary for six months because I had to support my staff." (R03)

Discount Incentive

Poor cash flow is one of the reasons why SMEs close. SMEs have implemented approaches to encourage clients who pay late, to pay early by giving the clients discount incentives. Participant 01 described this approach:

"Cash flow is a high risk, our operations so we pay close attention to it, and we try to follow up on payments, on outstanding payments on a daily basis." And "We are even trying out a project to encourage our customers to pay us faster by offering them, offering them a small discount." (R01)

Improved Quality of service

SMEs have invested in better and newer equipment to make the service quality better they offer. This has resulted in SMEs being more competitive, and in turn, more sustainable. Participant 01 had this to say:

"The quality of our services, if we can improve, if we can improve those through improved, use of equipment, procedures it would do the work faster and quicker. All these areas, we feel holds potential, for us to improve economic sustainability." (R01)

Better technology saves money

SMEs aim to do jobs at minimal cost by using newer equipment that normally has better technology as this improves efficiency and lowers costs.

Participant 02 had this to say:

"…improved usage of equipment of better technology results in less time doing a job and subsequently saving money." (R02)

SMEs adopted safety standards to improve sustainability, as aptly demonstrated by Participant 03.

"We make sure that every employee is actually inducted in that, we want to, our aim is to provide service, good quality , at the right cost, safely." (R03)

6.3.6 Adoption Sustainability Approaches

SMEs adopt sustainability approaches practised by OAGCs. For example:

Training Communities

OAGCs are known for training their communities on the dangers of fossil fuel, for example, pollution and water, air, and soil contamination. SMEs have adopted these training initiatives in their communities as attested by Participant 21, who works for an SME:

> *"Fuel is not something with which you can play games, because if you ignite just on a site, it's going to burn…. There will be pollution. There will be economic loss. So, we do work a lot with the communities, sensitising them." (R21)*

Social Responsibility Efforts

SMEs have adopted social responsibility practices that OAGCs are well known to provide to their communities. For example, at the time of the study, Participant 04 helped their community by donating gas bottles used in the Covid-19 pandemic for storage of Oxygen. Participant 04 aptly said:

> *"For instance, last year a certain company that was winding up had 300 nitrogen Gas bottles that we supposed to be disposed of like scrap metal. We bought all of them. Fortunately, enough there was a shortage of Gas bottles for the Covid19 pandemic. And what we did is we saved those Gas bottles and donated them to the Gas Company. And luckily, they are still in use to date. So those are the kinds of social responsibilities that we always look into." (R04)*

SMEs have adopted safety standards that are required of them by OAGCs to the extent that they now carry out safe disposal of printer cartridges in their offices. They have engaged companies that can dispose of these cartridges safely, as Participant 01 said:

> *"We have policies for safe, for safe disposal of cartridges and toners from our, from our printers. These aren't just thrown into the bin. We have an arrangement, with an, with an authorised recycler, who comes, to periodically eh, to collect these.-safe disposal of cartridges and toners from our, from our printers." (R01)*

Reduction in water usage is another adoption sustainability approach implemented by SMEs. Participant 01 had this to say:

"Certainly, our policies should have application both at our work site and in the office. So, in the kitchen at the office, we have fitted aerators on taps to reduce flow rate, and consequently water usage" (R01)

6.3.7 Compliance Sustainability Approaches

SMEs need to comply with government legislation for them to be allowed to operate successfully in this industry. These issues involve HSSE and government statutory requirements. One of the environmental approaches adopted by SMEs is HSSE Improvement. Participant 12 confirms this:

"As an SME, I need to continue to make sure that within my operation I do not cause harm and damage to the environment. I operate under safe and healthy conditions." (R12)

Implementation of anti-corruption policies is an example of compliance approaches which SMEs have adopted to be accepted as accredited suppliers by OAGCs.

Participant 04 said:

"It is compulsory for all employees to sign and understand anti-corruption policy…" (R04)

Government Regulations

It is a legal requirement for any entity in this industry to comply with environmental policies. Participants 02 and 19 show this:

"…we adopted the ISO 14001 on environment. Some of the services that we have contracted local contractors are of hydrocarbon waste management." (R02)

"And we do follow the environmental policy and we encourage all of those that work with us to be 100% compliant." (R19).

6.3.8 Summary of Findings of Sustainability approaches' SMEs implement

The industry (including SMEs) embarks on the following sustainability approaches. They include environmental (waste management, pollution reduction, recycling efforts and fire prevention), social (provision of employment, training and upskilling, better and safer communities and donations to needy communities). Economic sustainability approaches include improved revenues, financial support

of communities, and improved disposable income. The study confirmed that these three groupings of sustainability approaches were implemented by SMEs. This study however, identified four new groupings of sustainability approaches which SMEs implement. The researcher classified them as the Adoption or Growth mind-set, Partnership, Compliance, and Innovative Sustainability Approaches.

6.4 ECONOMIC, SOCIAL, AND ENVIRONMENTAL IMPACTS OF SUSTAINABILITY IN THE OAGI IN SOUTH AFRICA

Twenty were obtained from our research on the impacts of sustainability approaches which SMEs apply in this industry. The impacts were grouped into expected environmental, social, and economic impacts in addition to two new groups named Compliance and Innovation. Of these 20 themes, 6 were classified as environmental, 6 were social, 2 were economic, 2 were compliant, and 4 were innovative impacts. Improved HSSE is the most prevalent impact. The impacts are shown in Figure 6.5 below. Figure 6.6 shows all impacts in their groupings.

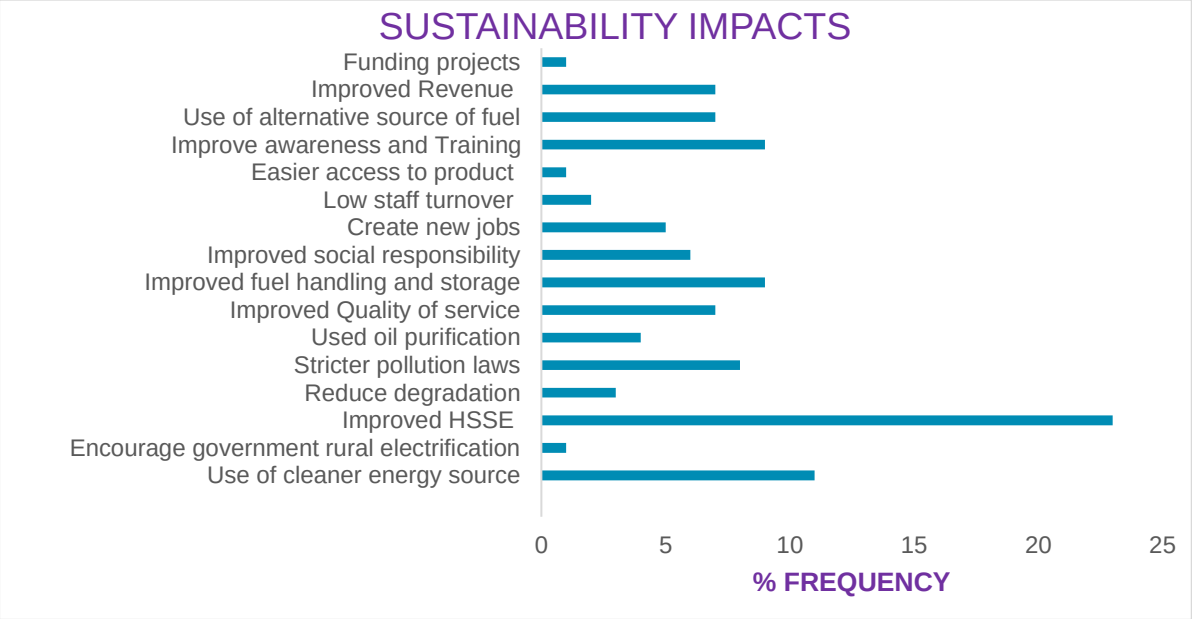

Figure 6.5: SME Sustainability Impacts

It was difficult to distinguish between the impacts of the sustainability programmes put in place by SMEs only, and those put in place by the involvement of SMEs together with the OAGCs. Generally, OAGCs have strict environmental requirements to ensure their sustainability, and only contractors who adhere to these are given contracts. In turn, SMES put sustainability approaches in place

that are aligned to their clients' strategies. Therefore, the following impacts were found.

Our findings were that environmental impacts included the use of alternative sources of fuel, reduction in degradation, stricter pollution laws, improved oil and fuel handling, and better handling of fossil fuel products. Sustainability approaches also had social impacts in the form of improved fuel handling and storage, improved social responsibility, creation of new jobs, low staff turnover, easier access to products, and improved awareness and training. Economic impacts were very limited, as SMEs are not financially capable of sponsoring expensive sustainability strategies. The resultant economic impacts were improved revenues. Compliance impacts include HSSE improvement and implementing environmental policies. Recycling used oil, road safety campaigns, new waste disposal method, and improvement of quality of service constituted innovative impacts.

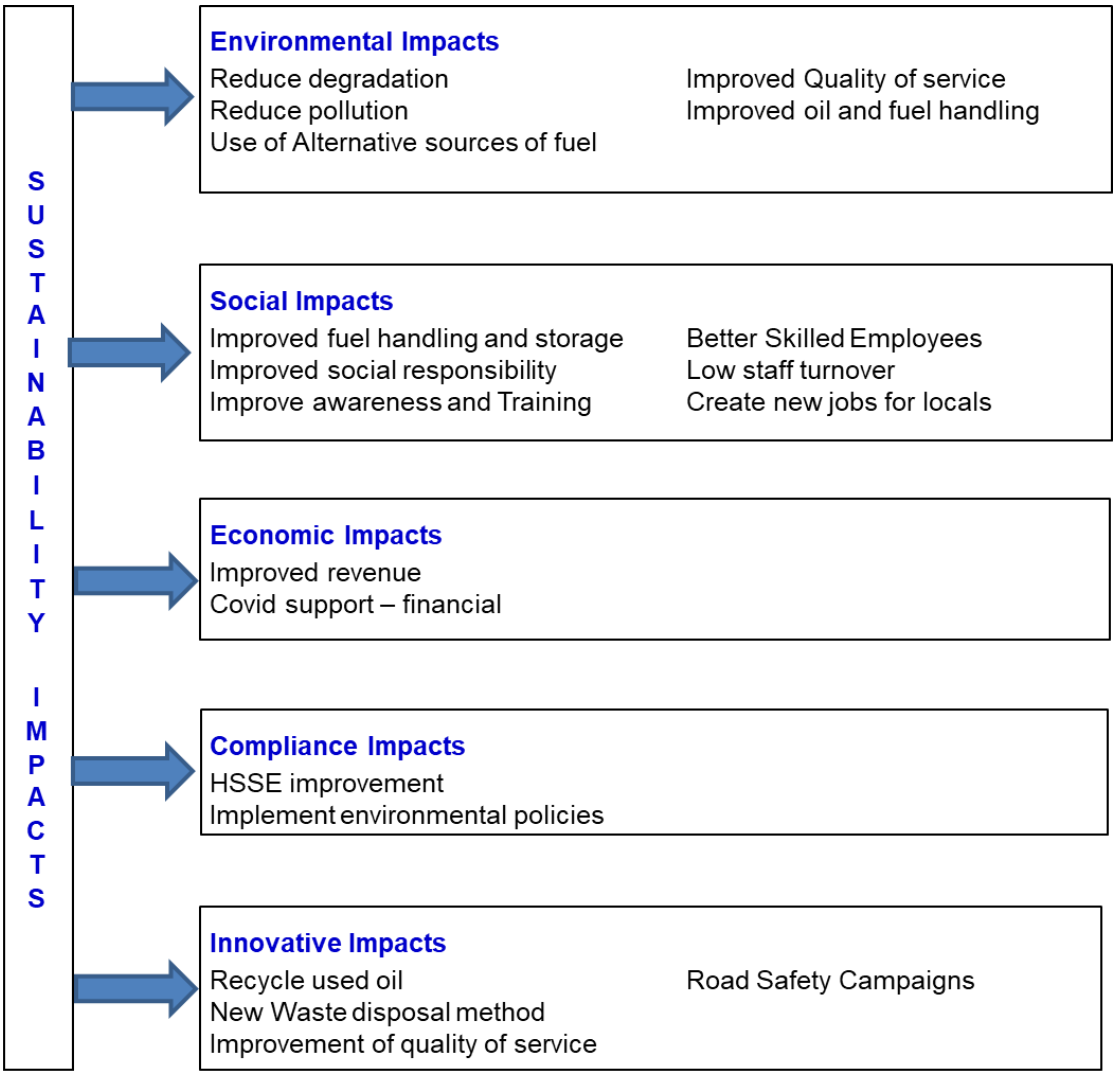

Figure 6.6: Sustainability Impacts

6.4.1 Environmental Sustainability Impacts

Reduce Spillages

In order to keep the environment clean, SMEs are involved in spillage management, and this has resulted in positive contributions to a cleaner environment.

> *"In the event of any spillage, we ensure that we clean the spill and leave the area the way it was before." (R10)*

Use of Alternative sources of Fuel

Efforts in reducing the use of paraffin for lighting and cooking in rural communities has been one of the successful stories in SME efforts.

"The use of paraffin right now has almost come to zero. In the past we used to supply a lot of paraffin for lanterns in the villages, but now, the villagers are using these torches from China. They come with batteries and those batteries last quite long. Maybe the government could look at other alternatives, like look more at reducing the cost of solar." (R11)

Better Handling and Managing of Fossil Fuel Products

As a result of joint efforts by OAGCs together with SMEs, the need for sustainability has helped the industry to educate communities on the correct way of managing fossil fuel products. If this is not done, ozone depletion and massive climatic changes will negatively affect sustainability. In that regard, awareness campaigns have been conducted in local communities, and the industry is encouraging the government to embark on rural electrification projects to reduce cutting down of trees and eventual degradation in the poor communities.

"We are now phasing out the use of paraffin. People are using torches for lighting. If there can be more work by government towards rural electrification that would even be better. Encourage government rural electrification." (R05)

"What about the people who don't have access to electricity. And what do they do when they want to cook? They either go cut trees, or but charcoal somewhere to cook. So, the oil industry at the moment, are sensitizing the general public to just use- even if it's just a small change, but it's a significant change, especially on the use of liquid petroleum gas (LPG) for cooking. Yeah, and we've seen at least some change in the mind-set. SMEs in this industry are encouraging government to quicken the rural electrification programme." (R20)

Reduction in Degradation

The efforts in making the community conscious of negative effects of soil erosion due to cutting and burning trees is a positive impact of SME sustainability approaches, as it reduces degradation.

"Awareness efforts enable more people to cook using gas, which would help to reduce the degradation of the environment." (R11)

Reduction of Pollution

The department of energy has introduced stricter pollution legislation to curb negative effects of pollution on the environment. The laws were punitive and cost a lot of money to comply with. This resulted in initial losses experienced by the

industry, but with time, SMEs who were compliant got more contracts and were able to charge more for their services, making them more profitable and increasing their revenues.

> *"We can't cause pollution and then leave it like that. We have to make sure the environment is clean at all times." (R10)*

Improved Oil and Fuel Handling

The pollution laws resulted in improved oil and fuel handling, as confirmed by this SME.

> *"If someone is disposing oil in the ground or water body, even a small drop of Oil has the potential to contaminate like a million drops of water, so there should be stringent laws. I mean we have these waste management acts and everything like that." (R18)*

6.4.2 Social Sustainability Impacts

Improved Awareness of Safe Handling of Fossil Fuels

The social sustainability impacts included improved awareness of safe handling and use of fossil fuels. SME R21 and R11 confirmed this:

> *"We are involved in efforts that result in public awareness to use the products safely and the dangers of poor use of fuels for example. There are campaigns to warn the public for proper handling, storage and usage of say paraffin, paraffin that continues to be used as a lighting and heating fuel in the rural communities. Paraffin handling storage is very poor and many accidents when paraffin stoves explode and kill communities are prevalent in poor communities. We strive to reduce these accidents by improving awareness of the proper handling ad dangers of these hydrocarbons." (R21)*

> *"I think our efforts should now be more, also, to bring awareness to the people and the communities in which we operate, to understand the reason for protecting and conserving the environment, improved the working conditions in the industry, because there's just want on cutting down of trees and the environment is getting badly damaged. Also, to stop the damage to the environment, which has come through because the people do not have alternative sources of energy?" (R11)*

Improved Social Responsibility

Improved social responsibility is one of the social impacts of sustainability. Some clients encourage SMEs to get involved in their social responsibility programmes.

One SME said that they sponsor sport and tuition fees for a local school. They then talk to the school about how to reduce environmental pollution when using fuels, and handling and care of fuels.

> *"Our clients have a lot of programmes that involve the welfare of kids, for example sponsoring sport and providing bursaries to bright kids- we are part of this programme as we identify the kids and recommend them for assistance." (R09)*

Reduction of Staff Turnover

Reducing staff turnover is another impact of sustainability efforts. SMEs now aim to keep their skilled employees by offering them acceptable industry remuneration rates. If employees leave SMEs, then the SMEs do not survive and may close, as it is difficult to get skilled employees in this industry.

> *"Being small, we struggle to pay our employees above average rates to avoid staff high staff turnover. We have kept our skilled employees for the past three years since we introduced sustainability in the company .Our sustainability initiatives have paid off, so from that perspective, I think we do take care of our people better." (R8).*

Better Skilled Employees

The industry is known for its poor skills. Some SMEs have, as part of their sustainability efforts put in place training, developing, and upskilling their employees, which has reduced staff turnover. This definitely ensures sustainability of these SMEs.

> *"We are committed to developing skills, we as an organisation realise that the development and upliftment of skills is critical." (R01)*

Expand Retail Network- Employment for locals

SMEs involved in running retail sites have now been asked to operate from remote locations where locals would previously travel far to get fuel. SMEs have accepted the request and expanded their retail network and by so doing, provide employment to locals and products closer to the people in these locations.

> *"The expansion of retail sites throughout the country, has not only made products more available nearer to previously remote communities, but has provided employment to local communities." (R12)*

6.4.3 Economic Sustainability Impacts

The sustainability strategies and impacts that affect the economic aspects of SMEs are fewer compared to both social and environmental considerations. Their outcome is the use of alternative sources of fuel, which is initially expensive while sourcing the new technology, but becomes cheaper with time and as higher revenues are anticipated. This also enables SMEs to be involved in funding community projects.

Improved Revenues

SMEs anticipate improved revenues from adopting better and more modern technology. The initial monetary outlay will be high, as equipment as well as training for use and control of the new equipment is expensive, sometimes including overseas-specialised training. It is generally understood that newer compared to older technology normally enables work to be done in a shorter time. In addition, the quality and safety aspects of new technology are generally expected to be better. Having recouped the initial monetary outlay, the SME anticipates becoming more competitive and profitable as more contracts are obtained and projects are completed faster, safer, and at lower cost.

> *"Our observation is that newer technology equipment records much more detailed information but does it faster and safer as well. So, to be able to have a competitive advantage, technology is a major factor, and the rate at which changes are taking place, also means that some of our older equipment has been rendered obsolete." (R14)*

6.4.4 Compliance Impact

HSSE Improvement

The industry's main requirement is to ensure that its environment, people, and equipment are safe at all times. Gases are highly flammable and emit obnoxious gases, while oils can pollute rivers and kill fauna, flora, and humans. The ability of SMEs to maintain a safe environment is therefore critical. Our participants reiterated these concerns.

> *"We are committed to providing a safe working environment, so because we work at potentially dangerous locations, safety is a great consideration." (R01)*

SME sustainability efforts have resulted in improved safety standards, as posited by participant R11.

> *"The attention to safety, provision of PPE to employees, has gone up. So, issues of sustainability have generally improved the working conditions in the industry. That is what I see." (R11)*

Another SME believes that sustainability efforts have resulted in small but noticeable changes in HSSE.

> *"Standards have improved. The awareness has improved. So, generally, you see the quality of infrastructure has gone up." (R02)*

Implement environmental policies - Pollution Legislation

Introduction of stricter pollution and environmental legislation will follow the same trend as technology in that initially, the SME will realise less profits, but with time clients offer the SME more contracts due to compliance, and the revenue base will increase.

> *"The stricter legislation governing pollution recently introduced has the potential to impact the oil refineries. They are required to commit to drastically reducing emissions, which from their part would entail upgrades to the current plant and probably reduce their profitability .In turn they squeeze us to lower our quoted rates and we experience reduced profits as well." (R02)*

6.4.5 Innovative Impacts

Recycling Used Oil

SMEs became innovative and started recycling used oil which ensured that they became more profitable.

> *"Introduction of stricter pollution regulations has resulted in people now understanding that they can't just throw away used oil. They can't just throw away these things, because at the end of the day, they will go into our boreholes, go into our water bodies. We end up like polluting the environment." (R16)*

This used oil purification is important, as some heated oil fractions are believed to be carcinogenic. Purification of the used oil renders the oil less poisonous and has resulted in SMEs improving their sustainability.

"We are extremely active in managing the proper handling of used lubricating oil." (R08)

New projects - Recycle Lubricating Oil Filters

New projects have been introduced, especially to recycle lubricating oil or in-process filters. When SMEs bring these ideas to their clients, they are normally very receptive to the idea of sponsoring them initially, and when the business grows stable, then the OAGC minimises the funding. This enables SMEs to run viable businesses.

"The OAGC established a foundation, which they continue to fund. This foundation oversees the use and recycling of used oil. We are involved in this project with the assistance of our client." (R01)

Improvement of Quality of Service

As a result of management talking to their employees about sustainability and getting agreement about what they could do to succeed, the quality of service the SMEs offer has improved. The entire company wants to survive in the face of adverse conditions that can result in loss of income and closure of the SME.

They now have shared vision - to be sustainable.

"Since our discussions and efforts in putting sustainability strategies in place as a company, the attention to safety, provision of PPE to employees, has gone up, the work ethic has improved, and the quality of services has gone up." (R02)

SMES Adopt Waste Disposal Approaches

SMEs are labelled as not being genuine in their efforts at being sustainable, and it is claimed that they do so only at the request of their clients (Ahmad et al., 2021). This was not found to be true with all SMEs studied. Some SMEs ensure that printer toners and cartridges are disposed of in a safe way by means of a competent registered company who collects them and is qualified to dispose of them. SME R01 had this to say in support of this this claim.

"Certainly, we realise our policies, should have application both at our work site and in the office. We have policies for safe, disposal of cartridges and toners from our printers. ., These aren't just thrown into the bin. We have an arrangement eh, with an, with an authorised recycler, who comes, to periodically collect these." (R01)

Some SMEs reduce water usage in their offices and use power saving bulbs to reduce electricity usage.

> *"In the office, for example, in the kitchen we have fitted aerators, on taps, to reduce the flowrate, and consequently water usage." (R02)*

Electric Vehicles

The impact of the electric car on SME economic performance is negative as the demand for diesel and petrol will reduce their sustainability.

> *"Vehicle manufacturers are now aware of cleaner energy, they are looking for renewable energies, they are looking for long-lasting sustainable measures and I think they are slowly starting to realize that hydrocarbons are no longer the future as they used to think in the past. This affects SMEs in the OAGI as the demand for our services may become depleted, once diesel and petrol cars are in less demand." (R14)*

However, this should give SMEs opportunities to start looking at alternate forms of energy and align their services with the new demand.

> *"Speak about electric cars, it's something that is out of our reach for now. However, as a matter of principle, it is an idea, which is welcome. We need to understand and find how we can offer services to companies that offer other forms of energy beside fossil fuel." (R20)*

Road Safety Campaigns

OAGCs also fund road safety campaign projects. They ask SMEs to be involved in launches and road trips, and they promote the OAGC logos as well as SMEs where possible.

> *"Greatest thing that the oil industry does is to fund and promote campaign to do with road safety. In South Africa, we have one of the highest numbers of road accidents in the world. So, the industry, being a player in terms of being a producer of liquid fuels, they have taken it as a social responsibility effort, to promote and support safer driving ,and this they do with road safety awareness campaigns and , campaigns for people generally to improve driving habits, I think that is they have contributed visibly. They involve SMEs to join the road trips." (R01)*

6.4.6 Summary - Sustainability Impacts

Our findings as discussed are that the sustainability impacts were environmental, social, and economic, plus two new concepts grouped as compliance and innovation. The known and obvious findings are environmental, social and economic impacts and the unknown findings are compliance and innovation groupings of impacts.

6.5 CONTRACTUAL ARRANGEMENTS RELATED TO SME ECONOMIC, SOCIAL AND ENVIRONMENTAL SUSTAINABILITY

Detailed below are the links which are the researcher's contributions from participants' interviews and are not obvious and known.

6.5.1 Link between Finance and SME sustainability

Cash Flow

In this industry, SMEs sign contracts that bind them to sponsor their clients for more than thirty days (in practice even up to 90 days). This arrangement usually results in SMEs experiencing serious cash flow problems and renders them incapable of paying their employees and operational commitments. The delay in payment by OAGCs makes the situation dire and can result in closing of the SMEs. Hence, poor funding, poor access to finance, and cash flow problems, which can arise because of the financial aspect of the contractual link between OAGCs, and SMEs may result in negative SME sustainability. Participant 17 said:

> *"The issue of constrained cash flow arising out of delayed payments. As I shared earlier with a story of a colleague. Late payments can result in a company undergoing tremendous stress that it can actually close, even though it may be owed money." (R17).*

Delay in payment

Delay in payment results in negative sustainability. Participant 02 said:

> *"Hence late payment also results in elevated risk and lower possibility of SME sustainability." (R02)*

Poor funding affects competition, which in turn result in negative sustainability. For example:

"Competition is an issue, SMEs, have to compete with other businesses where pricing becomes an issue.. And that can actually threaten their sustainability of staying in business." (R14)

Funding

Participant 2 reiterates that funding problems result in negative SME sustainability.

"The industry is regulated, so, for example, prices of products, that's regulated. The margins are regulated. SMEs rate of failure is high and this is mainly due to lack of access to finance resulting in poor cash flows. Therefore, the higher the funding problems, the lower the SME sustainability." (R02)

Hence, SMEs in the OAGI have problems of funding and cash flow constraints, and this can result in poor quality of work, delays in completion of work and eventual negative sustainability of SMEs.

6.5.2 Link between Conflict Resolution and SME sustainability

In situations where the SME gets involved in many conflicts with the OAGC, the OAGC can decide not to give the particular SME more contracts. This means that SMEs aim to reduce conflicts and do not seek arbitration, though an Arbitration Board is functional. The more the incidences of conflicts, the diminished chances are of SMEs getting work which eventually lowers SME Sustainability. Participant 17 said:

"I think it results in negative sustainability, I would say negative effect because normally with any conflict that two parties have, what actually suffers is the relationship at the end of the day. With any conflict, once you get your relationship bruised and even the trust also gets bruised, lot of things actually, uh, get into play. And at the end of the day, the OAGC resents the SME and SME gets no contracts and die." (R17)

In instances where performance is an issue, it will affect the cost which will negatively affect SME sustainability. Participant 14 said:

"Especially when it comes to performance. And remember, SMEs are mostly on the receiving end. Receiving end means, they don't have the same capacity as the bigger companies. So, if for example, the bigger company decides 'I'm not going to pay you because I'm not happy', that will translate into a serious situation. And you might find that an SME will not have the capacity to take legal action against that company and that automatically translates to their liquidation or just suspending their operations. So, it's a serious issue." (R14).

6.5.3 Link between Government support and SME Sustainability

The higher the support from government, the higher SME sustainability will be. Some participants though, advise SMEs to learn their trade and upskill their employees so that they can compete with foreign contractors based on skills and competence rather than cry for government support without competence. For example:

> *"The industry is regulated, so, for example, prices of products, that's regulated. The margins are regulated. The industry has always been fighting for the margins because that, obviously, has an effect on how much they can use on sustainability. Yes, it is a factor. The more we can have the better margins that are available, that can improve on sustainability. But, I think, the message needs to come from the government, in my view." (R11)*

> *"So, my take on this is um, I think this aspect is something that is talked about... but it's not broad enough, it hasn't filtered down um, most of the SMEs are basically on their own... if you want to put it like that. So, the government has very good intentions, but the execution um, it hasn't uh really... it has rendered them maybe limited to certain....maybe connected SMEs." (R03)*

The higher the BBBEE level, or LC, the more positive sustainability is for the SME. Participant 17 said.

> *"I'll say it's a positive effect, but it has also got danger in terms of where like SMEs become complacent. They know that they have the government behind them to support them. I think, uh, we have to get to a stage where we are saying the SMEs- I mean the BEE or affirmative action has to be put aside and compete on expertise at the end of the day, uh, to make sure that, um, we deliver a good product at the end of the day. For now, the higher the BBEE level, the more socially sustainable Is the SME." (R17)*

Hence, the higher the support from government, the higher the SME sustainability will be.

6.5.4 Link between Corruption and SME sustainability

The findings were that where corruption exists, SME sustainability is very poor. Therefore, where government support is poor, and corruption is high, professional SMEs do not get contracts and eventually close. For example, Participant 16

alludes to the fact that quality of performance is poor where there is corruption, and this results in long term negative SME sustainability.

> *"Corruption actually is a big killer in society. It actually ends up with these shortcuts, uh, shoddy jobs. If there's corruption within that SME, that actually affects it negatively. Uh, corruption is to be rooted out and taken out of that organization. And, uh, zero corruption means, um, more sustainability of that SME." (R16)*

Participant 21 also reiterates that when corruption is high, the greater the chances of negative SME sustainability.

> *"You see like where there is corruption, lots of corruption, one; it's very difficult for unconnected people to be winning business. Where business is awarded, it won't be awarded on merit. Maybe to the one who is more corrupt (paid more bribe), not necessarily the one with skills, but the one whose purse is bigger. So, where corruption is high, professional SMEs do not get contracts and eventually die." (R21)*

It is a general belief that SMEs that do not get involved in corruption by paying bribes do not get work, and if this is for a prolonged time, they may close their business.

> *"So those that are able to sort people out (give them bribes) will get more work. And for those that are not able to sort people out, you know, are not going to be preferred. I think that's across the board. It happens. There's enough evidence, you know, stories throughout the different oil companies of all sorts of funny shenanigans taking place." (R18)*

Our findings were that corruption is rife in South Africa, and SMEs in the OAGI are not spared. When dealing with government officials, some SMEs build the price of corruption into their cost base and bribe government officials in order to become compliant with government regulations. On the other hand, the industry does not want to be associated with acts of corruption, be it from contractors, suppliers and other stakeholders and has made it a requirement that all contractors (SMEs) sign and uphold anti- corruption and anti- bribery policies. Acts of corruption can result in poorly skilled personnel doing jobs that they are neither qualified nor skilled to perform, and poor quality and rework results. Repeated incompetence and poor work can result in the OAGC refusing to pay for poor quality and not renewing a contract with this corrupt and incompetent SME. The SME loses contracts and will eventually have to close down their operation. Hence the higher the corruption, the lower the SME sustainability will be.

6.5.5 The Link between Skills and SME Sustainability

Local SMEs face a threat of collapse because of the skills shortage. Contractors struggle to attract skilled and qualified personnel to do work once they acquire a contract.

> *"I think if you look at SMEs, small enterprises, what actually starts is the skill that one has. So, you'll find the skill becomes very key. You can always diversify and everything else, but skill is very key in terms of the sustainability of SMEs." (R17)*

SME skills are very important in the provision of services to OAGCs. Investment in skills development is thus critical for an SME to continue in business.

> *"…up-skilling is critical -because what normally happens is that small and medium enterprises, most times do not invest in adequate, um, you know, human resources, you'll find I open my business and I'm the manager, I'm the technician I'm the accountant, and I'm doing everything by myself." (R19)*

Though upskilling is expensive, it is important to do as the result is improved competence that results in more competitive performance, and eventual SME sustainability.

> *"The impact is actually the cost of attaining those skills will be high on the part of the SMEs. Because for someone, for them to get skilled people, or training - providing training that he gets to finances, which economically they will really be negatively affected. That's on a negative. Then positive also if they manage to get it. They will have skilled people that are able to meet the required standard, which again will be a positive on both the employer and the SME. So, yah, it's a negative and positive, unfortunately." (R15)*

SMEs should ensure that conditions of employment and remuneration are comparable with the industry. Failure to do so may result in skilled personnel leaving for better remuneration and conditions of service.

> *"So, we meet all the statutory requirements. I think for a small firm, we compare favourably. However, regarding remuneration, we are competing with the larger and more established competitors and the oil industry /companies themselves for experienced and skilled personnel. …lured by higher remuneration levels elsewhere." (R01)*

Therefore, the higher the skills, the more competitive the SME becomes and the more contracts they will sign and become more economically sustainable. Participant 01 said:

> *"So, our experience has been the increased level of skill makes you have, considerable competitive advantage, and therefore a high impact on sustainability." (R01)*

Generally, the top management is highly skilled, but the rest of the personnel are poorly skilled. Poor skill results in poor competence that is associated with poor quality and eventual loss of business and negative SME sustainability.

> *"Overall, yes at the top management, but below this level skills base is poor. The higher the skills result in more positive SME sustainability, which gives more positive competitive advantage." (R02)*

Generally, the skills base in this industry is low which results in negative SME sustainability.

6.5.6 Link between Operational Risk and SME Sustainability

The higher the operational risk, the lower the SME sustainability. For example:

> *"Big oil companies have, over the years, gathered a lot* of experience *in terms of risk management. Their strategy is to push most of that risk towards SMEs. They want to have as little risk as possible themselves. - the higher the risk, the lower the SME sustainability." (R07)*

Delays in work completion lower SME sustainability

If a project is delayed, there will be a cost implication and the SME has to pay it, resulting in negative sustainability. For example:

> *"Delays in completion of the contract actually, negatively affects SME sustainability, because once you delay, there are penalties that are actually associated with those clauses." (R16)*

Participants 11 and 14 also reiterated the same sentiments:

> *"Ideally, SMEs become negatively impacted by the delays in contract completion, because when something is delayed, they are incurring costs, there is standing time for them. And they don't have enough financial muscle; just a little thing can easily cause them to die. Yeah, so, delays can result in negative social sustainability." (R11).*

"If a project's delayed there will be a cost implication and the SME has to pay for it- negative sustainability." (R14)

Change in scope results in lower SME Sustainability

If the scope changes, there will be a cost implication, and SMEs are negatively affected which my even result in closure of the SME operations. A change in scope results in SME negative sustainability: Participants 13 and 14 confirmed this:

"When the scope change and, the requirement now is, that of expertise in a particular area where that contractor doesn't have, it might mean that the contractor will maybe just do part of the job, and then leave, or someone else has to come in and do that job. And it actually affects, negatively on the SME sustainability, because once you delay, there are penalties that are actually associated with those clauses." (R13)

"If the scope changes, there will be a cost implication. And usually, SMEs are negatively affected which my even result in closure of the SME operations." (R14)

Insurance and Force Majeure lower SME Sustainability

Wherever services or goods are supplied, there is a possibility that something goes wrong, and the parties end up in disagreement. In the event of potentially unfavourable occurrences, a risk mitigation programme to minimise or avoid recurrence must be written into the contract (Zhou et al., 2018). If there are no provisions for undesirable changes of situations in a contract, and the undesirable occurs, it may be inferred that the party expected to take the risk assumes the risk as discussed in section 2 above. This situation can be resolved by addition of Force Majeure in the contract as it mitigates risk that would have negative impact on contractual arrangements (Firoozmand, 2015). Two participants commented on Force Majeure:

"It's a rule by a gas and oil company; if it is raining, you cannot work. So, you definitely need to have a record of for how long it rained. And even after the rain, were we able to work or not because of the rain. So maybe you've lost a day. You need to document that. So, I would say contractually, the contract is there. And I don't think the contract is looking at killing an SME. But the contract is to make sure that there is an understanding and that the job should be done. But at the same time, as an SME you need to pay attention to the clauses which can kill you. So, make sure that you're putting controls to such kind of clauses like Force Majeure." (R5)

"If you don't manage the risks at the commencement of the project, it can actually result in negativity of the whole process. So, both, parties should look at those risks and put mitigation measures against them. These risks can be environmental, political, or financial. But if not properly handled it can be disastrous." (R07)

Unrest and Looting results in lower SME Sustainability

Covid-19 has and is still playing havoc in all industries including the OAGI. Many SMEs have closed shop due to a lack of work contracts, and this industry has been harshly affected, as minimal projects were done during the lockdowns. This was compounded by severe looting in South Africa, which left many SMEs stranded, and even closing after equipment and premises were destroyed. Participants 06 and 09 said:

"If I sign a contract and then things just go bad for example COVID and looting. People are going to lose work. People are going to lose contracts. SMEs are not spared." (R06)

"SMEs will actually shut down because you are not spared. The level of destruction meant that as long as you had something that these looters wanted, they took - you didn't stand ground." (R09)

6.5.7 Link between Greening and SME Sustainability

Greening does not seem to play a significant role in SME sustainability, as clients seem to consider price, HSSE, and risk when choosing a potential accredited supplier. Greening is good when sustainability reports are published, but not practised in real life, Participant 01 said:

"…whilst greening initiatives are looked upon positively when it comes to reporting by our clients probably to their head offices. On a practical level it isn't a consideration. I think the considerations of price, skill, dependability, experience, safety rating and so on." (R01)

6.5.8 Link between Joint Ventures and SME Sustainability

Some SMEs benefit from joint ventures, but most participants had minimal exposure to these arrangements. Participant 14 said:

"Mainly on the public tenders and services, it works. It's not very effective on private sectors, because they believe that the coalition is normally prone to failure because there is no single point of accountability. It is more politicised than anything else. So, it does work

on public services, but it's very rarely applicable on private sectors." (R14)

6.5.9 Link between technology and SME sustainability

This study has shown that the higher the technology, the greater the SME sustainability. This is because, the more technologically sound the contractor, the higher are the chances that the equipment would function more efficiently and the work would be done faster, safer, and more efficiently at less cost and better quality. This would result in more work being given to the SME and then it would become sustainable. Participant 02 said:

> *"Technology will obviously affect sustainability. Technology is what improves the way we do things. The better the technology, the cleaner the fuels that we're going to have. Technology also helps us improve the way we do our other things to improve our own efficiency. I think technology is the key thing for sustainability." (R02)*

Despite this observation, the availability of finance is limited, and SMEs may take long to get funding to buy new equipment with new technology. The equipment may get obsolete before an SME gets enough funds to replace it, leading to diminished sustainability.

> *"The awareness is there, the willingness is there, but the fact that you have limited resources and financial capacity, you might find that they cannot be able to employ the necessary technologies required at a level that they need to operate to remain sustainable. It takes them longer to be able to reach the level where you can work sustainably, well managed, and compete with other entities." (R14)*

> *"I was going to reiterate that technology has to be seen with the concurrent issue of lack of finance, both of them, for SMEs serve to negatively impact sustainability." (R01)*

6.5.10 Link between Trust and SME sustainability

The findings are that the higher the degree of trust between SMEs and OAGCs, the more the business relationship grows due to clients giving trusted SMEs more work. This results in better SME sustainability. This is supported by Participants 13 and 20.

> *"Trust is a big deal. In fact, even if the particular SME was not quite the lowest quote that came through, but because of the past experience, if*

they are really that good, , you can argue and write a justification, why you want to go with them at a higher price...” (R13)

"Where there is trust, there is this potential for future contracts. And if you lose trust on and SME, you’d be very reluctant to give them another contract….” (R20)

The overall links between SMEs and contractual arrangements are tabulated below in Table 6.1.

Table 6.1: Link between Contractual Arrangements and Sustainability

Contractual Arrangement	**Higher SME Sustainability**	**Lower SME Sustainability**
Finance		Poor funding, poor access to finance and cash flow problems, may result in negative SME sustainability
Government support		Poor government support result in lower SME sustainability
Corruption		Higher corruption , lower SME sustainability
Skills		Poor skills result in lower SME sustainability
Delay in work completion		Greater delays, the lower SME sustainability
Change in scope of work		Many changes in scope, the lower SME sustainability
Insurance and Force Majeure		Higher Force Majeure, lower sustainability
Conflict Resolution		Higher conflict, lower sustainability
Trust	Higher trust, higher SME sustainability	

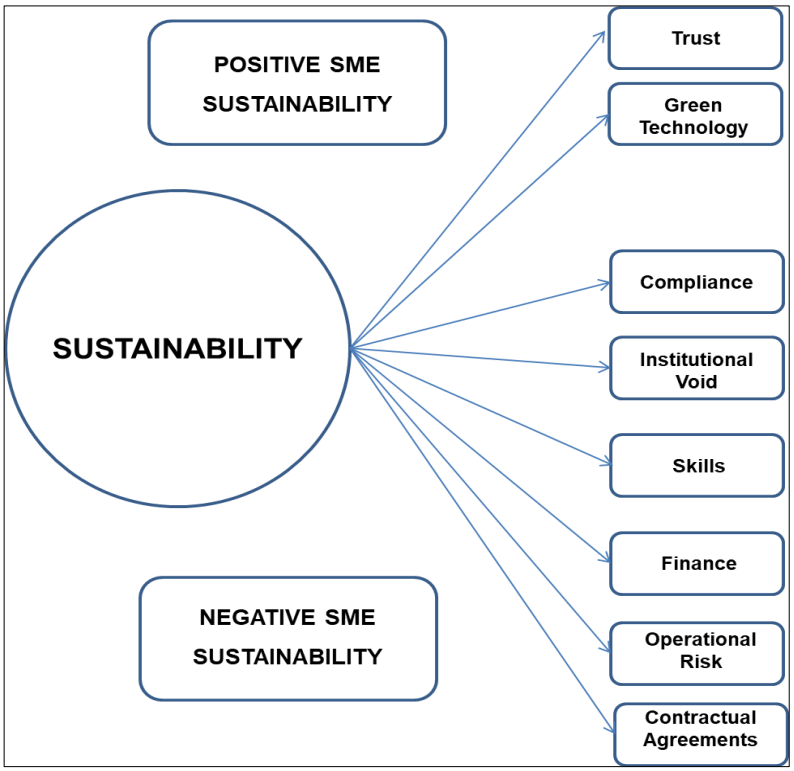

Figure 6.7: There is a Link between Sustainability and Contractual Arrangements

6.6 SUMMARYOF OVERALL RESEARCH FINDINGS

Contractual arrangements between OAGCs and SMEs are government and industry compliance, financial issues, skills, operational risk, institutional voids, and green technology. Sustainability approaches implemented by SMEs are environmental, economic, and social .This study; however, came up with four new groupings of sustainability classified as Adoption, Partnership, Compliance, and Innovative Sustainability. The impacts were also grouped into environmental, economic and social plus two new groups namely compliance and innovative impacts. Finally, we found that there are links between contractual arrangements and SME sustainability. Positive SME sustainability is experienced when the degree of technology and trust between SMEs and OAGCs is high. In contrast, high incidents of conflict resolution, poor funding, poor access to finance and cash flow problems, delay in work completion, change in scope of work, and poor skills result in reduced SME sustainability. The next chapter discusses these findings while answering the research questions.

CHAPTER 7: DISCUSSION

7.1 INTRODUCTION

This research has generated meaningful insights into the relationships between OAGCs and SMEs in the OAGI supply chain. As our group of participants included SMEs, multinational OAGCs, and parastatal OAGCs, there were opinions from a wide spectrum of the OAG supply chain. The general findings were that most participants were familiar with how contracts are established and managed. They knew the sustainability approaches SMEs have put in place and the resultant impacts from an environmental, social, and economic perspective. Deeper insights into the general links between SMEs and OAGCs' contractual arrangements and SME sustainability were established through these findings.

This chapter consolidates all the findings from the four research questions. This section discusses the significant themes that emerged as the key contractual arrangements between OAGCs and SMEs in the OAGI. Special emphasis is put on how these themes can affect SMEs economic sustainability. Section 7.3 discusses the participants' understanding of sustainability. Furthermore, the sustainability approaches implemented by SMEs are discussed. Section 7.4 discusses the resultant impacts of the implemented sustainability approaches. This is followed by Section 7.5, which discusses the observed links between specific contractual arrangements that emerged. The emerging conceptual framework is also discussed. Section 7.6 discusses the research questions.The impacts of the research are discussed in Section 7.7 while Section 7.8 outlines the reflexivity of the qualitative research conducted; and finally, Section 7.9 gives a summary of the discussion topic.

7.2 MAIN FINDINGS OF THE CONTRACTUAL ARRANGEMENTS BETWEEN OAGCS AND SMES

Our overall findings are that the OAGI SMEs contractual arrangements enhance sustainability. For SMEs, economic sustainability is paramount as they strive to survive in the OAGSC. This involves the SMEs capability to maintain their operations and remain financially viable over the long term in a manner that aligns

with the principles of sustainable development and ensures that their business practices and strategies are environmentally responsible, with greening being paramount. This they achieve by ensuring that their contractual arrangements with OAGCs enhance sustainability.

The findings of this research are that, within the framework of the OAGI, SMEs' economic viability as contractors requires a number of crucial elements in the contractual agreements between them and OAGCs. These are grouped into government and industry compliance, financial issues, skills, operational risk, institutional voids, trust, and green technology, as explained in Chapter 6.

These contractual arrangements affect how SMEs and OAGCs operate. In effect, SME sustainability is negatively affected by difficulty in achieving the myriad compliance issues, lack of skills, poor access to finance, the high need for applying mitigations to operational risks, and the high cost of operating in environments subject to the existence of institutional voids. Trust relationships between SMEs and OAGCs, as well as greening technology, positively enhance SME sustainability. We will discuss the contractual arrangement issues.

7.2.1 Compliance

Our findings are that compliance issues related to the government and OAGI negatively affect SME sustainability. The findings are that the government has stringent requirements for SMEs (or any other company) to exist in South Africa. This agrees with Lesejane (2021). Moreover, compliance is expensive and time-consuming, and SMEs pay bribes to government officials to be seen as complying. These findings confirm those of Arnold et al. (2022).

The OAGI has numerous requirements; the accreditation process to become a preferred contractor is very involved; and the documentary requirements are numerous and difficult to comply with. This is supported by ISO 20400 (2017) and Rentizelas et al. (2020), who list the myriad requirements for supplier selection in this industry. They confirm that quality, delivery time, service level, price, and capacity are the main criteria that should be used when selecting suppliers. We

also found sustainability to be one of the criteria used in selecting suppliers, and this is confirmed by recent literature such as El-Sayegh et al. (2021) and Silvestre (2020).

Our findings also confirm Santos and Lemes (2022) and Andersson et al.'s (2022) claims that corruption reduces supply chain sustainability by affecting the three pillars of sustainability (economic, social and environmental). However, the findings expressed by some participants are that this is only in theory, and in practice, the price seems to be the main determining criterion.

Furthermore, though there is an OAG arbitration Board in South Africa, the parties prefer negotiation to litigation or arbitration in the event of a dispute. This is because SMEs are careful not to upset potential clients lest they not award them future work. Finally, our research demonstrated that supply chain success depends on good and trusting relationships between OAGCs and SMEs, and this agrees with Huntjens and Kemp (2022) and Nayal et al. (2022). In addition, the OAGI has many prerequisites for compliance, and SMEs need to be qualified, have the requisite skills, be experienced, and meet all HSSE requirements. This confirms the findings by Acha et al. (2019).

7.2.2 Financial Issues

SME contractors unanimously confirmed having experienced problems with access to finance and funding, and this confirms the existing literature (Do et al., 2022; Szymborska & Toporowski, 2022). This expands the literature by Jang et al. (2022), Zumbraegel (2022), Ablo, and Otchere-Darko (2022), and is made worse by payment delays and financing clients (SMEs do the entire job before the client pays). Payment delays may make it difficult for SMEs to finance projects, which may lead to schedule overruns that have a negative impact on both time and cost. Our findings confirm research by Okeke et al. (2022) and Do et al. (2022). Whereas Do et al. (2022) and Okeke et al. (2022) posit that long periods of delays in payment by SMEs give rise to poor credit ratings, our findings extend this to say that a lack of finance by SMEs negatively affects their sustainability.

SMEs cannot afford to buy most of the equipment needed to do their work, and as this is a highly evolving technological industry, replacing equipment or upgrading technology within a short time is expensive. This is confirmed by Hervas-Oliver et al. (2021). In summary, we found that SMEs need to generate sufficient revenue and profits to cover their costs, invest in research and development, and reinvest in their business. This requires effective financial management, cost control, and the ability to adapt to market fluctuations and changing industry dynamics.

7.2.3 Operational Risk

Our findings that change of scope is one of the main operational risk problems and that it stems from both parties not understanding or interpreting the contractual requirements correctly confirm findings' by Thakker (2022). This can be corrected by the use of the Relational Contract Theory when a relationship is developed between the parties, as agreed by Frydlinger, Hart, and Vitasek (2019), Thakkar (2022), and Noone and Ojelabi (2020). We also found that potential risk is realized if OAGCs change the scope of work, usually with no notice to SMEs (Herrera et al., 2020). Further, a change of scope usually results in work being completed past the agreed time, which leads to project delays. In addition, we found that no formal arbitration is practiced when conflict arises, but the parties discuss and come to a mutual understanding. However, contrary to our findings, Loots and Charrett (2022) believe that dispute resolution should normally be through arbitration.

Our results did not support Gurthu and Jonny's (2021) recommendation that, in the event of a prospective unfavorable occurrence, a risk mitigation program should be incorporated into the contract to avoid or limit this occurrence. No participant employed a risk reduction program. The study revealed that most contracts do not include the Force Majeure clause (Alfadil et al., 2022; Bantekas, 2022). This omission can cause major litigation issues, as OAGCs consider the loss associated with this act of God to be claimed by the SME.

The overall findings are that operational risks result in negative SME sustainability, and delays in completing projects or changes of scope cause sustainability problems for contractors in the OAGI. Lewis et al. (2015) support the idea that

economic sustainability requires SMEs to adopt environmentally responsible practices, such as reducing waste, minimizing greenhouse emissions, and promoting energy efficiency. This ensures a green economy and better adaptation to operations.

7.2.4 Skills

Our findings are that one of the major problems SMEs face when attempting to become sustainable is a lack of skills, which confirms the findings by Buniya et al. (2022) and Ablo (2020).In South Africa, LC in the form of BBBEE is well established, and this should entail, among other issues, the appointment of competent local nationals to positions previously occupied by expatriates (Zumbraegel et al., 2021). In addition, locals are given preference as contractors and employees. The current findings that foreign contractors still dominate the OAGI agree with Pham et al. (2020) because locals lack prerequisite skills. Heim et al. (2019) agree with our findings that local SMEs face threats of collapse because of the skills shortage.

Furthermore, the study found that joint ventures and strategic alliances have been introduced between local SMEs and foreign SMEs to assist local SMEs in gaining more technical exposure and improving their skills. We found that training by SMEs is poor, and some universities and institutions of training do not offer relevant training for the OAGI in agreement (Moeuf et al., 2020).

7.2.5 Institutional Voids

Our findings are that the government is the major drawback to SME sustainability in this industry. The government's failure to monitor the implementation of its LC policy is sadly not debatable. Moreover, the onerous government-driven compliance obligations combine to impair SMEs competitiveness. However, institutional voids are associated with corruption (Arnold et al., 2022). Hence, these institutional voids result in negative SME sustainability. Silvestre (2020) agrees with our findings that corruption and the lack of government support and monitoring are the main reasons for the lack of sustainability in South African SMEs.

7.2.6 Green Technology

Our findings were that improvement in technology is a requirement for the industry because this is generally associated with faster and safer operations and can result in giving the contractor a competitive edge in the industry. The cost of technology is normally high, and SMEs find it difficult to change technology or buy new equipment, as agreed with Hervas-Oliver et al. (2021). Research by Ojelade et al. (2022) imply that SMEs must be involved in innovation, Research and Development(R and D), as failure may result in the death of the SME.

Our findings were that SMEs are innovative and aim to go green, though R and D was not experienced by any of the participants. This supports the global call to use clean energy to reduce global warming and adverse climatic change (UN Climatic Summit, 2022). Efficiency and innovation: Contractors must continuously strive for operational efficiency and cost reduction while maintaining high-quality services or products. This includes adopting innovative technologies and practices to optimize production processes, reduce waste, and enhance productivity.

7.2.7 Trust

The research demonstrated that supply chain success depends on good and trusting relationships between OAGCs and SMEs, and this agrees with Olisah et al. (2020), Huntjens and Kemp (2022), and Järvinen and Brandes (2022). Our findings were that SMEs represent OAGCs on site, and their relationship with OAGCs plays a pivotal role in how efficiently work is done. These findings agree with the relational theory of Frydlinger, Hart, and Vitasek (2019), Wu et al. (2022), and Cummins and Guyer (2022). Hence, trust positively affects SME sustainability.

7.2.8 Summary of Contractual Arrangements

Contractual arrangements between SMEs and OAGCs can be grouped into seven main aggregate groups: compliance, operational risks, skills, institutional void, financial issues, green technology, and trust. Contractors in the OAGI need to

survive, and they face inherent risks such as price volatility, regulatory changes, and geopolitical factors. They need to identify and manage these risks effectively through measures like contractual agreements, hedging strategies, and staying updated on industry trends such as greening.

7.3 MAIN FINDINGS OF THE SUSTAINABILITY APPROACHES IMPLEMENTED BY SMES

Despite the numerous terms used, this study showed that all participants not only understood what sustainability is but were also aware of economic, environmental, and social elements affecting the OAGI. In addition, they were aware that, as contractors (SMEs), it was their responsibility to ensure that they met all mandatory economic, environmental, and social compliance practices legislated by the government and the industry, jointly with OAGCs or on their own. This agrees with Apetrei et al. (2021). They also believed that they were an extension of the OAGCs and were custodians of HSSE, quality, and efficient operations in this value chain. The SMEs (who are mainly CEOs and Owners) had robust, positive environmental, economic, and social considerations about the future of the industry. Our findings confirmed those of Singh et al. (2022) and are an extension of the relational theory discussed in Chapter 2.

Most sustainability strategies studied in the past concentrated on large companies and rarely on SMEs, and Vitrenko et al. (2020) concur. More recently, however, it has been accepted that SMEs contribute significantly to the economy of their nation and are innovative and entrepreneurial while simultaneously providing jobs and competition (Sheydai et al., 2021). This was confirmed by this study. While individual SMEs contribute insignificant environmental, social, and economic impacts, cumulatively, this impact is significant (Vitrenko et al., 2020; Sheydai et al., 2021). The OAGI as a whole causes significant damage to the environment, and therefore its sustainability strategies are a current concern.

Our findings were that most SMEs in the OAGI implement the expected sustainability approaches of the economic, environmental, and social nature as demonstrated by the writer's Triple Bottom Line diagram adapted from Wilson (2015) in figure 2.2. In addition, four new approaches put together by the author

as her contribution to the body of knowledge extend what was expected from theory. These include technology and innovation sustainability, adoption sustainability, compliance sustainability, and partnership sustainability. These sustainability strategies, which are addressed below and shown in the theoretical framework as well as from a managerial perspective, expand our existing understanding of sustainability strategies from an environmental, social, and economic standpoint and are discussed in Chapter 6's figures 6.3 and 6.4.

7.3.1 Environmental Sustainability Approaches

Our findings indicate that SME participants are aware of their company's sustainability initiatives, such as environmental policies. Many environmental policies have been developed due to the continuous deterioration of the environment over the last decade. This agrees with Carter et al.(2000) and ISO 14000, who posit that due to the enforcement of tougher environmental statutes and the need for environmental accountability, proactive environmental programs have been developed. These proactive environmental programs consist of reducing waste, making 'green products, conserving energy, recycling, developing reusable packages, integrating total quality environment management into the organization’s planning process, and developing a strong and sensitive environmentally astute corporate culture (Carter et al., 2000).

Moreover, SMEs are cognizant of the fire hazards associated with the OAGI and make great efforts to avoid them. For example, we found that fire safety was the top priority of service stations and depots, mainly to ensure that the ignition sources of explosive gas mixtures formed by flammable and combustible gas and the air were removed. Secondly, a fire should be limited, as it can cause devastating effects on humans, plants, and animals, as well as great economic losses. Zaher et al. (2021) agree with these findings. Both our findings and those of Inigo et al. (2020) are closely linked to the belief that sustainable value is interlinked at the environmental, economic, and social levels of business.

7.3.2 Social Sustainability Approaches

Our findings were that the social approaches adopted by SMEs include training on sustainability and Upskilling, providing employment and retention, creating safe working environments, implementing anti-corruption policies, assisting communities through donations, and avoiding strikes. According to this study, SMEs contribute to society in their own small way by training and developing skills in sustainability and general upskilling for their community. These findings agree with Rentizelas et al. (2020). Looking after such communities is critical to ensuring better living conditions, providing employment in a safe environment, and training society to ensure that the environment is kept safe for future generations.

SMEs are involved in these sustainability approaches and are active in supporting communities during riots and the COVID-19 pandemic. This is an expansion of Rentizelas et al.'s (2020) and Golicic (2020) findings because the COVID pandemic was unanticipated and novel; no preparations had been made for it, and no research had been done on it prior to its occurrence.

In addition, our findings showed that SMEs are also involved in assisting poor communities by donating supplies and goods to children and adults, sometimes alone and at times in conjunction with OAGCs. This dimension of sustainability involves cultural issues that may involve changes in beliefs, norms, and values and create benefits for society, organizations, and all stakeholders. Golicic et al., (2020) agree with these findings. This concurs with the Sustainability Management Concept (De Morais and Barbieri, 2022). Social sustainability is involved in value creation in the OAGIVC in a grouping including development in rural settings and food crises (Fernando et al., 2018). It is generally agreed that in the OAGSC, attaining sustainability especially the social type, is critical for all stakeholders and society. In this supply chain, advantages of social sustainability is only felt in a society when all stakeholders, including SMEs, have attained their goals. Many researchers agree with our findings (Chowdhury and Shumon, 2020; Gigliotti et al., 2022).

7.3.3 Economic SustainabilityApproaches

There is still room for SMEs to improve their economic sustainability. The low metric found for economic sustainability strategies shows that SMEs have limited financial means to engage in robust sustainability approaches. This is in line with Adams (2017), who argues that SMEs lack the finance to be sustainable. Despite this belief, our findings show that SMEs still try to survive by managing payments, cash flow problems, and funding to remain profitable and financially astute (Adams, 2017). In addition, they play a significant role in ensuring that their communities are successful (Shad et al., 2019). Contracts between OAGCs and SMEs can include practices of reuse, recycling, and repurposing of components, resulting in minimal waste, reduced consumption, and the adoption of circular economy practices. Adoption of green practices can drive technology, thereby improving competitiveness and opening new markets, which promotes economic sustainability.

7.3.4 Partnership Sustainability Approaches

This approach extends the theory of sustainability approaches and works together with the environmental, social, and economic sustainability approaches by ensuring that the OAGCs and SMEs agree to cooperate to advance their mutual interests in the sustainability approaches (Klein and Maldonado-Bautista, 2022). Both parties gain from the association because they adopt the Relational Contract Theory (Frydlinger, Hart, and Vitasek, 2019).This study revealed that the Partnership approach goes beyond a mere principal-agent contractual arrangement since a trusting relationship is developed between OAGCs and SMEs. Here, an observable transition from a strategy of confrontation to partnership relations and close collaboration is developed using the relational contract theory whose main consideration is a win-win association instead of just a deal, establishing alliances and a remote relationship. It includes attenuating contract risks, establishing strong values, and developing a changing and workable contract structure (Nwajei, 2021).

When SMEs and OAGCs form relationships, they work together as a team, and even when projects delay, the problem is solved together and further delays are

avoided. The OAGC considers the SME an extension of its company and, as such, works in a way that reduces conflict. OAGCs give SMEs the authority to perform while trust between the parties is established. This results in both OAGCs and SMEs working toward being sustainable.

7.3.5 Innovative Sustainability Approaches

Our findings challenge the general belief that SMEs are not innovative and that crises usually weaken their ability to survive (Lin and Chen, 2020). Instead, it was found that during pandemics such as COVID-19, SME survival is enhanced by the use of innovative sustainability approaches, which have positive effects on organizations. Recent innovative developments have seen crude oil used to produce fuels. The SME adopts more applicable innovations that assist in adaptation to the environment and survival. Compared to large firms, however, SMEs are small and usually have less formal and simpler structures, fewer documented procedures, less systematic plans, and less stable financial resources. They consequently need constant innovation. Our findings therefore support the SMEs being innovative.

7.3.6 Adoption Sustainability approaches

SMEs need to comply with the OAGC's conditions to be accredited as contractors. With time, SMEs will believe and practice these procedures and adopt these industry services as their own, even in their offices. Adoption approaches that SMEs employed were reduction of water usage, safe disposal of cartridges, training communities, and socially responsible practices.

7.3.7 Compliance Sustainability Approaches

The Compliance sustainability approaches contributed by the researcher enhance the economic, social (Chowdhury and Shumon, 2020; Gigliotti et al., 2022), and environmental sustainability approaches that are discussed exhaustively in the literature. Managers benefit from these new approaches, such as innovation, as SMEs adopt more applicable innovations, which assist in adaptation to the environment and survival. This agrees with Lin and Chen (2020).

7.4 SMES IMPLEMENTATION OF SUSTAINABILITY APPROACHES IN THE OAGI AND RESULTANT IMPACTS

7.4.1 Summary of Sustainability Impacts

Environmental impacts observed agree with Abubakar (2015), who explains that the most significant sustainability impacts for the OAGI are pollution reduction and waste management.

Our findings indicate that the impacts of approaches implemented by SMEs were environmental, social, economic, compliance-related, and innovative. Since SMEs contribute significantly to the GDP of economies, they are now considered the backbone of economies (Singh et al., 2020). In the OAG supply chain, there has been institutional pressure mounting on all stakeholders (including SMEs) due to the damage to the environment caused by fossil fuels. SMEs respond to these institutional demands by conforming to OAGC sustainability standards. This compliance is mandatory for SME survival and sustainability.

Hence, the institutional pressure on OAGCs to reduce the negative effects of fossil fuels or use cleaner energy is passed on to contractors (SMEs). In turn, SMEs adopt and implement sustainability approaches ranging from environmental, social, and economic to adoption, partnership, compliance, and innovation. The organizational theory then explains how these approaches are implemented and how the impacts observed are obtained. SMEs are labeled as not being genuine in their sustainability efforts and do so only at the request of their clients (Ahmad et al., 2021). Nonetheless, this was not found to be true for all SMEs studied. For example, some SMEs ensure that printer toners and cartridges are disposed of safely by utilizing a competent, registered company that is qualified to collect and dispose of them. According to Sheydai et al. (2021), only positive effects were reported in this study, including increases in employment and wage rates, a decrease in pollution, and a rise in recycling and re-use initiatives. However, proponents of the "resource curse" theory would expect some impacts to be negligible (Byakagaba et al., 2019).

7.5 IMPACT OF CONTRACTUAL ARRANGEMENTS ON SMES' SUSTAINABILITY

Our findings showed that there are links between contractual arrangements and SME sustainability. Positive SME sustainability is experienced when the degree of technology and trust between SMEs and OAGCs is high. In contrast, high incidents of conflict resolution, poor funding, poor access to finance, cash flow problems, delays in work completion, changes in scope of work, and poor skills result in reduced SME sustainability.

Our findings, as shown in figure 6.7, were:

- Poor funding, poor access to finance, cash flow problems, and delays in payment can give rise to negative SME sustainability. This is an extension of the findings by some researchers (Jang et al., 2022; Zumbraegel, 2022; Ablo & Otchere-Darko, 2022; Thakkar, 2022; Zumbraegel, 2022).
- Compliance issues: Where the incidences of conflicts are high, the chances of SMEs getting work are low, and consequently, SME sustainability is negatively affected. This agreed with Christopher and Mjema (2021), Garca-Sánchez et al. (2020), Noone and Ojelabi (2020), and Batavia et al. (2020).
- Institutional Void: This eventually lowers SME sustainability where government corruption is higher or where corruption exists. Andersson et al. (2022), Adomako et al. (2021), and Lacatus and Sedelmeier (2020) also made some similar comments.
- The lower the skills, the less competitive the SME becomes, and the more negative the economic sustainability. These issues were discussed by Moeuf et al. (2020) and Amarkhil et al. (2021).
- Higher operational risks such as delays in work completion, unrest, flooding, and looting result in lower SME sustainability (Goldberger, 2020; Ismail and Ismail, 2021; Herrera et al., 2020).
- The higher the technology, the greater the SME's sustainability. Some literature that agrees with our findings is given below, including Ullah et al. (2022), Zaversky et al. (2022), Alotaibi et al. (2022), and Cherif et al. (2021).
- Higher degrees of trust result in greater the SME's sustainability. This

agrees with Wang and Huang (2022), Järvinen and Branders (2020), Huntjens and Kemp (2022), and Nayal et al. (2022).

From our discussions, research outcomes together with a review of literature, Figure 7.1 below shows the final Theoretical Framework for contractual arrangements and SME sustainability.

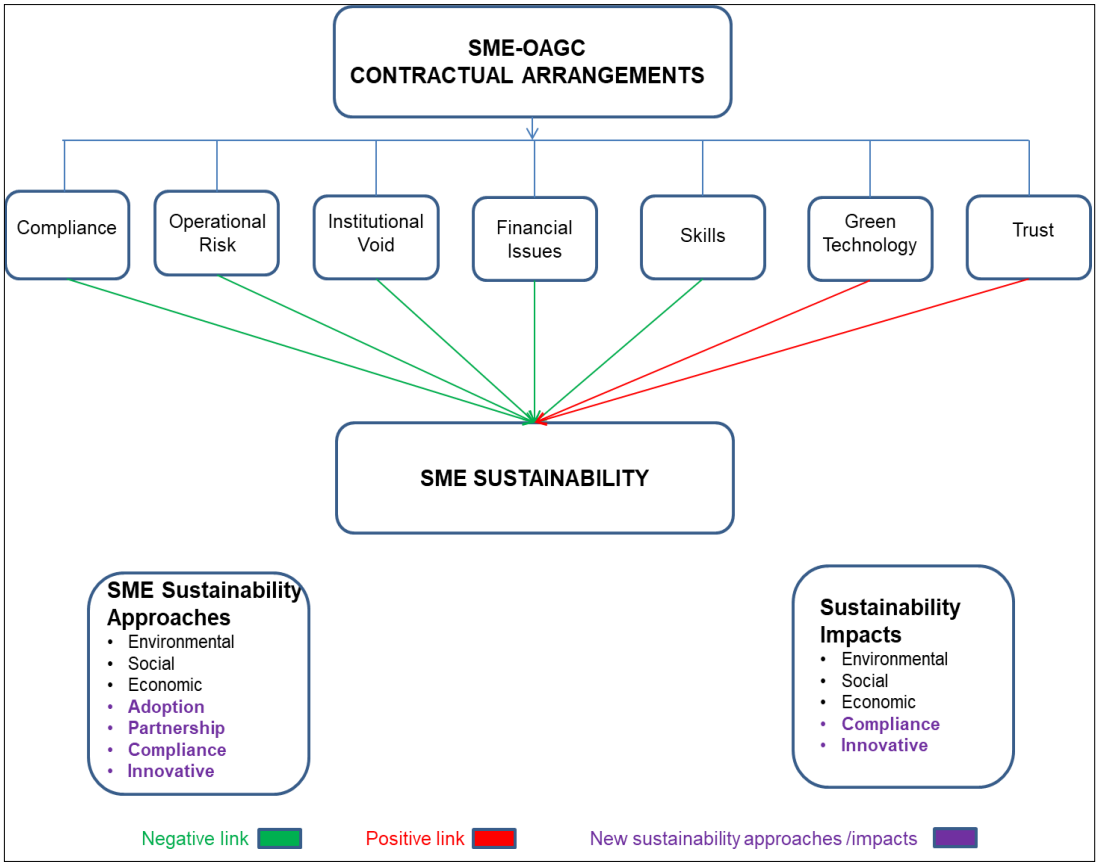

Figure 7.1: Final Conceptual Framework of Links between SME Sustainability and Contractual Arrangements

7.6 OVERALL DISCUSSION OF RESEARCH QUESTIONS

The research has shown that OAGI SMEs' contractual arrangements enhance sustainability positively and negatively when considered from an economic, social, and environmental perspective.

7.7 POTENTIAL IMPACT OF RESEARCH COMPLEXITY

7.7.1 Impact on Personal Growth

The researcher acknowledges their higher level of understanding of the contractual arrangements of SMEs and sustainability from the time of starting the DBA up to now. Being the owner of an SME in the OAGI, the researcher knew the challenges SMEs face when forming contracts with OAGCs but not how the relationship between SMEs and OAGCs could be improved. The personal growth of the researcher has taken place through knowing how customers decide on the best contractor to get a contract. For example, the researcher was not aware that our clients do not tolerate SMEs who ask for a deposit payment upfront before implementing their contract.

Personal growth has also been demonstrated when relating to other players in this industry, such as other competitors (local SMEs), private and government-owned OAGCs, purchasing directors, and operational managers in this industry. In addition, employee training has been implemented to enhance the work output. This study improved the researcher's understanding of this industry, and the interviews conducted enhanced industry appreciation. Moreover, the complexity of the current project allowed the researcher to develop a voice and build confidence while identifying inconsistencies or gaps in the research. Finally, the researcher made friends with other DBA students from all over the world and anticipates an improved perspective on life and appreciation of other people's cultures, value systems, and accepted norms.

7.7.2 Impact on organizational practice

This research impacted the way the researcher's organization conducts business. For example, OAGCs do not appreciate SMEs that take long to resolve conflicts or seek arbitration; they prefer to talk and resolve issues amicably. This means that organizations should ensure speedy conflict resolution and avoid arbitration. In addition, the organization never asks for a deposit upfront before implementing work, since OAGCs do not appreciate SMEs that ask for a deposit upfront.

The research outlined the most important criteria used by OAGCs when awarding contracts as demonstrated competency, HSSE compliance, quality, sustainability, trust relationships, and flexibility. Other criteria were price, ability to resolve conflicts, the importance of understanding contractual obligations, and SMEs that were willing to mimic OAGC sustainability standards. The researcher's company now ensures that these requirements are understood by its employees and implemented. Furthermore, the impact of this research on the company is the realization that, with such skill gaps in this industry, it now strives to train its employees adequately. It needs to establish joint ventures and strategic alliances with foreign contractors to enhance the quality of work and competence. It will also be prudent for the company to stay abreast of prevailing and new technology and get involved in offering services to the emerging green energy sector.

Finally, the research has demonstrated how financial issues can result in poor sustainability for SMEs. The researcher's organization now takes a special interest in managing finances and seeks funding from Government institutions that the study revealed exist in this country. The researcher's suggestions for improving services are more accepted because of the backing of the literature reviewed. The research has a bearing on adopting change initiatives, problem-solving, and enhancing the analytical and problem-solving culture of the organization the author works for. It also contributes to innovation, improves credibility, and enhances inspiration and motivation among co-workers.

7.7.3 Impact on the Industry

It was found that new knowledge has been made available, and the Industry wishes to understand what it is that members need to do to be sustainable. One finding was that South Africa has many incidences of corruption, mainly initiated in government offices. Nonetheless, the industry does not want to be associated with corruption, and all players in the OAGISC will ensure that they stay away from corruption if they are to be sustainable.

This study has revealed the sustainability approaches in which SMEs are involved, and this will encourage other SMEs to embark on these approaches and for

OAGCs to assist their contractors in becoming more sustainable. The Government is now more aware of the issues SMEs experience in this industry and, hopefully, will improve its monitoring of its LC implementation to ensure the sustainability of SMEs. Appreciation of the relationship between the contractual arrangements of SMEs and OAGIs and how this affects sustainability makes participants appreciate more the behavior of SMEs in the presence of OAGCs. This can assist in improving efficiencies and ensuring that contracts are written efficiently and that work is done on schedule. It can minimize delays and cost overruns, create backward and forward linkages, reduce potential risks, and build internal capacity for local procurement and the formation of joint ventures.

7.7.4 Impact on Academic circles

The research has contributed to the literature, as described fully with references in Sections 7.2 to 7.5, on how contractual arrangements affect SME sustainability in the OAGI. The seven components of contractual arrangements are compliance, finance, skills, operational skills, institutional voids, green technology, and trust. In addition, the research has contributed to economic, environmental, and social aspects of sustainability by adding adoption, partnership, compliance, and innovative sustainability approaches. Thirdly, the research has contributed to two new groups of economic, social, and environmental impacts called compliance and innovative impacts. Finally, we were able to demonstrate that technology and trust contribute to positive SME sustainability, while compliance, finance, skills, and institutional voids contribute to negative SME sustainability. These observations have demonstrated that there is indeed a link between contractual arrangements and SMEs sustainability.

7.8 REFLEXIVITY

7.8.1 Personal reflexivity

The researcher is the owner of an engineering service SME in the OAGI, has a technical background, and has wide industry experience. The researcher is married with two teenage daughters, of whom one is at university studying to be an Engineer and is aspiring to take over the business in the future. Hence, the

sustainability of this SME (and other SMEs) in this industry is a very personal and critical issue that the researcher is keen on understanding and implementing. This will make this business competitive and successful enough to pass on to the next generation. The participants are involved in a series of different products and services, and as such, the researcher sometimes collaborates with or even competes with some participants when conducting complex contracts that require diverse expertise. The researcher believes in honesty, fairness, and high standards of professionalism, ethical behavior, and uncompromising integrity. The greatest and most reputable industry specialists, in the researcher's opinion, were picked for this study. This was crucial since their views affected the outcome and ultimate conclusions of the research.

7.8.2 Functional reflexivity

Data was collected during the COVID-19 lockdown period. It was very difficult to conduct the semi-structured interviews as some of the respondents cancelled interview appointments due to ill health, illness in their families, death, or depression. The researcher was also negatively affected by the pandemic but remained motivated and shifted and rearranged interviews to suit the respondents.

7.9 SUMMARY

Findings about the contracts between OAGCs and SMEs were covered in the chapter. It subsequently addressed the sustainability strategies adopted by SMEs as well as the effects and connections discovered between contractual agreements and SMEs' sustainability. These results, along with those from the literature study, were used to create a research framework. The chapter included a brief explanation of the study's objectives, findings, and impacts. This study's reflexivity was addressed. The final part of this study summarizes the findings, identifies the literature contributions made, identifies the research's shortcomings, and suggests areas for additional study.

CHAPTER 8: CONCLUSION AND CONTRIBUTION

8.1 INTRODUCTION

The chapter concludes the study while highlighting the contribution to theory. In addition, it outlines the research limitations future initiatives to pursue following this study. The introduction is outlined in Section 8.1, while Section 8.2 discusses how the research objectives have been achieved using the findings. Section 8.3 shows a clear presentation of the research contributions to knowledge on SME contractual arrangements and SME sustainability approaches implemented, as well as the resultant sustainability impacts. Section 8.4 discusses the major contributions centered on SME initiatives to become sustainable from environmental, social, and economic considerations. In addition, the study offers new knowledge on contractual issues affecting SME sustainability in the OAGI supply chain. It provides deeper insights into the impacts of the sustainability approaches described in Section 8.5. Section 8.6 details future research, while Section 8.7 summarizes this research.

8.2 OUTLINE OF THE STUDY AND RESEARCH OBJECTIVES

This research enhances our knowledge of OAGI contracts, SMEs, and sustainability, focusing on how OAGC contracts with SMEs in the OAG supply chain affect SME sustainability. To achieve this, a study of sustainability approaches and their impacts on SMEs was conducted. Indeed, how the contracts between OAGCs and SMEs affect SME sustainability is under study. This area has not been researched and was the subject of this study. This research concentrated on investigating how the contractual arrangement of SMEs in the OAGI enhances sustainability through Environmental, Social, and Economic Impacts. The following research objectives guided the research.

8.2.1 Identify the contractual arrangements of the OAGI SMEs in South Africa.

This was addressed by performing exploratory research on the way contracts are established and run between SMEs and OAGCs. After a review of results, it emerged that contractual arrangements between SMEs and OAGCs can be grouped into seven main aggregate groups: compliance, operational risks, skills, institutional void, financial issues, green technology, and trust. The main conclusion from this research objective is that most

SMEs understand contractual arrangements and how contracts are formed and managed. This is imperative in ensuring SMEs compliance with OAGC's requirements for contractors.

8.2.2 Assess the types of sustainability approaches implemented in South Africa in the OAGI.

Online interviews revealed that all participants not only understand what sustainability is but are also aware of economic, social and environmental issues conccerning the OAGI. In addition, they are aware that, as contractors (SMEs), it is their responsibility to meet all mandatory environmental, economic, and social compliance practices laid out by the government and industry jointly with OAGCs and/or on their own. They also believe that they are an extension of the OAGCs and are custodians of HSSE, quality, and efficient operations in this value chain.

The SMEs' CEOs and Owners are positive about the future of their companies and the industry as a whole from an environmental, economic, and social standpoint, and as such, they support and sometimes initiate all strategies for their companies to become sustainable. Most SMEs in the OAGI implement the expected economic, environmental, and social sustainability approaches (Chowdhury and Shumon, 2020; Gigliotti et al., 2022), in addition to four new approaches put together by the author as a contribution to the literature. These are partnership, compliance, adoption, and technology/innovation sustainability approaches.

8.2.3 Examine the economic, social, and environmental impact of sustainability in the South African OAGI.

Understanding the impacts of sustainability approaches was the next research question. From our research on the impacts of sustainability approaches on SMEs involved in this industry, twenty themes were identified. The impacts were grouped into expected environmental, social, and economic impacts, in addition to two new groups named Compliance and Innovation. This study reported positive impacts such as increases in employment, increased wage rates, reduced pollution, and increases in recycling and re-use efforts (Sheydai et al., 2021).

8.2.4 The links between contractual arrangements of the OAGI SMEs and SME sustainability in South Africa

Our findings showed that there are links between contractual arrangements and SME sustainability. Positive SME sustainability was experienced when the degree of technology and trust between SMEs and OAGCs was high. In contrast, negative SME sustainability was linked to high incidents of compliance problems such as ensuring that there is no conflict between clients and SMEs or that in the event that conflict does arise, timely and effective resolution is effected, and many financial problems such as poor funding, poor access to finance, and cash flow problems. Operational risk examples were typified by delays in work completion and alterations in the scope of work. These operational risks were associated with negative SME sustainability. (Kalokoh and Kochtcheeva, 2022). Furthermore, poor skills and high incidences of institutional voids and corruption resulted in reduced SME sustainability.

8.3 RESEARCH CONTRIBUTIONS

8.3.1 Contribution 1: The contractual arrangements between OAGCs and SMEs

Figure 7.1, Section 7.4, is the conceptual framework, and it shows that the contractual arrangements between SMEs and OAGCs can be adequately described in seven clear sub-groups, namely compliance, operational risks, financial issues, skills, institutional void, green technology, and trust (Discussion Section 7.1). In addition, this study provides detailed information on participant responses to contractual arrangements, as fully discussed in Chapter 7. The contractual arrangements between OAGCs and SMEs are grouped into government and industry compliance, financial issues, skills, operational risk, institutional voids, trust, and green technology (Jang et al., 2022; Zumbraegel, 2022; Ablo & Otchere-Darko, 2022), as explained in Chapters 6 and 7. It is crucial to appreciate the role of the government in this industry. It provides support for SMEs and a monitoring role for OAGs (Haywood, 2021). In addition, there are no SME concessions in terms of statutory requirements, and supply chain success depends on good and trusting relationships between OAGCs and SMEs (Huntjens and Kemp, 2022; Nayal et al., 2022). In addition, the OAGI has many prerequisites for compliance, and SMEs need to be qualified, have requisite skills, be experienced, and meet all HSSE requirements (Acha et al., 2019).

This research is close to and extends the work of Dirani and Ponomarenko (2021), who investigated the contractual systems in the OAG sector. Dirani and Ponomarenko (2021) concentrated on production-sharing contract (PSC) systems and discussed the most common types of contractual agreements between governments and OAGCs. In contrast, this study relied on the impressions and narratives provided during semi-structured interviews with OAGI specialists (CEOs and senior Managers). The author is not aware of any similar studies conducted before and considers this research as the first in-depth analyses of real expert replies to the OAGI, which include a variety of viewpoints from SMEs, multinational OAGCs, and parastatal (government-owned) OAGCs. Therefore, this study has extended contractual arrangements by studying how contracts are formed and managed between OAGCs and SMEs rather than between the government and OAGCs (Dirani and Ponomarenko, 2021).

8.3.2 Contribution 2: SME Sustainability Approaches

New categories of sustainability approaches (as discussed extensively in Discussion Chapter 7, Section 7.2) have been introduced to the literature as a result of this research. These are classified as Adoption, Partnership, Compliance, and Innovative approaches and are clearly marked in purple on the Conceptual Framework (Figure 7.1, Section 7.4), in addition to environmental, social, and economic sustainability approaches.This study supports and develops existing knowledge on industry sustainability approaches mainly initiated by OAGCs (and rarely by SMEs) in the form of environmental, social, and economic categories. Furthermore, this study provides more information on the conclusion by Sheydai et al. (2021) and Vitrenko et al. (2020) that SMEs contribute significantly to the economy of their nation and are innovative and entrepreneurial while providing jobs and competition. Our study shows that SMEs now contribute to the sustainability of the OAGI as active players, as attested by responses from participants who were made up of SMEs, multinational OAGCs, as well as government-run OAGCs (see Methodology section 3.7).

8.3.3 Contribution 3: SME Sustainability Impacts

The study contributed two additional impacts grouped as compliance and innovation, which support environmental, social, and economic impacts. These findings are the writer's contribution and are marked in purple on the Conceptual framework in Figure 7.1, Section 7.4.

Findings by Vitrenko et al. (2020) and Sheydai et al. (2021), which discovered that while individual SMEs contribute to considerable environmental, social, and economic consequences, this impact is significant when considered collectively, is also a component of this study. Literature: This idea is further developed in Chapter 2, Section 2 (literature review), and Chapter 7, Section 7. 4. The adoption of sustainability by SME has had an impact on the environment, society, economy, compliance, and innovation.

8.3.4 Contribution 4: The links between contractual arrangements of SMEs and the OAGCs and SME Sustainability

Contractual arrangements between OAGCs and SMEs positively and negatively enhance SME sustainability. Our contribution to knowledge is that positive SME sustainability is experienced when the degree of technology and trust between SMEs and OAGCs is high. In contrast, high incidents of compliance (Christopher and Mjema, 2021; Nwajei, 2021) and financial problems (Okeke et al., 2022; Szymborska and Toporowski, 2022; Do et al., 2022) , operational risk (Rawat et al., 2022) Gurtu and Johny (2021), institutional void (Andersson et al., 2022), skills shortage (Amarkhil et al., 2021; Klymak, 2022; Zipperer, 2022). Okereke et al. (2022) result in negative SME sustainability.

This therefore provides a solution to our main study topic, which we arrived at after meeting our research objectives. We have established that the contractual arrangements between OAGCs and SMEs can be grouped into compliance, operational risk, skills, institutional void, finance, green technology, and trust in our literature review (Figures 6.1 and 6.2) and Section 7.3 on research discussion and contribution in Section 8.3.1. We have also separately established the different sustainability approaches implemented by SMEs in the literature review section 4.4, discussion chapter 7.4 and contribution 2 above (section 8.3.2), and the impacts in the literature section 4.5 and section 8.4.3 above. Now we wish to combine these findings in order to study the links between contractual arrangements and SME sustainability. We also carried out interviews and asked our participants to give us their opinions on the links between different examples of contractual arrangements and SME sustainability. The results in the Conceptual framework (Figure 7.1, Section 7.4) show clearly that the links are either positive or negative.

8.4 IMPLICATIONS OF THIS RESEARCH

8.4.1 Practical Implications

Sustainability measures taken by OAGCs in this industry are widely documented, but there is less knowledge about SMEs' sustainability initiatives (Rentizelas & Tuni, 2018; Shad et al., 2019). This study offers practical implications to assist SMEs in becoming more sustainable so that they will not fail within five years of inception but thrive. One practical implication of this research is that local SMEs can be incorporated into the supply chains of OAG multinationals.

This is a very positive development since it increases the chances of SMEs participating in more projects and contracts with the entire OAGSC once the economic and social effects of the international sourcing strategy are taken into account in the procurement procedures. A local Social Risk and Opportunity procurement plan can be introduced, and local SMEs will have preferences given to them similar to the concept of local content (LC). SMEs will thrive as they will now have many assured contracts. The OAG supply chain will benefit from cheaper locally-based contractors.

From an environmental perspective, SMEs now know how to reduce pollution, improve waste disposal, and avoid spills (Eweje and Bathurst, 2019). This contributes to ensuring that South Africa meets its poverty and employment strategy by 2030 in addition to the UN SDGs. The study offers more realistic effects when SMEs attain sustainability because it means that the communities in which they live can also attain social sustainability, such as getting safe and adequate housing while getting rid of slums by 2030.In addition, the attainment of environmental sustainability by SMEs in the OAGSC can result in fewer adverse results of climatic change, such as ozone depletion, which result in an improvement in health. This can play a part in realizing UNSDG Goal 13 on combating climate change and its impacts. Attainment of economic sustainability by SMEs ensures that communities have more disposable income. Basic commodities such as food and electricity become affordable, and economic and social barriers can be reduced, thereby reducing social classes in society and increasing the availability of disposable income. This enables the realization of Goal 10: Reduced Inequality (SMEs creating jobs and making an impact in communities); it can also contribute to Goals 11 and 13: Decent Work and Economic Growth (UN, 2015).

Government officials, mainly the Department of Energy, now appreciate how LC implementation by OAGCs is not being monitored. This encourages policymakers to monitor the OAGI's compliance better. Better monitoring by the government can result in OAGCs making more efforts to award contracts to local SMEs, thus encouraging them to grow and improving their chances of survival.

Other practical implications are that, in order to succeed in this industry, SMEs should know their responsibility to uphold all mandatory environmental, social and economic compliance practices prescribed by the government and the OAGSC jointly with OAGCs. In addition, corruption is not tolerated in the OAGI, and SMEs avoid this practice for sustainability. Further implications of this study are that the industry is highly specialized and local skills are poor, and because of this, SMEs need to invest in training their employees in order to be considered for work by OAGCs, failing which foreign contractors may secure local contracts.

The research highlighted that poor funding, poor access to finance, and cash flow problems result in SMEs closing down. Through the use of these research findings, SMEs could now negotiate better payment terms with OAGCs, including payment on time, by introducing incentives such as early payment discounts. The study has exposed how difficult it is for SMEs to finance OAGC operations, and OAGCs may be more amenable to prepayment before the contract is concluded. In addition, when the government reads this thesis, they can implore banks to give preferential terms for funding SME operations to avoid the closure of SMEs and the consequent negative impact on poverty. Other implications are that SMEs and OAGCs will realize that they need each other for sustainability. They can reduce conflict by working together, reducing delays in completion, and ensuring that they understand the scope of work fully while ensuring that their quotations enable a decent margin before signing any contracts. Green operations are encouraged, as this highly technological industry changes fast, forcing SMEs to follow such developments and ensure that their operations match the level of technology. Indeed, trust between both parties is a prerequisite for the sustainability of the OAGI.

The practical implications are that most SMEs know that there are sustainability approaches other SMEs have implemented, and they seek ways and means to follow suit in order to be sustainable. They form partnerships with OAGCs, comply with requirements,

become innovative, adopt procedures taken by OAGCs, and ensure all environmental procedures are upheld while assisting their communities' social requirements at a profit. They reduce poverty and unemployment. SMEs can contribute to sustainability by being involved in reducing gas emissions from greenhouses, reducing waste, looking after society, and implementing better labor practices, thus retaining more skilled employees, resulting in higher productivity and increased market share. SMEs who implement sustainability will become preferred contractors and form partnerships with clients since, increasingly, OAGCs and governments now demand that SMEs who wish to secure contracts with them be sustainable (Battistella et al., 2018).

SMEs that are involved in sustainable operations such as waste management lead to significant cost savings for OAGCs, directly enhancing profitability. Sustainable SMEs are known to comply with regulatory legislation, avoid fines, and improve their reputation in the OAGI. This results in better client loyalty and the survival of SMEs. SMEs become creative, and this can lead to a reduction of their carbon footprint and new and innovative solutions to client requirements. SMEs that implement sustainable approaches can easily form strategic alliances and collaborations with other developed contractors and clients, resulting in the growth of the SME and its long-term survival.

8.4.2 Theoretical Contribution

Larger firms have established policies for promoting activities that are environmentally and economically sustainable. However, attention can be paid to SMEs if they adopt sustainable positions.

In addition, this research extends the work of Dirani and Ponomarenko (2021), which studied contractual arrangements between OAGCs and governments, and further contributes to the knowledge of contractual agreements between OAGCs and SMEs. In effect, the current study demonstrates that compliance, operational risks, financial issues, skills, institutional void, green technology, and trust (Jang et al., 2022; Zumbraegel, 2022; Ablo & Otchere-Darko, 2022), as explained in Chapters 6 and 7, are contractual arrangement issues that influence how contracts are managed.

Furthermore, when the level of technology and confidence between SMEs and OAGCs is strong, favorable SME sustainability is experienced. High instances of compliance, financial

problems, operational risk, institutional void, and a lack of skills, on the other hand, result in negative SME sustainability.

In addition, SMEs in the OAGI implement the seven sustainability approaches. These include the expected environment and social and economic sustainability (Rentizelas and Tuni, 2018; Shad et al., 2019). The four new approaches are partnership sustainability, compliance sustainability, adoption sustainability, and technology and innovation sustainability.

Explanations of the theoretical contributions are given below:
The research managed to look at typical contracts between OAGCs and SMEs in the downstream OAGI and identify three new bodies of knowledge:

- For SMEs to participate effectively in this supply chain, they need to look at seven factors that affect their survival. These are compliance, operational risks, financial issues, skills, the institutional void, green technology, and trust, which have been grouped into contractual arrangement factors.
- The research has further contributed to the knowledge that these contractual arrangements are linked to SME sustainability.
- Positive SME sustainability is experienced when the degree of green technology and trust between SMEs and OAGCs is high.
- Negative sustainability is brought about by high incidents of compliance, financial problems, operational risk, an institutional void, and a lack of skills.

The research also confirmed the following:

- SMEs implement economic sustainability from a survival and greening perspective.
- SMEs are involved in implementing sustainability approaches that range from the known Economic, Social, and Environmental aspects.
- In addition, new categories were established by the researcher and are classified as Adoption, Partnership, compliance, and Innovative approaches.

8.4.3 How the findings from the study will support practitioners in preventing SME failures in the future

SMEs should comply with both government and OAGI regulations. Government compliance relates to tax obligations, company registrations, returns, and employment legislation. OAGI regulations involve mainly HSSE regulations, contract formation, and operations protocols between OAGCs and SMEs. Since the compliance process is expensive and time-consuming, SMEs need to plan for this contingency, understand what each client requires, and read the contract before signing. In addition, the SMEs need to ensure that insurance and Force Majeure clauses are included in the contract and understand the expected scope of work as well as the duration of the contract and penalties. SMEs should be aware that OAGCs prefer mutual agreement to resolving issues rather than litigation, as they avoid arbitration.

SMEs should be aware that they face funding and access to finance difficulties. There is an added burden for SMEs when financing clients. This is a common occurrence, as most clients are reluctant to pay an initial upfront deposit, regardless of the contract value. SMEs should make efforts to get funding, approach government and bank facilities that offer SME financial assistance, and develop early payment incentives for clients to improve cash flow. SMEs can improve their financial management strategies to become more sustainable.

SMEs need to be aware that they generally lack the requisite skills in this industry and should invest in training and build joint ventures and strategic alliances to assist in information transfer, expertise, and increased competitiveness and market share from larger and more established companies and contractors. SMEs also need to ensure that working conditions and remuneration are comparable with the industry to avoid high staff turnover.

SMEs should understand that institutional voids with a lack of government monitoring of enacted laws such as LC and BEE, as well as rampant corruption in South Africa, do not assist SMEs in getting contracts from OAGCs. SMEs need to develop trusting relationships with the OAGCs in order to be economically sustainable in this industry. In addition, greening and improvement in technology are requirements for the industry. Technology is generally associated with faster and safer operations and can give the contractor a competitive edge in the industry.

8.5 RESEARCH LIMITATIONS

Although the study provides deep insights into the interviews, addresses all research objectives, and makes many contributions to existing literature, the writer acknowledges some limitations. The sample used for the study included SMEs, multinational OAGCs, and government-owned OAGCs. Nevertheless, the qualitative research was conducted in South Africa, and the results obtained might not have represented all other geographical areas outside South Africa. In addition, the sample consisted mainly of male participants, and gender might have influenced the outcome.

In addition, the study was done completely online because of COVID-19 restrictions on travel and mixing with other people. It was not always possible to verify the authenticity of the outcomes, as it was not possible to go to the actual organizations for verification. Furthermore, consideration of the perceptions of other stakeholders, such as the government and OAG associations, would give more insight into the sustainability of SMEs and contractual arrangements. In addition, the present study used qualitative methodology. While a qualitative approach was necessary to understand more about the field of research, the proposed relationships between contractual arrangements and SME sustainability could not be verified empirically. A quantitative methodology would have verified the links and given more credibility to the proposed Research Framework.

8.6 FUTURE RESEARCH

Future research could be modeled around the limitations found in the study described in Section 6.2 above. Future research would center on the effect of COVID-19 on SME sustainability. This study would either confirm or repudiate many claims about SME sustainability. In addition, future research could be directed at how contractual arrangements enhance SME sustainability in other industries besides the OAGI, as well as studying how other factors affect SME sustainability such as competition, education level, or the age of the owner. In addition, it would be helpful to understand the challenges SMEs confront in their quest for sustainability.

There is a need to substantiate the findings on the links between SME sustainability and contractual arrangements. The current study used single-response qualitative analysis, but

it would be better to include quantitative analysis as a more confirmatory and complementary tool to confirm the qualitative findings obtained in this study. Hence, an approach that involves mixed methods should yield better and more substantiated outcomes.

To verify these findings as more authentic and universally true, it is recommended to carry out similar studies in diverse geographical locations. Finally, a vast number of participants sampled from different backgrounds, including mixed positions in the organization (from senior to junior personnel) and different stakeholders in the OAGI value chain, would give more balanced results.

8.7 SUMMARY

The chapter concludes the research by identifying four different categories of contributions made by this study and noting that all research questions have been effectively addressed. Additionally, limitations and ideas for additional research were offered.

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APPENDICES

Appendix 1: Consent Form

PROJECT TITLE: How Do Oil and Gas Industry SMEs Contractual Arrangements Enhance Economic Sustainability - Economic, Social and Environmental Impacts

Please read and confirm your consent to being interviewed online for this project by initialing the appropriate box (es) and signing and dating this form

1. I confirm that the purpose of the project has been explained to me, that I have been given information about it in writing, and that I have had the opportunity to ask questions about the research ☐
2. I understand that my participation is voluntary, and that I am free to withdraw at any time without giving any reason and without any implications for my legal rights ☐
3. I have given permission for the interview to be recorded by research staff, on the understanding that the recording will be destroyed at the end of the project ☐
4. I agree to take part in this project ☐

Name of respondent : _____

Date : _____

Signature : _____

Name of Researcher taking consent: Melody Nyahoda

E-mail : melody.nyahoda2018@my.ntu.ac.uk

Date : _____

Signature : _____

Lead Supervisor : Professor Usha Ramanathan

PROJECT ADDRESS:

C/o Professor Chris Bellamy, Graduate School for Social & Policy Research, Nottingham Trent University.

Direct telephone line: 0115 848 5551: Email: Chris.Bellamy@ntu.ac.uk

Appendix 2: Research Participant Information Sheet

My name is Melody Nyahoda, and I am conducting this interview as part of a research into Sustainability of SMEs in the Oil and Gas Industry. I would like to understand how contracts between you and your host oil and gas companies are arrived at. I specifically wish to understand how you became a supplier (contractor) in this industry, who puts contracts together, do you negotiate terms , when and who signs them , what is included in the contract and what happens if you do not produce the right quality and quantity of service/product. The interview will also involve understanding how you manage delays and any risks you take. Your participation will provide much needed knowledge into SME sustainability from an economic, social and environmental perspectives. Information collected in this interview will be used only for this research and no personal identification information will be used during or after the interview. The consent form will be stored separately from your data and in order to protect your right to withdraw your data following your immediate involvement, you are asked to provide a code name. This code name will be used to identify your data so that it can be removed from the final analysis if you wish. This project has been reviewed and approved in accordance with Nottingham Trent University's ethics review procedure. Please feel free to contribute on this important aspect of Sustainability measures adopted by your company. You can withdraw from this interview at any time. You can withdraw your data at least up to four weeks after the date of the interview. I will require your voluntary consent to participate in this interview. Are you happy to be interviewed today? Please tick. ☐

Signed: ----------Date: _____

Gender: ----------Occupation: ----------

Contact Details:
Interviewer / Researcher: **Melody Nyahoda: melody.nyahoda2018@my.ntu.ac.uk**
Doctoral School
College of Business, Law and Social Sciences
Nottingham Trent University
50 Shakespeare Street
Nottingham, NG1 4FQ

Appendix 3: Participant List

Company unique ID	Size No. of employees	SME/ Y/N	Functional Area	Firm Age in years	Position of Person interviewed	Years Participant in OAGI
R01	15	Yes	Engineering services	18	Director/owner	30
R02	15	Yes	Engineering services	8	Procurement	10
R03	10	Yes	Engineering services	4	CEO/Owner	25
R04	40	Yes	Engineering services	7	MD	15
R05	15	Yes	Engineering services	15	Director/Owner	25
R06	22	Yes	Engineering services	9	Director	12
R07	30	Yes	Engineering services	12	CEO/owner	13
R08	15	Yes	Engineering services	4	CEO/owner	16
R09	8	Yes	Engineering services	6	Director	7
R10	9	Yes	Engineering Services	15	Director	15
R11	12	Yes	Logistics	7	Director-Owner	25
R12	28	Yes	Retail site	25	CEO	30
R13	70	No	OAGC	10	Operations Manager	16
R14	250	No	OAGC	19	Operations Manger	30
R15	250	No	OAGC	20	HSSE Manager	30
R16	250	No	OAGC	26	Procurement	26
R17	100	No	OAGC	4	Operations manager	25
R18	85	No	OAGC	6	Operations	6
R19	25	No	Strategic storage	9	Terminal Manager	20
R20	91	No	Strategic storage	7	Operations Manager	25
R21	250	No	OAGC	26	Procurement	26

Appendix 4: Semi Structured Interviews for SMEs

Project Title: Investigating the Impact of Oil and Gas Contractual Arrangements on SME Economic, Social and Environmental Sustainability

I would like to start by introducing myself, my name is Melody Nyahoda, and I am a Doctoral researcher at Nottingham Trent University. Thank you for agreeing to take part in this interview. May I reassure you that the interview is purely for academic purposes hence all responses will remain confidential. I am only recording the interview for accuracy. If you have any other concerns or questions, please let me know. The interview will last approximately 60 minutes.

Company Information

a) Name of Company:

b) Date of Incorporation:

c) Which part of the Oil and Gas sector is the company active in?

☐ Engineering Services ☐ Logistics and transportation
☐ Consultancy ☐ Retail
☐ Other

d) What is the size of your company based on the number of employees?

☐ 0-10 ☐ 11-50 ☐ 51-250 ☐ Above 250

e) Respondent Position in the company: _____

f) How many years have you worked for this company?

☐ Below 1 year 1 -2 years 3-5 years ☐ above 5 years

g) How many years have you worked in the Oil and Gas Industry?

☐ Below 1 year ☐ 1 -2 years 3-5 years ☐ Above 5 years

Main Theme	Semi-Structured Interview Questions
Part 1: **Understanding the Contractual Arrangements of SMEs in the Oil and Gas Industry**	a. What is your understanding of contractual arrangement in this industry? b. Can you explain how contracts are formed between you and your Oil and Gas clients? **Follow-up question**: Information on contract negotiation, the process of supplier selection and accreditation, nepotism and bribery. c. In your experience, what can go wrong once a contract is signed?

	Follow-up question: Information on Force Majeure, insurance, payment terms, quality, deliverables and delivery time. d. How does your scope of work operate? **Follow-up question** Information on contract flexibility and client's change of scope of work? Please explain when and how this affects your work. e. Please explain if your contracts contain timelines and deadlines? **Follow-up question**, Information on project delays, resolution and any financial implications. f. Describe your management and staff qualifications, experience and skills and their ability to perform their work. **Follow-up question**: Please tell us information on training, supervisory skills, and any need for forming strategic alliances with foreign contractors. g. Tell us about the working conditions and remuneration scheme of your staff. Relate these to your industry. h. What are the financial issues that affect your operations? **Follow-up question**: Information on access to finance, creditworthiness, cash flow, and payment related issues. i. What is the role of your government in ensuring that local SMEs get contracts over foreign contractors in this industry? **Follow-up question:** Information on Broad-Based Economic Empowerment (BBEE), Joint ventures/Strategic alliances with foreign contractors and information transfer. j. What is the importance of Technology in your business? **Follow-up question:** Information on the use of Research and Development, (R and D), innovation, Renewable Energy, green technology and use of diversified sources of energy. k. What are client compliance issues that affect SMEs in this industry? **Follow-up question:** Information on contractor accreditation and selection process, Health, Safety, Security and Environment (HSSE) issues, bribery. l. How is government supportive of SMEs in South Africa?

	Follow-up question: Tax/VAT and other government regulatory compliance issues, Corruption, and government-monitoring role**.** m. What is the importance of Trust between OAGC and your business? **Follow-up question:** Information on the use of Research and Development, (R and D), innovation, Renewable Energy, green technology and use of diversified sources of energy. n. Please comment on how your business operations are affected by corruption. **Follow-up question:** Information on the use of bribes, kickbacks etc in South Africa.
Part 2: **Types of sustainability strategies implemented in the Oil and Gas SME.**	a) What is your understanding of sustainability? **Follow-up question:** Information on environmental, social and economic sustainability. b) Tell me more about the environmental sustainability strategies your company has invested in. **Follow-up question:** Information on waste management, pollution, water c) Would you consider the measures as successful and why? **Follow-up question:** Please comment on actual reduction in waste, pollution or water usage since these sustainability strategies were introduced. d) What are the social sustainability strategies your company has invested in? **Follow-up question:** Information on skills training, working conditions, strikes e) Would you consider the measures as successful and why? **Follow-up question:** Please comment on actual increase in training and improvement in skills, actual proof of improvement in working conditions and reduction in strikes since these sustainability strategies were introduced. f) We wish to find out more about the economic sustainability strategies your company has invested in. **Follow-up question:** Information on access to finance, corruption, increased demand, operational costs, cash flow management

	g) Would you consider the measures as successful? If so, why? **Follow-up question:** Please comment on actual improvement in access to finance, reduction in corruption, increased demand for services, reduction in operational costs and better cash flow management since these sustainability strategies were introduced.
Part 3 **What is the social, economic and environmental impact of sustainability the Oil and Gas industry in South Africa**	a.) What is your opinion on the impact of sustainability in the Oil and Gas Industry from an **Environmental** perspective? **Follow-up question:** Please comment on impacts of air, oil and water pollution such as climate change, respiratory, cardiovascular diseases and asthmas.; fracking effects on water contamination leading to cancer, birth defects, liver damages. b) What do you consider as the **social** impact of sustainability in the Oil and Gas Industry? **Follow-up question**: Information on changes in employment patterns, use of local services and collaborating with local entities, developing enabling infrastructure improving local skills, effect on physical and mental stress, human rights, health and social equity, working conditions social responsibility. c) From your experience, tell us the impact of sustainability in the Oil and Gas Industry from an **Economic** perspective. **Follow-up question:** Please comment on economic growth, inflation, transportation and heating costs, value added wealth, changes in personal and public income and expenditure, changes in welfare, crime and leisure time.
Part 4 **How do contractual arrangements affect SME Sustainability**	a) From your experience, please tell us about the effect of risk in contracts between SMEs and Gas and Oil companies, and SME sustainability? **Follow-up question**: Do Force Majeure/ change of scope /and project delay results in achieving or not achieving sustainability in SMEs? Explain. b) What is your opinion on conflict resolution between SMEs and Oi and Gas companies? **Follow-up question** How does conflict affect SME sustainability?

	c) What is your opinion on the effect of contractor selection criteria and process and subsequent sustainability of SMEs in this industry? **Follow-up question:** What happens to SME sustainability when the degree of difficulty of the selection process is high or low? Is greening a big issue in SME sustainability in this industry? Would Oil and Gas companies favour contractors who implement greening aspects and more environmentally favourable practices over those who do not when choosing contractors? d) Tell me more about the impact of skills on SME sustainability**.** **Follow-up question.** Information on the effect of skilled labour, know-how training facilities, supervision and leadership on SME Sustainability**.** e) Tell us what you think is the effect of Funding and Pricing on SME Sustainability.? **Follow-up question.** What happens to SME Sustainability when SMEs face lack of funding, delays in payment leading to inability to finance projects, poor credit rating, working capital issues and insurance issues? f) How does the local content (BBEE) of contractual arrangement affect Sustainability of SMEs in this industry? **Follow-up question**: Information on how BBEE, joint ventures and strategic alliances with foreign contractors and skills transfer affect SME Sustainability. g) Please share your opinion on the effect of Technology on SME Sustainability. **Follow-up question:** How do increases in Technology, new equipment purchase, Research and Development, Innovation, greening effect, reduction of water usage and waste management affect SME Sustainability. h) What is the effect of government monitoring and support of SMEs in their (SME) sustainability? **Follow-up question:** Does increase in government support of SMEs increase or decrease SME sustainability**?** i) How does trust affect SME sustainability?

	Follow-up question: Is there a difference in SME sustainability when there is a great deal of trust between SMEs and Oil and Gas companies or very little trust. j) Tell us what you think is the effect of Corruption on SME Sustainability.? **Follow-up question:** Does corruption affect SME sustainability in any way? Please explain.

Appendix 5: Semi-Structured Interviews for OAGCS

Project Title: Investigating the Impact of Oil and Gas Contractual Arrangements on SME Economic, Social and Environmental Sustainability

I would like to start by introducing myself, my name is Melody Nyahoda and I am a Doctoral researcher at Nottingham Trent University. Thank you for agreeing to take part in this interview. May I reassure you that the interview is purely for academic purposes hence all responses will remain confidential. I am only recording the interview for accuracy. If you have any other concerns or questions, please let me know. The interview will last approximately 60 minutes.

Company Information

h) Name of Company:

i) Date of Incorporation:

j) Which part of the Oil and Gas sector is the company active in?

☐ Engineering Services ☐ Logistics and transportation

☐ Consultancy ☐ Retail ☐ ☐ Other

k) What is the size of your company based on the number of employees?

☐ 0-10 ☐ 11-50 ☐ 51-250 Above ☐ 250

l) Respondent Position in the company: _____

m) How many years have you worked for this company?

Below 1 year ☐ 1 -2 years ☐ 3-5 years ☐ above 5 years

n) How many years have you worked in the Oil and Gas Industry?

☐ Below 1 year 1 -2 years ☐ 3-5 years ☐ Above 5 years

Main Theme	Semi-Structured Interview Questions
Part 1 : **Understanding the Contractual**	a. What is your understanding of contractual arrangement in this industry? b. Can you explain how contracts are formed between SMEs and Oil and Gas clients?

Arrangements of SMEs in the Oil and Gas Industry	**Follow-up question**: Information on contract negotiation, the process of supplier selection and accreditation, nepotism and bribery. c. In your experience, what can go wrong once a contract is signed? **Follow-up question**: Information on Force Majeure, insurance, payment terms, quality, deliverables and delivery time. d. How does your scope of work operate? **Follow-up question** Information on contract flexibility and how you change scope of work? Please explain when and how this affects SME work. e. Please explain if your contracts contain timelines and deadlines? **Follow-up question**, Information on project delays, resolution and any financial implications. f. Describe your CONTRACTORS management and staff qualifications, experience and skills and their ability to perform their work. **Follow-up question**: Please tell us information on training, supervisory skills, and any need for your contractors to form strategic alliances with foreign contractors. g. Tell us about the working conditions and remuneration scheme of your staff compared to contractors. Relate these to your industry. h. What are the financial issues that affect your contractors operations? **Follow-up question**: Information on access to finance, creditworthiness, cash flow, and payment related issues. i. What is the role of your government in ensuring that local SMEs get contracts over foreign contractors in this industry? **Follow-up question:** Information on Broad-Based Economic Empowerment (BBEE), Joint ventures/Strategic alliances with foreign contractors and information transfer.

	j. What is the importance of Technology in your business? Do our contractors (SMEs) employ technology in their work and how? **Follow-up question:** Information on the use of Research and Development, (R and D), innovation, Renewable Energy, green technology and use of diversified sources of energy. k. What are your compliance issues that affect SMEs in this industry? **Follow-up question:** Information on contractor accreditation and selection process, Health, Safety, Security and Environment (HSSE) issues, bribery. l. How is government supportive of SMEs in South Africa? **Follow-up question:** Tax/VAT and other government regulatory compliance issues, Corruption, and government-monitoring role**.** m. What is the importance of Trust between OAGC and SMEs? n. Please comment on how your business operations are affected by corruption. **Follow-up question:** Information on the use of bribes, kick-backs, etc. in South Africa.
Part 2: **Types of sustainability strategies implemented in the Oil and Gas SME.**	h) What is your understanding of sustainability? i) Tell me more about the environmental sustainability strategies your contractors have invested in. e.g. waste management, pollution, water j) Would you consider the measures as successful and why? k) What are the social sustainability strategies your contractors have invested in? e.g. skills training, working conditions, strikes l) Would you consider the measures as successful and why? m) We wish to find out more about the economic sustainability strategies your contractors have invested in. e.g. access to finance, corruption, increased demand, operational costs, cash flow management **n)** Would you consider the measures as successful? If so, why?
Part 3: **What is the social, economic**	b.) What is your opinion on the impact of sustainability in the Oil and Gas Industry from an **Economic** perspective? c.) What do you consider as the **Socia**l impact of sustainability in the Oil and Gas Industry?

and environmental impact of sustainability the Oil and Gas industry in South Africa	d) From your experience, tell us the impact of sustainability in the Oil and Gas Industry from an **Economic** perspective.
Part 4: **How do contractual arrangements affect SME Sustainability**	k) From your experience, please tell us about the effect of risk in contracts between SMEs and Gas and Oil companies, and SME sustainability? **Follow-up question**: Do Force Majeure,/ change of scope /and Project delay results in achieving or not achieving sustainability in SMEs? Explain. l) What is your opinion on conflict resolution between SMEs and Oi and Gas companies? How does conflict affect SME sustainability? m) What is your opinion on the effect of contractor selection criteria and process and subsequent sustainability of SMEs in this industry? **Follow-up question:** What happens to SME sustainability when the degree of difficulty of the selection process is high or low? Is greening a big issue in SME sustainability in this industry? Would Oil and Gas companies favour contractors who implement greening aspects and more environmentally favourable practices over those who do not when choosing contractors? Tell me more about the impact of skills on SME sustainability**.** **Follow-up question.** Information on the effect of skilled labour, know-how training facilities, supervision and leadership on SME Sustainability**.** n) Tell us what you think is the effect of Funding and Pricing on SME Sustainability? **Follow-up question.** What happens to SME Sustainability when SMEs face lack of funding, delays in payment leading to inability to finance projects, poor credit rating, working capital issues and insurance issues? o) How does the local content (BBEE) of contractual arrangement affect Sustainability of SMEs in this industry?

	Follow-up question: Information on how BBEE, joint ventures, and strategic alliances with foreign contractors and skills transfer affect SME Sustainability. p) Please share your opinion on the effect of Technology on SME Sustainability. **Follow-up question:** How do increases in Technology, new equipment purchase, Research and Development, Innovation, greening effect, reduction of water usage and waste management affect SME Sustainability. q) What is the effect of government monitoring and support of SMEs in their (SME) sustainability? r) How does trust affect SME sustainability? s) Tell us what you think is the effect of Corruption on SME Sustainability?

Appendix 6: Copy of Contract between OAGC and SME (Contractor)

SERVICE SUPPLY CONTRACT

Between

XXXX

And

CONTRACTOR

, __ January 2020

SERVICE SUPPLY CONTRACT dated ___ **January** 2020 (the "**Contract**"), which expression includes all attached Annexures, which form an integrant part hereof.

BETWEEN:

(1) **XXXX**, a company stablished under the laws of Mozambique, with registered offices in at XXX, Maputo registered at the Commercial Registry Office of Maputo under number 1000XXXX, with the registered capital of MTN 20,000.00 (Twenty thousand Meticais), with the taxpayer number 400XXXX in this act represented by XXXX, hereinafter referred to as **XXXX**, **Owner or Employer**;

AND

(2) **CONTRACTOR,** a company incorporated in _____ with registered offices at _____ under number _____, with registered share capital of _____ and tax number _____**,** in this act represented by _____**,** in his capacity as _____ hereinafter referred to as **CONTRACTOR**

WHEREAS:

(A) **XXXX** intends to hire the company **CONTRACTOR** for the supply of a PYPE SPOOL QUALITY ASSURANCE AND RELATED SERVICES, as part of the Remediation Project at XXXX, X-Storage Terminal, as specified in the attachment to this contract as Annexure 1.

(B) **CONTRACTOR is** a company with sufficient experience to supply the above referred equipment as per the quote presented to **XXXX** and attached to this Contract as Annexure 1, (the "**Quote**").

Now, therefore, in consideration with the above premises, the Parties hereto enter into this

Service Contract to be executed under a lump sum regime, which shall be governed by the following Clauses:

1. AWARDING OF THE WORKS AND OBJECT OF THE CONTRACT

1.1. By this Contract, **XXXX** awards to **CONTRACTOR** , who accepts such awarding, the supply of a "AIA and 3rd Party Inspection Services" and any related work (the "**Works"**) in accordance with the quote attached as Annexure 1 (the "**Quote**");

1.2. The execution of the **Works** by **CONTRACTOR** shall include the realisation of all the works defined in the **Quote,**

1.3. Subject to the terms and conditions of this Contract, **CONTRACTOR** shall fulfil, perform and complete the **Works**, in a professional manner with due diligence, observing criteria of high quality and using materials of long durability, which do not endanger human health or cause damage to environment or are in any other way hazardous to humans or animals.

1.4. All **Works** must be performed by **CONTRACTOR** according to the **Quote** and within the timelines of ninety (90) days as stipulated on the proposal referred to as annexure 1.

2. CONTRACT PRICE

2.1. The Contract price as per the **Quote** is entered into under the regime of *Global and Non-Revisable Price* (lump sum) and is deemed to include the cost of the whole of the Works including all personnel, labour, plant, machinery, equipment, materials and tooling and all other things necessary for the performance of the Works and therefore not susceptible of review (the **Contract Price**).

2.2. Provided that the supply of the **Works** is provided in the time frame as agreed to by the parties this Contract is not subject to any price revision as a result of any alteration of the costs with the work force, materials, supporting equipment or due to any exchange variations, during the execution of **Works**.

2.3. The **Contract Price** indicated in the **Quote** shall be subject to VAT (IVA) at the legal applicable rate which shall be levied according to the VAT tax regime in force at the date the tax becomes due, in particular, according to the rules set out Law n. º 32/2007, of 31 December and all its regulations.

2.4. **CONTRACTOR** will be liable to all taxes and fees in respect of the **Works** and the performance of its obligations under the contract, including if applicable:

a) Sales tax, excise duty, import duties and similar taxes other than those specifically excluded;
b) Service levy and other levies and charges;
c) Stamp duty; and
d) Withholding tax and all other taxes or charges imposed by an Authority in connection with the Works or for which the **Contractor** is liable at law.

2.5. Should any change to the current Employers Customs and Fiscal Authority occur or if new customs legislation becomes applicable and result in an increase or decrease of the tax liability or the project costs then the variance shall be for the account of the Contractor.

3. SCOPE of WORK

3.1. The scope of work shall be in accordance with **CONTRACTOR** proposal, dated 29th December 2019 (included here as annexure one (1), which includes but is not necessarily limited to:

- Review and approve QCP.
- Review and approve drawings.
- Review and approve WPS and PQR.
- Review and approve welder's qualifications.
- Review and approve QC and NDT technician qualifications, (SAIW; CSWIP; SNT-TC 1A-LII approved certificates)
- Review and approve NDT procedures.
- Perform receiving inspection on all material purchase order /material certificates delivery note / material map detail sheath. Sign off QCP
- Verify position for installation of pipes isometric drawing. Sign off QCP
- Check elevation plumb / square isometric drawing.
- Mark and cut to dimension isometric drawing. Sign off QCP
- Prepare, tack and perform fit-up inspection PQR / WPS.
- Weld out to approved WPS / PQR / WPS sign off QCP.
- Perform visual inspection & perform RT on 10% of welds.
- Perform pressure test of piping to 19 bar, Sign off QCP; NDT report
- Verify position and check elevated plumb / squire isometric drawing sign off QCP.
- Mark and cut to dimension isometric drawing.
- Prepare, tack and perform fit-up inspection PQR / WPS.
- Weld out to approved WPS / PQR / WPS SIGN OFF QCP.
- Perform visual inspection on all completed pipe support.
- Final client acceptance of work scope of work final acceptance certificate
- Complete data book review and handover to client data book index approve data book.
- Findings and recommendations.

3.2. **CONTRACTOR will** make sure it will comply with the timeline defined by the parties for the works described in the Quote in a reasonable and proactive manner.

3.3. The **Works** will be done at the X-Storage site as per address indicated on the domicile for xxxxx, as well as at the Mechanical workshop in Silverton Pretoria.

3.4. The timeline defined after the signature of this contract are considered as best estimates. All time schedules, terms and delivery dates which will be indicated by **CONTRACTOR** must be compiled within the framework of the suppositions (assumptions) taken into consideration by **CONTRACTOR.**

3.5. The time to complete the works shall be in line with the contractor XXXX & XXXX (TEE) work schedule for the completion of pipe work at their XXX facility located in Pretoria, South Africa. Following which, the schedule shall include the necessary visits to the XXXX site in XXXX.

3.6. Any complaint regarding delivery, state, operation and conformity of goods and/or services is to be communicated to **CONTRACTOR** by email within five (5) working days after said the fact which generate the complaint is noted by **XXXX.**

3.7. **CONTRACTOR** acknowledges that it received all the necessary information which will allow the delivery of the works as per agreed scope.

4. PAYMENT

4.1. All payments will be processed via bank transfers to **CONTRACTOR** 's bank as follows:

- Beneficiary:
- Bank name:

- Bank address:
- Swift code:
    - Intermediary Bank:
    - Address:
    - Swift code:
    - Country:

4.2. All payments are to be affected within thirty (30) days after the presentation of valid invoice as approved by the works supervisor and payments will be processed in compliance with 4.4 below.

4.3. In effecting payment, the supplier is not allowed to unilaterally make any deductions or set-offs, without prior written approval by both parties, provided the deductions and set-offs are not related to any legal or tax compliance matters.

4.4. Payment terms

- Currency USD
- Payments will be affected after services are performed and invoices and the relevant approvals are received from the works supervisor as issued in compliance with 4.2 above

5. LICENSING

5.1. **CONTRACTOR shall** prepare all documentation necessary and which is of its responsibility in accordance with its duties and obligations arising from this contract for obtaining the proof of registration of its technicians with local authorities (“Título de Certificação”).

5.2. Except where otherwise agreed in writing, **CONTRACTOR** shall, at its cost, obtain all licences, permits, consents and approvals of Government or Local or other Authorities necessary for the performance of the Works, including labour law requirements and **Customer´s** health and safety policy and procedures and shall be fully responsible for the compliance of the Works with all such licences, permits, consents and approvals. Employer shall inform **CONTRACTOR** of any local or other requirements that **CONTRACTOR needs** to obtain.

6. LABOUR OBLIGATIONS

6.1. **CONTRACTOR** undertakes to fulfil and have fulfilled at all times by its personnel the legislation applicable to labour, foreign citizens and Social Security, in particular as concerns work permits, the compulsory Work Accidents and Professional Illnesses Insurance policies, being, as a consequence, solely and exclusively responsible, under a civil, criminal, labour and administrative scope, for the unfulfillment or defective fulfilment of the referred legislation, **XXXX** being considered free from any responsibility in that respect.

6.2. **CONTRACTOR** shall assume before **XXXX** the total and exclusive responsibility for the payment of all salaries, subsidies, fees, commissions and other remunerations and retribution instalments due to its personnel, as well as to its agents and representatives, furthermore assuming all obligations regarding the existing labour relations.

6.3. **CONTRACTOR** undertakes and assures that, as a consequence of the fulfilment of the Contract, no type of responsibility, either principal or subsidiary, shall arise from the referred labour relations for **XXXX**, the **CONTRACTOR** being the sole responsible for the payment of all indemnities and other instalments that must be paid to the personnel intervening in the **Works**.

6.4. **CONTRACTOR** must present to **XXXX**, when so requested, the documentation evidencing that the payment of salaries has been made to all its personnel, as well as the corresponding taxes and contributions to the Social Security Department.

7. INSURANCES

7.1. Besides the obligation to contract the insurance policies legally demandable, **CONTRACTOR** undertakes, on its own account, in respect of eventual damages caused to the works, equipment, materials and installations inherent to the execution of the Works, to contract and maintain valid with an insurance company of well-known reputation, an insurance policy with coverage of at least the value equivalent to the Contract Price, of all construction risks, among which, as a mere examples: fire, lightning and explosion; Acts of Force Majeure by nature, namely, winds, storms, floods, cyclones, tornados, rains, inundations, earthquakes and other natural cataclysms; Land collapse, landslides and land detachment; Theft or robbery; Defective works due to lack of skill, negligence or other human errors and malicious acts; Other accidents, such as those caused in transport (provided that the goods affected are not covered by an individual transport insurance policy), lifting or lowering of equipment and materials, crash, collision, breaking of cables and collapse; consequences of defects in the conception of the project, defects of the man-power and of materials; Strikes, riots and alterations to public order.

7.2. To the extent applicable**, CONTRACTOR** will also be obligated to contract and maintain valid with an insurance company of well-known repute an insurance policy with coverage of Civil Liability arising from damages and losses, particularly material and personal, caused to third parties, including the personnel and property of **XXXX** on the Site, during and as a consequence of the execution of the Works, to cover accidents originating from the same cause, without a limit of accidents during the validity period of the Contract with coverage to:

a) Damages and losses caused to all adjoining or neighboring property and constructions.

b) Temporary support insurance where **XXXX** considers that execution of the works could cause the weakening of interface with support of land adjacent to the site and the consequences thereof;

c) Geotechnics insurance where **XXXX** considers that the round conditions of the site could be unsuitable to support the works;

d) Such other specialized insurances as **XXXX** deems necessary as for the condition of execution of the works and supply of materials and equipment.

7.3 **CONTRACTOR** undertakes to contract and maintain valid with an insurance company of well-known repute an insurance policy with coverage of Work Accidents and Professional Illnesses in accordance with Legislation in force.

7.4 Any charges for the compulsory excesses in the insurance policies indicated above in numbers 39.1, to 39.7 shall be of the exclusive account of **CONTRACTOR,** being of its total responsibility.

7.5 The insurance policies referred to in the preceding numbers of this Clause must contemplate that those policies may only be cancelled by the Insurance Company after **XXXX** has been notified in writing of that cancellation with at least (30) thirty days prior notice.

7.6 The insurance policies referred to in the preceding numbers of this Clause must be contracted and effective on the date of Consignment of this contract.

7.7 **CONTRACTOR** shall deliver to **XXXX** on the date of Consignment, and as a condition thereof, the general and private conditions of the insurance policies referred to in the preceding numbers of this Clause and shall furthermore deliver until the date of Consignment (or on that date) a declaration validly issued by the Insurance Company, with a date not prior to eight (8) days, certifying that all insurance policies foreseen in this Clause are in full force and effect. Thereafter, **XXXX** will be entitled to demand from **CONTRACTOR** the exhibition of any receipt of payment of subsequent insurance premiums, as well as proof that such policies remain in force.

7.8 Without prejudice to the generality of the foregoing, it is expressly understood that the Civil Liability insurance policy to be taken by **CONTRACTOR** shall, inter alia, (i) include a warranty period as referred to in clause 9 below (ii) cover civil Liability during the warranty period in respect of losses or damages caused to third parties solely by **CONTRACTOR** within the course of the works executed by this latter with the purposes of complying with its obligations set forth in the maintenance clauses of this Contract; (iii) cover damages to existing structures including Public Liability and Material damages.

8. PENALTIES

8.0. If **CONTRACTOR** does not start the Works within the determined deadline nor has obtained the agreement of **XXXX** for its postponement, in a way that completion date cannot be accomplished, **XXXX** may elect to immediately rescind from the Contract, with the consequences foreseen in the Law for the expiry of contract due to the lack of attendance of the **Contractor** at the act of Consignment, or to apply a daily fine of one per thousand ($1/^{0}/_{00}$) of the Contract Price.

8.1. If **CONTRACTOR** does not comply with the deadline determined for the completion of the Works, it shall be subject to the daily fines set forth in the Special Conditions attached to the Tender Documents, corrected as follows:

a) One per thousand ($1/^{0}/_{00}$) of the Contract Price, for each day of delay;

In addition to the foregoing provisions, **XXXX** reserves the right to claim additional damages in the event the proven losses incurred exceed the value of the contractual penalties.

8.2. The penalties indicated in the previous numbers of this Clause do not prevent the payment of eventual indemnities for damages and losses which are a consequence of the referred delays in the fulfilment of the Contract, to XXXXX or any third entities with competences and jurisdiction to supervise the Works, as well as for eventual fines applied by those same entities.

8.3. If the **CONTRACTOR** does not comply with the global or partial deadlines determined for the completion of the Works, and notwithstanding the application of the above fines, **XXXX** may also terminate the Contract, with the consequences foreseen in- the Law for the expiry of contract.

9. GUARANTEES

9.1. The terms of guarantee are valid for fifteen (15) months from date of delivery of the services.

9.2. The guarantee of the services provided should be aligned with the description of the Works identified in the scope of work of the Quote (Annexure 1) and therefore **CONTRACTOR** shall assure that said works are properly done by its employers for the guarantee period.

9.3. **CONTRACTOR** shall not be obligated under warranty or otherwise, to repair or replace defects caused by operating abuse, neglect, erosion, corrosion, acts of God, or other similar causes or normal wear and tear.

10. EARLY TERMINATION OF THE CONTRACT

10.1 **CONTRACTOR** will have the right to terminate this Contract, insofar as remaining **Works** are concerned, in any of the following conditions:

a) When **XXXX** fails to fulfil, in due time, his liability to pay and this is not remedied without delay after reminder, provided that the failure is of substantial importance;

b) When it is verified that the works have to be suspended or are suspended for a period exceeding three (3) months, save if the suspension results from a reason imputable to the **Contractor** or from a decision of the authorities competent for respective licensing.

10.2 Apart from what is foreseen elsewhere in this Contract and in the law, **XXXX** will have the right to terminate this Contract, insofar as remaining Works are connected, also in any of the following conditions:

a) If a delay occurs in the execution of the contracted works which due to its extent or its repeated character, indicates that the deadlines established in this Contract and in the Time Schedule will not be fulfilled;

b) When **CONTRACTOR** repeatedly persists in the non-observance of the quality standards foreseen in the Contract and applicable legal rules or regulations, notwithstanding being notified to remedy the defects verified;

c) Breach of any of the partial deadlines for completion of the Works;

d) Abandon, suspension or paralysation of the Works by **CONTRACTOR,** without just case, for a period superior to eight (8) consecutive days or fifteen (15) non-consecutive days.

e) Non-compliance by **CONTRACTOR** with the Health and Safety Plan of the Project, designated as General Plan (GP);

10.3 In case of breach by **CONTRACTOR** of any of the provisions of this Contract or of the Contractual Documents not remedied within a delay of fifteen (15) days as from notice by **XXXX.**

10.4 The Contract may furthermore be the object of termination for a reason related with the liquidation, bankruptcy or any other form of extinction of the parties and may also be conventionally terminated by mutual agreement between the parties.

10. FORCE MAJEURE

Force Majeure for a supplier will be equated to Force Majeure for **CONTRACTOR**
Force Majeure relates to all abnormal and unforeseeable events which render the execution of a commitment impossible for one of the parties, insofar as these events

cannot be attributed to an error on the part of the latter. Failure in tele- communications facilities and government decisions, including sanctions, which severely impact the service provision are always considered to be Force Majeure.
Force Majeure also means failure by a third party to meet obligations with regard to one of the parties or failure to meet them in a timely fashion, unless it can be proven that this default can be attributed to the party in question.
Technical difficulties can be deemed Force Majeure when they hinder the proper execution of the agreed services to such an extent as to render proper execution unreasonable.
In such a case **CONTRACTOR** will be entitled to resort to reasonable intermediary solutions such as workarounds or problem-avoiding restrictions, and if such solutions would also prove impossible, the difficulty will be deemed Force Majeure.
In the event of Force Majeure, the **Customer** and **CONTRACTOR** are entitled to suspend their obligations wholly or in part for the duration of the Force Majeure, without the obligation to meet any damages.

11. LIABILITY

CONTRACTOR's liability results from a commitment concerning best efforts and is determined as follows:

11.1. **CONTRACTOR** will be held responsible to repair any damage the **Customer** can prove to be caused by the supplier (or his staff). however up to maximum, the lowest of the following amounts, i.e., either 105% of the amount due by the **Customer** for the delivery concerned or an amount to be fixed by the Customer, regardless of whether the claim was made on contractual or extra-contractual grounds.

11.2. In no event shall **CONTRACTOR** or Customer be liable for any, consequential, damages, or loss of profits, regardless of the nature of the claim.

12. ADHERENCE TO ANTI-BRIBERY LAWS

13.1. The Contracting Party warrants:

a) To the best of his knowledge and belief, neither the Contracting Party nor any of its employees, or any other person associated with it, is or has ever been subject to any economic or trade sanctions imposed by any country;

b) Its responses to the CUSTOMER and its affiliated entities due diligence questionnaire on anti-bribery and anti-corruption are complete and accurate.

c) Neither the Contracting Party, nor any of its employees, nor any other person associated with it has ever:

I directly or indirectly paid, given, offered or agreed (individually or in agreement with others) to pay, give, and offer any money, gift or anything else of value in order to:

- Influence or attempt to influence any act or decision (including the decision not to act) on anyone (including, but not limited to, an officer);
- Persuade any person (including, but not limited to, an officer) to use their influence to affect a decision of assisting the supplier in obtaining or retaining business, securing any grant, operate any business, or protect any advantage for the supplier or **XXXX** and its affiliated entities;

ii. Accepting or offering, directly or indirectly (individually or in agreement with others), any money, gift or anything else of value with the aim of performing his/her functions improperly;

iii. Have been considered guilty or charged with violating anti-bribery, anti-corruption or anti-money laundering laws, regulations and/or policies, including, but not limited to, provisions of the United Kingdom Bribery Act 2010, the US Foreign Corruption Practices Act", the South African Prevention of Organized Crime Act of 1998, the South African Financial Intelligence Centre Act of 2001 or the South African Anti-Corruption Act of 2004, and

iv. The Anti-Bribery Laws of the Republic of Mozambique, namely: Criminal Law (law 35/2014 of 31 December); Public Probity Law (law 16/2012 of 14 August); Anti-Corruption and Illegal Economic Association Law (law 6/2004 of 17 June); and Criminal Procedure Code (decree-law 16 489 of 19 March 1931), (collectively, "Anti-Bribery Legislation")

v. To the best of its knowledge, has been or is the subject of any investigation, inquiry or enforcement process by any governmental, administrative or regulatory body in connection to any infringement or alleged infringement under any anti-bribery law;

vi. Has been or is listed by any government agency as being excluded, suspended, proposed for suspension or exclusion, or otherwise ineligible for participation in government procurement programs or other government contracts.

d) During the term of this Agreement, the Supplier shall ensure that the people associated with it or other persons providing services or goods in line with this Agreement will:

i. Abide by all laws, regulations and policies regarding economic or trade sanctions or export controls of the Territory, the United States, the European Union, the United Kingdom and the United Nations ("Sanction Laws") and/or any Anti-Bribery Legislation to which the Supplier or its members are (as the case may be) subject, including those of any jurisdiction in which the Supplier performs its business;

ii. Abide by **XXXX** and its affiliated entities' Anti-Bribery and Corruption Policies (which will be made available by **XXXX** and its affiliated entities upon request), as **XXXX** and its affiliated entities may periodically update such policies ("Relevant Policies ");

iii. Not perform, or fail to perform, any act that causes **XXXX** and its affiliated entities to violate any Anti-Bribery Legislation or Relevant Policies; and

e) Have and maintain its own policies and procedures throughout the term of this Agreement to ensure compliance with Anti-Corruption Legislation and Relevant Policies; and apply such legislation and policies as necessary**."**

13. GOVERNING LAW AND SETTLEMENT OF DISPUTES

13.1. The laws of XXXXX govern this Contract.

13.2. The Parties agree to submit all disputes relating to this Contract to a Court of Arbitration comprising three arbitrators, one appointed by the Owner and the other by the Contractor. The third arbitrator shall be chosen by the two other arbitrators according to Rules of Arbitration of the International Chamber of Commerce.

13.3. The arbitration shall take place in London, England, in a place to be established by the arbitrators, with the amendments set forth in this Article;

a) The arbitrators appointed shall be independent from both parties and shall state that in writing. The language of the Arbitration shall be English.

b) In the event of the absence or incapacity of any of the arbitrators appointed by the Parties or if they decline or are unable to arbitrate the party which nominated the arbitrator should nominate a replacement within the period of 10 (ten) days.

c) The award shall be rendered within the maximum period of one (1) year counting from the date of appointment of the third (3rd) arbitrator, with the possibility of an extension of a further six (6) months.

14. MISCELLANEOUS

14.1. This Contract may not be orally amended or modified. Any alteration to the contents of this Contract shall only be valid if object of a written document signed by the legal representatives of both Parties, such document being considered as an Addendum to this Contract, of which it will become an integrant part.

14.2. If any provision of this Contract is or becomes invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions and of the Contract as a whole shall not in any way be thereby affected or impaired.

14.3. Notwithstanding the foregoing, the Parties hereby undertake to, in the extent possible, use their best endeavours with a view to agree and implement a solution to remedy or mitigate the effects of the referred illegality or unenforceability.

14.4. Except when expressly allowed in this Contract (in particular in Clause 41), neither Party is entitled to assign any rights totally or partially or claims under this Contract without the prior written consent of the other Party. Nevertheless, the Parties hereto will remain liable for all the obligations accepted herein.

14.5. All delays referred to in this Contract and Contractual Documents shall have the nature of a substantive delay (unless otherwise expressly stated), considering for such purposes all days elapsed, including weekends and public holidays.

14.6. This Contract is made in four (4) copies: two (2) in the Portuguese language and two (2) in English language, one copy in each language version for each party. In the event of discrepancies between the versions the English version shall prevail.

15. ANNEXURES

Annexure 1 – Proposal updated December 2019 provided by **CONTRACTOR**
Annexure 2 – Confidentiality agreement
Annexure 3 - Health and Safety Policy
Annexure 4 – Liability declaration

The Contracting Parties declared, on this day ____ January 2020 that they accept this Contract with all its Clauses, conditions, obligations and **Contractual Documents**, of which they have perfect knowledge and undertake to fulfil.

On behalf of **XXXX** Witness

_____ _____

On behalf of the **Contractor** Witness

_____ _____

Stamp duty paid by the **Contractors** by means of official document.

Appendix 7: Notes Taken During On-Line Interviews

Observation Objectives

- To establish the participant's familiarity with contractual arrangement and SME sustainability in the Oil and Gas Industry in South Africa

Basic Information

Name: R 01

Date of Interview: 04.05.2021

Location: Johannesburg Northern suburb

Male/Female: Male

Day/Night: still light, almost dark, 17.25hrs

Weekday/weekend: weekday

Holiday: Yes/ No

Demographics

a. Participant Work Experience

Company Respondent	**Work experience**
Respondent R01	Worked as Technical Director in various foreign contracting and consulting companies in various engineering projects in the industry in many countries. Worked for a multinational OAGC in three countries as the Project Engineering Manager. Worked at depots and oil refinery for the OAGC for 14 years before getting out and forming their own SME with a colleague 18 years ago.

b. More Demographics

Company unique ID	**Size No. of employees**	**SME Y/N**	**Functional Area**	**Age of Company Years**	**Position of Person interviewed**	**Years Participant in OAGI**

Participant

R01 was at home in his office during Covid 19 Pandemic. He was dressed in casual clothes and relaxed. He gave an impression of a happy and relaxed man, though concerned about the pandemic. He sounds polite and well-travelled and was particularly welcoming to my taking his time to discuss SME sustainability.

Interview

The Participant was happy to be taking part in the interview. He felt that he had got a chance to voice his concerns with how contracts are run between SMEs and OAGCs. He seems relaxed and in control of his feelings and emotions. He also went through the questions before the interview and is well prepared. He has many pictures of his family all over his home office and is happily sipping tea.

Knowledge and Experience:

The Participant seems knowledgeable on the subject matter and is willing to provide deep insights into how contracts are formed and managed between SMEs and OAGCs. He is aware of the use and application of sustainability in this industry and knows the sustainability strategies that have been implemented in this supply chain. Participant is particularly clued about technology and excite about the electric cars. He is also very knowledgeable about renewable energy and greening programmes implemented not only locally, but internationally.

He is quite aware of what is going on in the OAGI as well as the role of government in assisting SMEs. For example, when asked about the role of government in this industry, he said: “Eh, It’s interesting, because I think more than ten years ago, the government came up with a charter for the Oil and Gas industry. One of the key elements there was to drive transformation and create opportunities for small and medium enterprises. So, the specific charter for the Petroleum industry exists. Coupled with that there has been an iteration of Broad-Based Economic Empowerment policies that have been enacted, and in theory this should all mean that opportunities are there and that we should, we should flourish and grow. Sadly, the policies remain just being theoretical. We have not derived any, any benefit from this. We feel one of the reasons for this is the inability of the government authorities to enforce or to monitor whether these charter requirements and BBEE imperatives are in fact being followed. In some cases, the foreign contractors with better and more technologically advanced equipment and skilled personnel have been able to win contracts at the expense of local participants. The other thing which we are had first-hand experience is, we used to undertake work for a certain multinational but have not done so for some

time since the parent company signed a global contract. So, they signed a contract with two or three contractors, and we find they have now taken up this space from us".

Critical reflection

The Participant had mixed feelings about the effect of technology on SME sustainability. He believed that technological developments are good, and work is done quicker and more efficiently when the technology is improved. Contrary to the above, he also felt that given the problems faced by SMEs in getting funding to purchase equipment, newer technology will result in these SMEs using obsolete equipment and technology and getting them out of this industry as SMEs struggle to finance new equipment (cash flow problems).

In addition, the participant was particularly concerned about skills in the industry. He felt that SMEs lacked skilled at the engineer and artisan levels because these are porched from SMEs by OAGCs who offer more remuneration and better working conditions compared to SMES. He also felt that the OAGCs talk a lot about sustainability, but do not assist SMEs become sustainable.

The researcher "s biases were on the poor assistance government offers to SMEs, but from the respondents responses, it looks like government has done a lot in assisting SMEs by introducing banks and special funding for start-up SMEs. The only drawback is government poor monitoring of LC initiatives. The researcher now has changed their feelings and biases about this issue.

Appendix 8: Key Research Themes

Appendix 9: Representative Extract of Emerging Themes during Coding

Table A: Data Supporting the Theme "What is Contractual Arrangement"

Initial Concept	Representative Quotations
Agreement between client andSME-Legally binding document	…"There is the owner of the project who is going to contract me to do his project. And if we agree on the contractual agreement, we sign a contract agreement which prescribes what I'm going to deliver – we'll call them the deliverables - between the contractor and the owner of the project. In this case, I'll call them the client. …"(R04) ". would then have a contract with, you know, let's say, Company X, and that contract would be valid for let's say, three years, or two years, or one year, you know, depending on what the contract says."(R13) …" that's the agreement between the contractors and the, uh, company that is offering that contractor a job to do..." (R17)
Terms of the contract for SME tosupply services and goods to client	…" A spot contract is where a scope of work is given, tenders or quotations are sought, andthen a purchase order is given. Ideally it would just be for a once-off thing."(R21) …"The written contracts outlining, err the relationship between er, ourselves as contractor andthe oil and gas clients" (R01). 1.6 '…."A means of gaining a common understanding of how two parties are going to interact with each other (R19)
Conditions, responsibilities and rights of the parties involved in a service agreement	..." Normally there is a formal process of request of either the service or product, and then companies are then invited to either tender or to provide proposals or quotations. And through the negotiation process, following the procurement policy, whoever has been the successful service provider is then appointed and a contract is then formed between the company and that service provider. So, the whole process is done under the guidelines of the procurement policy. " (R14) …" The content of the contract. The liabilities, responsibilities, uh, you know, payment clauses,delay clauses, scope of work, uh, resources, logistics, an overview of the whole project. And it's basically a legal document once it's signed and the purchase order is, uh, you know, obviously secured." (R06
Legally binding document	"Then once we identify that regular person we go and sign a contract, which is a legally bindingdocument…(R20) " a legally binding document that determines how you will provide the goods or the services.You need to have a document in place,

	which is a contract, which now spells out whatwill happen during the course of provision of the services or the goods.(R11) 1.11 …" It governs the relationship between a franchisor, in this case it will an oil company, and a franchisee, in this case it will be us the SME. (R12)

Table B: Data Supporting the Theme "Corruption is Rife"

Initial Concept	Representative Quotations
Corruption in government departments	5.1" There has been a lot of apprehension, a lot of corruption around in the sense that sometimes a company is registered today and tomorrow they have a big contract. (R03) " When the client is a government parastatal, sometimes it is a bit difficult there, fulfillingthe eh, usual requirements of demonstrating technical competence sometimes surprisinglydoes not win you the work, even if you were the best suited candidate technically(R01) " a person's looking for something before they can give your business. And the policy ofour company is we don't bribe for any business. Its either we get the business, orwe don't get the business.(R10) " So, for you to obtain licenses from government, you do have corruption that takes place. For those in other sectors of the industry, maybe you require land to buildfilling stations and you have to deal with city officials, there's corruption (R02)
Negative effects of Corruption	5.1" corruption actually is the biggest enemy I think for any business. You may think that you're taking shortcuts or you're doing things a shorter way without going the proper way, but the repercussions of being involved in corruption, they're actuallytoo huge (R16)
	" Because once they hear that you are actually corrupt, it means that they think that whatever you do, or even the monies that you're getting, maybe it's dirty money and no one wants to be associated with anything that's dirty. So rather be ethical,be able to do everything above board and also comply with the government without having to bribe any government officials to get your jobs done.(R17) " But at the same time, it also has got a potential to compromise on the quality of delivery.But the challenge that I've noticed, is that some of these issues happen behind scenes. " these kind of things have tarnished the name; they have spoiled everything to a pointthat there is a lot of suspicion in the system.(R03) " Hm, you know what, there's like a person that can register a company today, get all thedocumentation maybe ready tomorrow. That person can tender and get a tenderthat maybe needed a person

	who's got five years' experience, but that person doesn't have experience, he didn't even do any work, one job, but then they can get a contract because they've got their connections. So, because we don't haveconnections, we are not politicians, and we don't pay bribes, then we don't get allof those things.(R10) 5.6 …' get a big job, but they have to pay some other person, a big chunk of that moneyand then what remains might not even be enough to get the actually get a proper job done.(R03) 5.7." At least you have got standards to adhere to and maintain those standards. Once youmaintain those standards, it's not very expensive, but you get corrupt, it's very expensive. (R17)
Ways to try and reduce Corruption	" We have got, in this country, the Anti-Corruption Bureau, and other government machinery that deals with corruption, including the police service. (R20) " person's looking for something before they can give your business. And the policy of our company is we don't bribe for any business. Its either we get the business, orwe don't get the business.(R10)

Appendix 10: SME Classification

Type of Firm	Size or Class of Enterprise	Total Full - time equivalent paid employees	Total Annual Turnover R
	Medium	51-250	</=180million
	Small	11-50	</= 60 million
	Micro	0-10	</= 10million

Source: adopted from Government Gazette - South Africa (2021)

Appendix 11 – Example of a Node and Sub- Nodes In Nvivo

	Conflict resolution	2	5
CORRUPTION		20	102
Bribery		2	2
Corruption in government departments	present but not able to prove	12	29
Other		18	66
FINANCES		20	165
cash flow		18	32
delayed payments		13	32
deposit payment upfront		8	14
Funding Problems		15	26
No financial concessions for SMEs		10	15
order financing		3	5
payment terms		11	23
poor financial management		10	15

Price fixed		1	2
GOVERNMENT ROLE		20	110
acknowledgement of skills gap		2	2
BEE		17	33
enacting of industry policies		9	15
Government policies monitoring	Petroleum charter, BEE	11	17
support of SMEs		18	43